Issues Scoping Report

George Street, Port Stanley

Prepared for:
Wastell Homes
5-1895 Blue Heron Drive
London ON
N6H 5L9

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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Issues Scoping Report
George Street, Port Stanley

Project Team:

David Stephenson	Senior Biologist, Project Advisor
Nyssa Hardie	Stream Corridor & Environmental Analyst
Jeremy Bannon	Terrestrial & Wetland Biologist
Laura Hockley	GIS Analyst

Report submitted on December 23, 2016

Nyssa Hardie
Project Manager
Stream Corridor & Environmental Analyst

225 Labrador Drive, Unit 1, Waterloo, Ontario, N2K 4M8 **Tel:** (519) 725-2227 **Web:** www.nrsi.on.ca **Email:** info@nrsi.on.ca

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1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Wastell Homes in July 2016 to complete an Issues Scoping Report (ISR) and Species at Risk (SAR) screening for a proposed residential development on George Street in Port Stanley, Ontario. The property is located approximately 500m from the Lake Erie shoreline and consists of an agricultural field, woodlands, and a municipal drain (Not Rated) in the Kettle Creek Watershed.

The Municipality of Central Elgin (Central Elgin) requires that all new development applications include an ISR and SAR Screening to assess the significance of existing natural heritage features and their functions. For the George Street property, natural heritage features within the study area include woodlands, a municipal drain (Not Rated), and Natural Hazard Lands, according to the Central Elgin Official Plan (CEOP) (2013).

This report summarizes background information on natural heritage features, the proposed undertaking, provides a preliminary assessment of the significance, sensitivity and function of natural features within the study area, and addresses potential cumulative effects on natural features as a result of the proposed undertaking. This ISR and SAR screening have been prepared in accordance with the Elgin County Official Plan (ECOP) and the CEOP.

The subject property, approximately 23.6ha in area, is generally bounded by the Kettle Creek Golf and Country Club to the north, two brownfield sites and Carlow Road (County Road 20) to the east, George Street to the south, and Spring Street to the west (Map 1). A dirt driveway is present in the southwest corner of the subject property, as well as a culvert under a grassed laneway along the western boundary. The majority of the property is characterized by agricultural fields with a wooded area present along the western edge of the property and a wooded ‘peninsula’ that juts out from the eastern boundary towards the center of the subject property. The subject property is located within Ecoregion 7E.

For the purpose of this report, the term “subject property” refers to the lands owned by the proponent including the area where the development is proposed to occur. The term “study area” refers to the subject property plus the surrounding area (approximately 120m) for which additional information was collected and reviewed (as could be gathered without direct access to these areas). Legacy data collected from agencies and wildlife atlases encompassed an area of approximately 1km around the property to ensure that all surrounding natural features were considered.

1.1 Proposed Undertaking

Wastell Homes is proposing a residential development within the subject property that will include both single family and multi-family units. An outdoor hospitality park is proposed for the northeast corner of the subject property. Several locations are under review for the stormwater management facilities for this development.

2.0 Background Review

In order to determine a study approach and prepare the ISR, existing natural heritage information was first gathered and reviewed to identify key natural heritage features and species that are known or have potential to occur within the study area. Background information on the natural environmental features within the study area was gathered from Natural Heritage Information Centre (NHIC) database, various wildlife atlases, relevant taxa-specific databases, and through background information requests sent to the Ministry of Natural Resources and Forestry (MNRF), Kettle Creek Conservation Authority (KCCA), and the Municipality of Central Elgin.

Initial wildlife species lists were compiled to provide information on species reported from the vicinity of the study area using wildlife atlases including the Ontario Breeding Bird Atlas (Bird Studies Canada *et al*. 2008), Ontario Reptile and Amphibian Atlas (Ontario Nature 2015), the Ontario Mammal Atlas (Dobbyn 1994) and the Ontario Butterfly Atlas (Jones et al. 2013). In addition, the Natural Heritage Information Centre database was queried. These initial species lists were used to prepare the SAR and Significant Wildlife Habitat screenings.

Based on these initial species lists, a total of 19 Species at Risk (SAR) and 30 species of Conservation Concern were identified as having records from within the vicinity of study area. SAR are those species listed on the Species at Risk in Ontario List (MNRF 2016). These include species identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) as provincially Endangered, Threatened, or Special Concern. Species listed as Endangered or Threatened are protected by the Endangered Species Act, 2007, which includes protection of their habitat.

Species considered Special Concern are included in the definition of Species of Conservation Concern, which includes the following:

- species designated provincially as Special Concern,
- species that have been assigned a conservation status (S-Rank) of S1 to S3 or SH by the Natural Heritage Information Centre, and
- species that are designated federally as Threatened or Endangered by the Committee for the Status of Endangered Wildlife in Canada (COSEWIC) but not

provincially by the COSSARO. These species are protected by the federal Species at Risk Act but not provincially by the Endangered Species Act.

Species of Conservation Concern are discussed further within the context of Significant Wildlife Habitat (SWH).

2.1 Species at Risk Screening

A preliminary screening exercise was conducted to identify species that have suitable habitat within the study area. This involved cross-referencing the preferred habitat for reported SAR (OMNR 2000) against habitats known to occur on the subject property or adjacent lands. This was completed to ensure that the potential presence of all SAR and species of Conservation Concern within the study area was adequately assessed.

Potential suitable habitat is present for the following 8 regulated SAR species:

- Butternut (*Juglans cinerea*
- Northern Bobwhite (*Colinus virginianus*),
- Wood Thrush (*Hylocichla* mustelina),
- Yellow-breasted Chat (*Icteria virens*)
- Red-headed Woodpecker (*Melanerpes erythrocephalus*),
- Eastern Meadowlark (*Sturnella magna*)
- Little Brown Myotis (*Myotis* lucifugus), and
- American Badger (*Taxidea taxus jacksoni*)

Full results of the SAR screening exercise are provided in Appendix I.

2.2 Significant Wildlife Habitat Screening

A preliminary screening for the presence of SWH was also completed for the study area (Appendix II). The Significant Wildlife Habitat Technical Guide (SWHTG) is a guideline document that outlines the types of habitats that the MNRF considers significant in Ontario as well as criteria to identify these habitats (OMNR 2000, MNRF 2015). The SWHTG groups SWH into five broad categories: seasonal concentration areas, rare vegetation communities and specialized wildlife habitat, habitats of species of Conservation Concern, and animal movement corridors. A preliminary screening exercise was undertaken and is discussed in the Significance, Sensitivity and Function

section of this report. Full results of the preliminary SWH screening are provided in Appendix II.

2.3 Relevant Policies and Legislation

For the purpose of this ISR, background information on the natural heritage features within the subject property was collected and assessed for significance. To help inform suitable land-use concepts, guide the layout of development, and identify areas to be protected, these features are evaluated against the following relevant policies, legislation, and planning studies in Section 4.

2.4 Provincial Policy Statement

The Provincial Policy Statement (PPS) (OMMAH 2014) is issued under the authority of Section 3 of the Planning Act and came into effect on April 30, 2014, replacing the 2005 PPS. Section 3 requires that decisions affecting planning matters shall be consistent with policy statements under the Act. Section 4.4 of the PPS establishes that the PPS is to be read in its entirety and all relevant policies are to be applied to each situation. In this context, Section 2.1 of the PPS – Natural Heritage, establishes clear direction on the adoption of an ecosystem approach and the protection of resources that have been identified as 'significant.' These features are broadly defined within the PPS and rely on the MNRF and the municipality to identify and delineate specific natural features. The Natural Heritage Reference Manual (NHRM) (OMNR 2010) and the SWHTG (OMNR 2000, OMNR 2015) were prepared by the MNRF to provide guidance on identifying natural features and in interpreting the Natural Heritage sections of the PPS. Within the subject property this includes candidate SWH, potential fish habitat, and potential habitat for Endangered or Threatened species. Each of these features is discussed below.

Section 2.1.5.of the PPS states that development or site alteration shall not be permitted in Significant Wildlife Habitat or other types of significant habitat unless it has been demonstrated that there will be no negative impacts on the features or their ecological functions.

Section 2.1.6.of the PPS states that development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

Section 2.1.7 of the PPS states that development or site alteration shall not be permitted in habitat of Endangered or Threatened species except in accordance with provincial or federal requirements.

In all cases, development and/or site alteration is not permitted under the PPS on adjacent lands to the natural heritage features and areas identified in policies 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 (OMMAH 2014).

The Natural Heritage Reference Manual (OMNR 2010) provides technical guidance for implementing the natural heritage policies of the PPS. Although the NHRM was based on the 2005 PPS, its guidance may be applied to the 2014 PPS. The manual represents the province's recommended technical criteria and guidance for identifying and protecting significant natural features as defined in the PPS.

SWHs have the potential to occur within the subject property, and such habitats are protected from development under the PPS (OMMAH 2014). In addition, numerous Species at Risk are reported to occur within the study area and are protected under the Endangered Species Act (ESA) (2007).

The SWHTG was prepared to assist planning authorities and other participants in the land use planning system (OMNR 2000). The SWHTG is a detailed technical manual that provides information on the identification, description, and prioritization of SWH. The manual is intended for use in the municipal policy and development process under the Planning Act. An addendum to the SWHTG provides further detail on characterizing and identifying Significant Wildlife Habitat in Ecoregion 7E (OMNR 2015b).

2.5 Endangered Species Act

The original ESA, written in 1971, underwent a year-long review that resulted in a number of changes, which came into force in 2007. There is now a much stronger emphasis on science-based review and assessment of species that is completed by an

independent body named The Committee on the Status of Species at Risk in Ontario (COSSARO). Species designated as Threatened or Endangered receive legal protection under the ESA and their habitats are protected generally under the Act (i.e. areas essential for breeding, rearing, feeding, hibernation and migration). The ESA (Subsection 9(1)) states that:

"No person shall,

(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,

(ii) any part of a living or dead member of a species referred to in subclause (i),

(iii) anything derived from a living or dead member of a species referred to in subclause (i); or

(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).

Clause 10(1)(a) of the ESA states that:

"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species"

In order to balance social and economic considerations with protection and recovery goals, the ESA also enables the MNRF to issue permits or enter into agreements with proponents in order to authorize activities that would otherwise be prohibited by subsections 9(1) or 10(1) of the Act provided the legal requirements of the Act are met.

2.6 Canadian Fisheries Act, 1985

The Canadian Fisheries Act, 1985 provides provisions for the protection of fish and fish habitat. In 2012, changes were made to the Fisheries Act to enhance the ability of Fisheries and Oceans Canada (DFO) to manage threats to the sustainability and productivity of Canada's commercial, recreational and Aboriginal fisheries.

The principle provision, Section 35 (1) states that no person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery.

Under the Act, Section 2 (2), “serious harm to fish”, is defined as the death of fish or any permanent alteration to, or destruction of, fish habitat.

Another important provision, Section 36 (3) states that no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

These two provisions and the other habitat protection and pollution prevention sections of the Fisheries Act are meant to conserve and protect fish habitat.

DFO has developed the Fisheries Protection Policy Statement which came into effect November 25, 2013. It applies to proponents of existing or proposed works, undertakings or activities that are likely to result in impacts to fish or fish habitat that are part of or support commercial, recreational or Aboriginal fisheries. It was prepared by DFO to explain the fisheries protection provisions of the Fisheries Act and to outline how they will implement these provisions. DFO has also developed an online, self-assessment tool, where proponents can determine whether their projects require DFO review based on the type of water body the work is occurring in and the nature of the proposed activity. These tools are available to assist proponents through the DFO screening and review process.

2.7 Ontario Drainage Act, 1990

The Ontario Drainage Act provides legislation and policies for the creation, maintenance, and repair of municipal drains in Ontario. DFO developed a Municipal Drain Classification System that provides a balance between the Federal Fisheries Act and the Ontario Drainage Act and simplifies the review and approval process for drain

maintenance activities on fish habitat (Lamoureaux, date unknown). The DFO Classification system identifies 7 types of drains based on the flow regime (i.e. permanent or intermittent), thermal regime (warm, cool/cold water), and the presence of sensitive aquatic species. The municipal drain within the subject property has been identified as Not Rated by the KCCA indicating the limited to no information is available on the feature. Under the Ontario Drainage Act, improvement, maintenance, and repair activities are reviewed by a drainage engineer and authorized by the municipality. Any works proposed for the municipal drain within the subject property will require approval and permits from the Municipality of Central Elgin.

2.8 Migratory Birds Convention Act, 2013

The federal Migratory Birds Convention Act (MBCA) is applied through The Regulations Respecting the Protection of Migratory Birds that states that *"[…] no person shall disturb, destroy or take a nest, egg […] of a migratory bird.*" This law protects migratory game birds, insectivorous birds, and several other migratory non-game birds. Bird nests that are destroyed during the course of construction and other related activities are referred to as "incidental take" and this is illegal except under the authority of a permit obtained through the Canadian Wildlife Service.

Implications of the Migratory Birds Convention Act have potential to occur during site preparation and/or the construction phase of the project when the subject property is cleared and grubbed of vegetation, stockpiles are moved or altered, buildings are demolished, etc. The schedule of actual on-site work must consider the general nesting periods of migratory birds in Canada (Environment Canada 2016). The timing of the peak migratory bird breeding season in southern Ontario is between May 1 and July 31, although this is a general guideline since the Act applies to nesting at any time of the year. This legislation is applicable and should be considered if any formal Development Applications are filed in the future or in the context of any type of site alteration that has the potential to impact birds or their nests.

2.9 Fish and Wildlife Conservation Act, 1997

The provincial Fish and Wildlife Conservation Act contains provisions for the protection of certain bird species not protected by the Migratory Birds Convention Act such as raptors. It also protects furbearing mammals and their den or habitual dwellings, other

than for red fox (*Vulpes vulpes*) and striped skunk (*Mephitis mephitis*). Several furbearers are known from the project area and their dens cannot be destroyed without a permit from the MNRF.

2.10 Elgin County Official Plan

The Elgin County Official Plan (ECOP) came into effect October 9, 2013 and outlines goals, objectives, and strategies for land use planning within the county. The ECOP also identifies objectives and policies for the Natural Heritage System (NHS), water resources, and natural hazards. Details for the preparation of an Environmental Impact Study (EIS) are provided in the Natural Heritage section of the Official Plan. The County of Elgin has not yet completed a Natural Heritage System study

The County of Elgin considers woodlands greater than 10ha to be significant. Woodlands between 2 and 10ha are also significant if they are located within 30m of the boundary of a significant natural heritage feature (e.g. significant wetland, significant valleyland, fish habitat and/or watercourse). The ECOP also considers all watercourses in the County to be environmentally significant

2.11 Municipality of Central Elgin Official Plan

The Municipality of Central Elgin Official Plan (CEOP) came into effect on Feb 21, 2012, and includes specific policies for the protection of natural features within the Municipality and area specific policies for each town and hamlet within its jurisdiction. This includes policies on the natural heritage system, woodlands, fish habitat, wildlife habitat, SAR, adjacent lands, and other features such as natural hazard lands. Area specific mapping of the Natural Heritage System, watercourses and Natural Hazard Lands are provided in the Official Plan, with Port Stanley covered under Schedule G. The CEOP identifies the need for an ISR and SAR screening that assess the subject property using background information and identifies potential effects on natural heritage features within the development area and adjacent lands. A recommendation is provided within the ISR for a full or scoped EIS. Through the ISR and EIS process, buffers are to be identified, SWH is to be confirmed and mapped, the details of tree removal and compensation are to be outlined, and impacts to the features and adjacent lands are to be identified. The CEOP outlines information that is required as part of the EIS. This ISR was prepared in accordance with the CEOP policies.

A terms of reference for a scoped EIS is provided in Appendix III of this report, which details field investigations that are required to address the potential impacts, wildlife habitat and natural features within and adjacent to the proposed development.

Based on the woodland policies provided in the Official Plan, the woodland on the west side of the subject property is significant as it is greater than 2ha in area. The woodland on the east side of the subject property is not considered significant based on the size criteria.

2.12 Development, Interference with Wetlands and Alterations to Shorelines and Watercourses' Ontario Regulation 181/06

KCCA regulates a small watershed in southern Ontario, which falls under the Ontario Regulation 97/04 (Generic Regulation). Ontario Regulation 181/06 applies specifically to the KCCA and was approved in 2006 under 97/04. Both regulations are consistent with the PPS (2014) policies to manage resources in a sustainable way and protect public health and safety. The KCCA regulates natural features and activities that include development and activities in river or stream valleys, Great Lakes and large inland lakes' shorelines, hazardous lands and wetlands. The subject property includes natural features and lands that are regulated by the KCCA. A permit is required where development or site alteration occurs within, or adjacent to regulated areas.

2.13 Elgin County Woodlands Conservation By-Law 05-03

The Elgin County Woodlands Conservation By-law came into effect in 2005, and outlines policies for the protection and proper management of trees and woodlands in the County. The by-law states that no person, through their own actions or through any other person's actions, shall harvest, destroy, or injure any living tree unless the person who is harvesting, destroying, or injuring trees has done so in accordance with Good Forestry practices and within the Circumference Limit.

Proposed changes to by-law were submitted March 29, 2016 and are currently under review. These changes include:

- The submission of an Application to Harvest, Destroy or Injure Trees on Slopes
- Additional information including a geotechnical report and an arborist report to help identify and mitigate any slope stability concerns

Review of these documents would be undertaken by the Municipality of Central Elgin. Exemptions provided in the existing Woodlands Conservation by-law 05-03 and Municipal Act, 2001, remain unchanged by the proposed amendment. The subject property includes areas of sloped woodland. As such, any tree removal on or near the sloped areas may require a permit from Elgin County under by-law 05-03 if the amendment is approved.

3.0 Environmental Characterization

A preliminary site investigation was undertaken by NRSI on September 12, 2016 that included a fall vegetation inventory, vegetation community mapping using the Ecological Land Classification (ELC) system (Lee 2008) and an aquatic habitat assessment of the municipal drain. The site investigation was conducted to identify natural features that may be impacted by the proposed development, as well as to gather general information about the subject property.

Map 1 illustrates the approximate subject property boundaries as well as mapped natural heritage features, based on the Land Information Ontario (LIO) mapping database. According to the information from Map 1, as well as mapping available in the ECOP and CEOP, the subject property contains portions of 2 woodlands, a permanent watercourse, an intermittent watercourse, and natural hazard lands. Vegetation communities within the subject property are shown on Map 2.

3.1 Vegetation Communities

During the preliminary site visit, the subject property was characterized using Ecological Land Classification (ELC) mapping (Lee 2008). The majority of the subject property consists of an agricultural field, and portions of 1 Significant Woodland and 1 other woodland. A summary of ELC communities identified within the subject property is provided in Table 1. ELC communities are described below in detail and shown on Map 2.

Table 1. Vegetation Communities Identified within the Subject Property

Cultural	
Ag	Agricultural Row Crop
CUM	Cultural Meadow
CUT1	Dry - Fresh Deciduous Shrub Thicket Ecosite
CUT1-1	Sumac Cultural Thicket
Deciduous Forest	
FOD5-2	Dry – Fresh Sugar Maple – Beech Deciduous Forest Type
FOD7	Fresh – Moist Lowland Deciduous Forest Ecosite
FOD7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type
Hedgerow	
H	Hedgerow

Agricultural Row Crop (AG)

This community was not in rotation during the site investigation but has since been planted with winter wheat It consists of several herbicide-tolerant species including lamb's quarters (*Chenopodium album* var. *album*), Russian pigweed (*Axyris amaranthoides*), and velvetleaf (*Abutilon theophrasti*). Large areas of bare soil are present within this community.

Cultural Meadow (CUM)

Weedy and invasive species characterize this small Cultural Meadow community, including Tall goldenrod (*Solidago altissima var. altissima*), (Canada thistle (*Cirsium arvense*), common dandelion (*Taraxacum officinale*), and lamb's quarters.

Mineral Cultural Thicket Ecosite (CUT1)

This community is located in the northeast corner of the subject property and extends off site surrounding the eastern extent of the FOD7-2 community. The most abundant species within the community are European buckthorn and gray dogwood (*Cornus foemina* ssp. *racemose*). The ground layer consists largely of tall goldenrod and garlic mustard (*Alliaria petiolata*).

Sumac Cultural Thicket (CUT1-1)

This cultural community occurs in 2 locations within the subject property: at the highest point of land in the northwest corner, and in the southwest corner adjacent to the CUM community. The most abundant species within the community is staghorn sumac (*Rhus hirta*), red raspberry (*Rubus idaeus ssp. idaeus*), and Alleghany blackberry (*Rubus allegheniensis*). The ground layer consists largely of tall goldenrod and field horsetail.

Dry-Fresh Sugar Maple – Beech Deciduous Forest Type (FOD5-2)

The upper portion of the steep slope contains a Sugar Maple Beech forest. This forest canopy and sub-canopy contains abundant sugar maple (*Acer saccharum ssp. saccharum*), American beech (*Fagus grandifolia*) and white ash (*Fraxinus americana*). The understory includes tartarian honeysuckle (*Lonicera tartarica*)

and multiflora rose (*Rosa multiflora*). The ground layer includes white avens (*Geum canadense*) and spinulose wood fern (*Dryopteris carthusiana*).

Fresh-Moist Lowland Deciduous Forest Ecosite (FOD7)

The lower portion of the steep slope contains a Lowland Deciduous Forest. This forest canopy contains black walnut (*Juglans nigra*), black locust (*Robinia pseudo-acacia*), and sugar maple. The understory includes tartarian honeysuckle, multiflora rose and alternate-leaved dogwood (*Cornus alternifolia*). The ground layer includes Canada goldenrod (*Solidago canadensis*), garlic mustard, and ostrich fern (*Matteuccia struthiopteris var. pensylvanica*).

Fresh-Moist Ash – Lowland Deciduous Forest Type (FOD7-2)

This community is present on the eastern portion of the subject property on a north- and west-facing slope. The canopy and sub-canopy contains green ash (*Fraxinus pennsylvanica)*, eastern cottonwood (*Populus deltoides*), and large-tooth aspen (*Populus grandidentata*). The understory consists of alternate-leaved dogwood and European buckthorn (*Rhamnus cathartica*). The ground layer includes wood nettle (*Laportea canadensis*), tall goldenrod, and tickseed sunflower (*Bidens polylepis*). This community extends east of the subject property and is surrounded by a CUT1 community on the east. Emerald Ash Borer is confirmed to be present within this community, and the majority of ash are showing signs of decline. Areas where the canopy has opened contain dense colonies of European buckthorn, indicating that this community may become dominated by this species following the decline of the dominant ash canopy. The northwestern edge of this community contains a few older maples that are independent from the rest of the FOD7-2 community.

Hedgerow (H)

The hedgerow community is situated on either side of the drain and extends to the toe of the steep slope. It continues along the northern property boundary between the agricultural field and the Kettle Creek Golf and Country Club. This community has a very large diversity of species, with no dominant species in any particular layer. The canopy and sub-canopy includes black walnut, crack willow (*Salix fragilis*), and eastern cottonwood. The understory includes multiflora rose

and red osier dogwood (*Cornus stolonifera*). The ground layer includes tall goldenrod, coltsfoot (*Tussilago farfara*) and common ragweed (*Ambrosia artemisiifolia*).

Additional vegetation communities were noted to the east of the subject property during an investigation of the eastern woodland and were assessed from the property line in as much detail as possible. These communities include Mineral Cultural Thicket (CUT1), Gray Dogwood Cultural Thicket (CUT1-4), Coniferous Plantation (CUP3) and White Pine Coniferous Plantation (CUP3-2). A description of each of these communities is provided below.

Mineral Cultural Thicket Ecosite (CUT1)

This community is located in the northeast corner of the subject property and extends off site surrounding the eastern extent of the FOD7-2 community. The most abundant species within the community are European buckthorn and gray dogwood (*Cornus foemina* ssp. *racemose*). The ground layer consists largely of tall goldenrod and garlic mustard.

Gray Dogwood Cultural Thicket (CUT1-4)

Located entirely off site and to the east of the FOD7-2 community, this gray dogwood thicket extends along the height of the slope. Largely open in areas, with denser areas of gray dogwood, silky dogwood (*Cornus amomum* ssp. *obliqua*) and occasionally Canada soapberry (*Shepherdia canadensis*). The ground layer consists largely of flat-topped bushy goldenrod (*Euthamia graminifolia*) and Canada goldenrod.

Coniferous Plantation (CUP3)

This community is located near the northeast corner of the subject property adjacent to an area of Gray Dogwood Cultural Thicket and includes eastern tamarack (*Larix laricina*) and white pine (*Pinus strobus*). Understory and ground-cover species could not be observed.

White Pine Coniferous Plantation Type (CUP3-2)

This community is present east of the golf course, north of a Mineral Cultural Thicket area, and was observed from the property boundary. Understory and ground-cover species could not be observed.

3.2 Vascular Flora

Background information from the Natural Heritage Information Centre (NHIC) database indicates that 14 significant plant species are reported from within 1km of the study area. The SAR screening (Appendix I) identifies that suitable habitat for 5 of these species may be present within the subject property. These species, their current status ranks, and preferred habitats are available in Appendix I. Additional field surveys may be required to confirm the presence of significant plant species within the subject property.

3.3 Aquatic Habitat

Base mapping (MNRF 2011) identified the presence of a permanent watercourse and an intermittent watercourse within the subject property. According to the Municipality of Central Elgin's consultant, R.J. Burnside, the permanent watercourse within the subject property is a Class A municipal drain. However more recent information provided by KCCA as part of a background review request indicated that the municipal drain is classified as Not Rated This drain has not been identified or mapped by the Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA). The 'Not Rated' classification indicates that data is not available to classify the feature. The intermittent watercourse is shown in the northwest corner of the subject property extending down the slope to the municipal drain (Map 1)

The municipal drain generally flows from southwest to northeast, running along the edge of the western woodland towards the northern boundary of the study area. The drain bends 35 degrees and runs east between the agricultural field and the Kettle Creek Golf and Country Club.

An aquatic habitat assessment was conducted during the preliminary site visit on September 12, 2016. Fish were observed upstream of the subject property in a short section of channel between 2 culverts on the west side of the grassed laneway (see Map 3). The species could not be identified from the shore. Downstream of the grassed

laneway and through the subject property no fish were observed and limited aquatic habitat is present. The upstream half of the is undergoing erosion and bank scour as a result of low density vegetation on the banks and a blockage within the channel consisting of 2 large sections of a downed tree. The downstream portion of the channel contains dense vegetation and the channel appears to be more stable. The channel bed consists of sands and silt with limited amount of pebbles and cobbles. During the aquatic habitat assessment, water temperatures were taken at various locations along the drain within the subject property. Although temperatures were not taken during the time of year when thermal regime can be identified, the temperatures were indicative of a cool or coldwater system.

3.4 Natural Hazard Lands

Schedule G2 of the CEOP identifies Natural Hazards within the Community of Port Stanley. This map indicates that flood fringe for Kettle Creek is located within the subject property along the length of the municipal drain. The CEOP Schedule G indicates that the western significant woodland includes Natural Hazard Lands, a portion of which extends north of the woodland in the northwest corner of the subject property. The Natural Hazard Lands consist of an area of slope that is being investigated by a geotechnical engineer.

3.5 Significance, Sensitivity and Function

3.5.1 Woodlands

According to the ECOP and CEOP the western woodland within the subject property is significant. During the preliminary site investigation, this woodland was mapped using ELC (see Map 2). The western woodland is considered significant by the ECOP as it is part of a contiguous 39ha woodland. Any woodland greater than 10ha is considered significant under the ECOP. The CEOP states that woodlands greater than 2ha within the municipality of Central Elgin are significant due to the general lack of wooded area in the municipality. The eastern woodland is not significant as it is 1.59ha in area.

3.5.2 Significant Wildlife Habitat

Based on the results of a comprehensive background review, desktop analysis, and a preliminary site visit 9 candidate SWH types were identified within the study area. Field surveys are required to confirm or dismiss the candidate SWH types. A Terms of Reference for a scoped EIS is provided in Appendix III, which includes surveys to assess the candidate SWH types identified. The candidate SWH types identified during the screening process include:

- Raptor Wintering Areas
- Bat maternity Colonies
- Landbird Migration Stopover Areas
- Deer Winter Congregation Areas
- Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat
- Woodland Raptor Nesting Habitat
- Seeps and Springs
- Special Concern and Rare Wildlife Species, and
- Bat Migratory Stopover Area

Background information requests have been submitted to the MNRF, KCCA, and Municipality of Central Elgin. Available information will be incorporated into further assessment of the above listed SWH types as part of the Scoped EIS.

3.5.3 Habitat for Species of Conservation Concern

Based on background information collected from the various wildlife atlases, 30 species of Conservation Concern were reported from the vicinity of the study area. Candidate habitat for 17 of these species was identified within the subject property by comparing the results of preliminary vegetation community mapping to the habitat requirements for each of these species outlined in the SWHTG (OMNR 2000 Appendix G). The EIS Terms of Reference (Appendix III) includes surveys to confirm the presence of the SCC species identified.

3.6 Habitat of Endangered and Threatened Species

Based on background information collected from the various wildlife atlases, 19 Endangered and Threatened species are reported from the vicinity of the study area. Potential habitat for 8 of these species was identified within the subject property by

comparing the results of preliminary vegetation community mapping to the habitat requirements for each of these species outlined in the SWHTG (OMNR 2000 Appendix G). The EIS Terms of Reference (Appendix III) provides details on field surveys that will be conducted to confirm the presence of these species.

3.7 Aquatic Habitat

Based on an aquatic habitat assessment of the municipal drain on September 12, 2016, the drain contains poor quality habitat for aquatic species. There are some undercut banks along the length of the drain due to bank erosion, woody debris jams, and other obstructions. Overhanging vegetation is present through the downstream half of the drain; however this section is currently under review for a drain clean out, which will likely remove the vegetation. Based on water temperatures taken during the site investigation, the municipal drain may be a cool or coldwater feature. The presence of fish upstream of the subject property indicates that the drain has potential to support direct fish habitat with some enhancements to the riparian area, removal of obstructions, and adjustment to the perched culvert. Currently, however, the feature within the subject property appears only to support indirect fish habitat through the supply of coldwater to downstream reaches.

4.0 Potential Cumulative Effects and Impacts

Based on a review of the Preliminary Residential Development Concept, a preliminary site investigation, background information and mapping, as well as air photos, several potential effects and impacts have been identified. The following is a brief description of anticipated constraints, potential cumulative effects, and potential impacts based on the preliminary concept plan. This information will be used to scope the EIS (see Appendix III) and identify areas of potential conflict between the proposed development and existing natural features and habitats.

4.1 Potential Cumulative Effects

Based on the information currently available, no additional developments are planned for the Urban Settlement Area west of Kettle Creek. There are 2 areas of potential development, one immediately east of the subject property, which is mapped on Schedule G of the CEOP as Commercial-Industrial Lands. The second are is immediately north of the Kettle Creek Golf & Country Club, which is mapped as residential land use on Schedule G of the CEOP. The Kettle Creek Golf and Country Club is also mapped as residential on Schedule G. Should these lands become developed, impacts to the natural heritage features surrounding them would be under additional pressure. Potential effects from the development of all these lands could include:

- Increases in human activity within the significant woodlands and other woodlands,
- Introduction of invasive and prolific species into the wooded areas,
- Increased surface water runoff to the watercourses and drains nearby, including the municipal drain within the subject property,
- Decreased groundwater infiltration and therefore coldwater baseflow contributions to watercourses, drains, and the Kettle Creek watershed,
- Increased flashiness of local hydrographs and potential flooding concerns for Kettle Creek, and
- Potential reduction in wildlife habitat

These and other potential impacts within the subject property are discussed further below. Once detailed information is available, a thorough review of impacts from the proposed undertaking will be conducted and the results presented in the EIS.

4.2 Potential Impacts

4.2.1 Significant Woodland

The woodland located on the west side of the subject property is significant based on the criteria outlined in the ECOP and the CEOP. A buffer is required from the edge of a significant woodland and protection of the woodland is required during construction to avoid injuring or harming trees and wildlife habitat. The current location of the municipal drain and a hedgerow at the edge of the western significant woodland provides a natural buffer to the significant woodland. Based on the existing conditions, impacts to the significant woodland are not anticipated from the proposed undertaking.

Although the eastern woodland is not significant, there is potential for impacts to the woodland during and post-construction. The woodland includes ash species and the presence of Emerald Ash Borer (EAB) was confirmed by NRSI biologists while on site. Further discussion and recommendations for the eastern woodland will be provided in the Scoped EIS.

Impacts to the woodlands may include direct, indirect, or induced impacts such as:

- changes in topography and surface water runoff, and compaction of soils from grading activities
- injury to trees or their root systems from construction activities,
- changes in vegetation communities due to dust
- encroachment into the significant woodlands from human activity

Recommendations for buffers, mitigation, compensation, and protection during and after construction will be detailed in the EIS.

4.2.2 Wildlife Habitat

Section 3.5 of this report discusses SWH and habitat of endangered and threatened species. A total of 9 candidate SWH types have been identified through the screening process, along with potential habitat for 8 species of Conservation Concern, and 17 SAR. The EIS will include field surveys to confirm the SWH present within the subject property, as well as investigate the presence of SAR and SCC. Habitat for SAR must be protected during and after construction. Enhancement opportunities may be present and will be discussed in the EIS. Potential impacts to wildlife habitat include:

- Bird nest destruction
- Burrow and den destruction
- Tree and vegetation removal
- Temporarily increased noise and dust from construction activities
- Artificial lighting
- Increased human activity within the significant woodlands, including unauthorized trails

Each of these potential impacts will be discussed in the EIS when detailed information regarding the proposed undertaking is available.

4.2.3 Natural Hazard Areas

Natural hazard areas have been identified within the subject property through the CEOP and include steep slopes and flood fringe areas for Kettle Creek. The proposed residential lots have been located outside of the flood fringe as mapped in Schedule G2 of the CEOP. A slope stability assessment is currently underway to review the slopes within the eastern and western woodlands The EIS will include details from the geotechnical slope stability assessment to evaluate the potential impacts to natural hazards

4.2.4 Aquatic Habitat

A setback to the municipal drain is required for maintenance works, as well as flooding and potential erosion. This setback will provide enhancement opportunities for the

riparian area and aquatic habitat within the drain. Potential impacts to the drain from the proposed undertaking may include:

- Changes to surface water and groundwater inputs due to grading and stormwater management controls
- Changes to water quality from the use of pesticides and fertilizers on rear yards backing onto the drain
- Sedimentation and erosion during and after construction
- Sedimentation and changes to vegetation communities from dust
- Increased human activity within the buffer and the drain (e.g. fishing, unauthorized trails, dumping and debris)

Buffers, mitigation measures, and enhancement opportunities will be discussed in the EIS (see Appendix III).

5.0 Data Gaps and Next Steps

Based on the findings described above, a Terms of Reference for an EIS was prepared by NRSI. The Terms of Reference is attached as Appendix III. The TOR will be submitted to the Municipality of Central Elgin for approval.

Background information requests have been sent to the Municipality of Central Elgin, KCCA, and the MNRF to gather data regarding natural features, habitats, and wildlife present within and adjacent to the subject property. At this time, a response from KCCA has been received, which identified that the municipal drain is classified as Not Rated. No additional information was available from the KCCA. The MNRF provided a detailed list of potential habitat for several SAR within the study area. This information has been incorporated into the SAR and SWH screenings. A response has not yet been received from the Municipality of Central Elgin..

Based on the background review to date, the following is a list of data gaps and areas for further investigation. The methods for field surveys and proposed timing have been provided in the EIS Terms of Reference.

- Detailed vegetation inventory and sensitive species,
- Surveyed woodland driplines,
- Breeding birds present within the subject property,
- Cavity trees and habitat for bats
- SAR present within the subject property,
- Confirmed SWH,
    - Existing raptor nests
    - Bird migration stopover habitat
    - Other wildlife congregation or migratory stopover habitat, to be confirmed by the MNRF
    - Locations of seeps/springs, to be confirmed during the appropriate time of year (winter/spring), and
- Details regarding the proposed undertaking, including stormwater management controls and facility design, grading, tree and vegetation removal, etc.

Several of the above-listed information can be gathered through field surveys conducted by NRSI, as detailed in the EIS Terms of Reference. A Functional Servicing and Stormwater Management Report will be required to assess the impacts to the natural features within the subject property, particularly if outlets from storm sewers or stormwater management ponds will be directed towards the municipal drain. The remaining information will be gathered from Wastell Homes as the concept plan moves forward.

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MAPS

481200 481400 481600 481800

4724200 4724000 4723800 4723600

GEORGE ST
MITCHELL ST
DOVER PL
RIVER RD
VALLEY ST
LOWER SPRING ST
INVERERIE HTS LANE
TOWER HTS DR
BOLTVILLE PL
FRONT ST

Path: X:\1823_GeorgeStreetEIS\NRSI_1823_Map1_ SubjectProperty_Extents_2016_11_28_KED.mxd

Map 1

George Street, Port Stanley

Subject Property

Legend

- Subject Property
- Contour Line (5m Intervals)
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Water Body
- Wooded Area

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Aquatic, Terrestrial and Wetland Biologists

Project: 1823
Date: November 29, 2016

NAD83 - UTM Zone 17
Size: 11x17"
1:3,000

0 50 100 150 200 Metres

N

481200 481400 481600 481800 482000

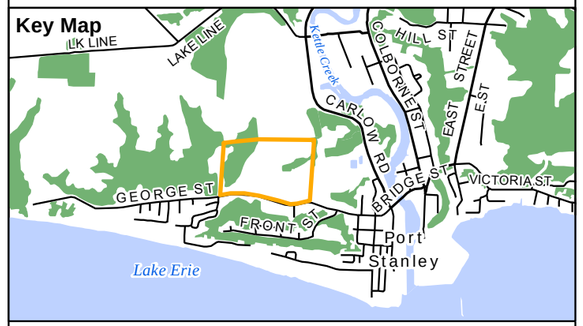
4724200 4724000 4723800 4723600

CUP3-2
CUT1
CUT1-4
FOD5-2
CUT1-1
H
FOD7
FOD7-2
CUP3
CUT1-1
FOD7
CUM
GEORGE ST
DOVER PL
RIVER RD
VALLEY ST
LOWER SPRING ST
BOLTVILLE PL
FRONT ST
TOWER HTS DR
INVERERIE HTS LANE

Map 2

George Street, Port Stanley

Preliminary Ecological Land Classification



Legend

- Subject Property
- Secondary Road
- Water Body
- Ecological Land Classification

(CUM) Cultural Meadow
(CUP3) Coniferous Plantation
(CUP3-2) White Pine Coniferous Plantation Type
(CUT1) Mineral Cultural Thicket Ecosite
(CUT1-1) Sumac Cultural Thicket Type
(CUT1-4) Gray Dogwood Cultural Thicket Type
(FOD5-2) Dry - Fresh Sugar Maple - Beech Deciduous Forest Type
(FOD7) Fresh - Moist Lowland Deciduous Forest Ecosite
(FOD7-2) Fresh - Moist Ash Lowland Deciduous Forest Type
(H) Hedgerow

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Aquatic, Terrestrial and Wetland Biologists

Project: 1823
Date: December 23, 2016

NAD83 - UTM Zone 17
Size: 11x17"
1:3,000

0 50 100 150 200 Metres

N

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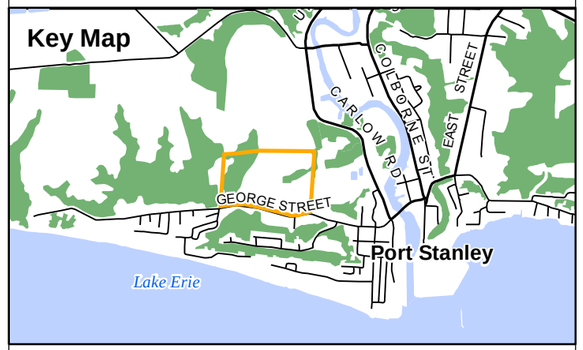
Map 3

George Street, Port Stanley

Aquatic Stations and Features



Legend

- Subject Property
- Aquatic Habitat Points
- Fish Observed
- Potential Seepage
- Perched Culvert
- Woody Debris Jam
- Downed Tree Blocking Channel
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Water Body

AHP-001
AHP-002
AHP-003
AHP-004

GEORGE ST
MITCHELL ST
DOVER PL
RIVER RD
VALLEY ST
LOWER SPRING ST
INVERERIE HTS LANE
TOWER HTS DR
BOLTVILLE PL
FRONT ST

481200 481400 481600 481800
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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 1823
Date: December 23, 2016

NAD83 - UTM Zone 17
Size: 11x17"
1:40,000

0 25 50 100 150 Meters

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APPENDIX I
Species at Risk Screening

Scientific Name	Common Name	S-RANK[1]	COSEWIC[2]	ESA/ COSSARO[3]	SARA	Background Source	Habitat Preference[4,5]	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
Vascular Plants and Mosses										
Arisaema dracontium	Green Dragon	S3	SC	SC	Schedule 3	NHIC 2016	Wet bottomlands along rivers and creeks	Yes	Yes	The bottom of the municipal drain may provide habitat.
Castanea dentata	American Chestnut	S2	END	E	Schedule 1	MNRF Background Information Request (2016)	Moist to well drained forests on sand, occasionally heavy soils	No	No	Soil is not considered to be sandy in the project area.
Crataegus suborbiculata	Caughuawaga Hawthorn	S2				NHIC 2016	Old fields, poorly managed pastures, fencelines and roadsides	Yes	Yes	Project area borders a roadside. Further site assessment would be required to assess state of agricultural community
Cystopteris protrusa	Creeping Fragile Fern	S2				NHIC 2016	Talus and rocky slopes	No	No	Talus and rocky slopes are not present within the subject property
Enemion biternatum	False Rue-anemone	S2	THR	T	Schedule 1	NHIC 2016	Floodplain woods and rich wooded slopes	No	No	Project area does not contain suitable habitat
Gentianella quinquefolia	Stiff Gentian	S2				NHIC 2016	Moist soil, roadsides, streambanks and edges of woods; prairies	Yes	Yes	Project area is boarded by wooded areas and a roadside
Hydrophyllum appendiculatum	Appendaged Water-leaf	S2				MNRF Background Information Request (2016)	Deciduous woods	Yes	Yes	Deciduous woods are present on the subject property
Juglans cinerea	Butternut	S3?	END	E	Schedule 1	MNRF Background Information Request (2016)	Moist, well-drained deciduous forests; along streams; well-drained gravel sites; forest edges	Yes	Yes	Streams, forest edges, and well-drained deciduous forests are present within the subject property
Juncus acuminatus	Sharp-fruited Rush	S3				NHIC 2016	Sandy and gravelly shorelines, ditches and gravel pits	No	No	Project area does not contain suitable habitat
Monarda didyma	Scarlet Beebalm	S3				NHIC 2016	Moist woods, swampy thickets and roadsides	No	No	Project area does not contain suitable habitat (Extirpated; NHIC 2016)
Opuntia humifusa	Eastern Prickly Pear	S1	END	E	Schedule 1	NHIC 2016	Dry sandy soil in open savannahs, sand dunes and ridges	No	No	Project area does not contain suitable habitat (Extirpated; NHIC 2016)
Phegopteris hexagonoptera	Broad Beech Fern	S3	SC	SC	Schedule 3	NHIC 2016	Rich, moist soil in mature deciduous forests	Yes	Yes	Forest community needs to be further assed by site surveys
Polygonum erectum	Erect Knotweed	SH				NHIC 2016	Moist, silty, clay/loam soils in areas subject to persistent disturbance; edges of actively cultivated fields, dirt farm roads, trampled cattle pastures, farmyards; wet stream edges and floodplain washout areas	No	No	This species is Extirpated in Ontario (NHIC 2016)
Potentilla paradoxa	Bushy Cinquefoil	S4				NHIC 2016	Sandy shorelines	No	No	Project area does not contain suitable habitat
Solidago rigida ssp. Rigida	Eastern Stiff-leaved Goldenrod	S3				NHIC 2016	Dry, sandy soil, prairies and waste places	No	No	Project area does not contain suitable habitat
Vicia caroliniana	Wood Vetch	S2				NHIC 2016	Dry woods, thickets and prairies	Yes	Yes	Woodland to the west includes FOD5-2 (Dry-fresh deciduous forest community)
Viola striata	Striped Cream Violet	S3				NHIC 2016	Rich, floodplain forests and low,wet woods	No	No	Project area does not contain suitable habitat
Vulpia octoflora	Six-weeks Fescue	S2				NHIC 2016	Dry, sandy meadows; openings in dry sandy forests; open, stabilized dunes	No	No	Project area does not contain suitable habitat (Extirpated; NHIC 2016)
Weissia muhlenbergiana	Muhlenberg's Stubble Moss	S2				NHIC 2016	Wet meadows, open fields natural fields	No	no	Project area does not contain suitable habitat

Scientific Name	Common Name	S-RANK[1]	COSEWIC[2]	ESA/ COSSARO[3]	SARA	Background Source	Habitat Preference[4,5]	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
Birds										
Chaetura pelagica	Chimney Swift	S4B, S4N	THR	T	Schedule 1	OBBA 2016	Commonly found in urban areas near buildings; nests in hollow trees, crevices of rock cliffs, chimneys; highly gregarious; feeds over open water	No	No	Project area does not contain suitable habitat
Colinus virginianus	Northern Bobwhite	S1	END	E	Schedule 1	NHIC 2016	Grassland, prairie or hay fields with woody cover in form of thickets, tangles of vines, shrubs; fence rows or woodland edges; cropland growing corn, soybeans or small grains and clover or grass; well-drained sandy or loamy soil; pond edges	Yes	Yes	Woodland edges and cropland are present within the subject property Prarie habitat is not present
Contopus virens	Eastern Wood-Pewee	S4B	SC	SC		OBBA 2016	Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearings, edges; farm woodlots, parks	Yes	Yes	Field surveys required to confirm potential habitat, and possible presence of this species.
Dolichonyx oryzivorus	Bobolink	S4B	THR	T		OBBA 2016	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha	No	No	Crop type varies year over year; area requirementments are not met on the subject property
Empidonax virescens	Acadian Flycatcher	S2S3B	END	E	Schedule 1	OBBA 2016	Mature, shady, deciduous forests; heavily wooded ravines; creek bottoms or river swamps; availability of good quality habitat is limiting factor; needs at least 30 ha of forest	No	No	Woodland within the subject property is disturbed, no wooded ravines or river swamps present
Haliaeetus leucocephalus	Bald Eagle	S2N, S4B	SC	NAR		MNRF Background Information Request (2016)	Requires large continuous area of deciduous or mixed woods around large lakes or rivers. Require area of 255 ha for nesting, shelter, feeding, roosting. Prefer open woods with 30 to 50% canopy cover. Nest in tall trees 50 to 200m from shore. Require tall, dead or partially dead trees within 400 m of nest for perching.	Yes	Yes	Project area includes large Significant woodland to the wes. Subject property is greater than 200m from the Lake Erie shoreline.
Hirundo rustica	Barn Swallow	S4B	THR	T		OBBA 2016	Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water	No	No	Nesting habitat is not present within the subject property due to lack of buildings present.
Hylocichla mustelina	Wood Thrush	S4B	SC	T		OBBA 2016	Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12 m	Yes	Yes	Suitable habitat may be present. Field surveys to confirm.
Icteria virens	Yellow-breasted Chat	S2B	END	E	Schedule 1	MNRF Background Information Request (2016)	Thickets, tall tangles of shrubbery beside streams, ponds; overgrown bushy clearings with deciduous thickets; nests above ground in bush, vines etc.	Yes	Yes	Deciduous thicket areas are present near the drain feature.
Melanerpes erythrocephalus	Red-headed Woodpecker	S4B	SC	T	Schedule 1	OBBA 2016	Open, deciduous forest with little understory; fields or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees; feeds on insects and stores nuts or acorns for winter; loss of habitat is limiting factor; requires cavity trees with at least 40 cm dbh; require about 4 ha for a territory	Yes	Yes	Field surveys to confirm potential habitat, and possible presence of this species.
Parkesia motacilla	Louisiana Waterthrush	S3B	SC	SC	Schedule 1	OBBA 2016	Prefers wooded ravines with running streams; also woodlands swamps; large tracts of mature deciduous or mixed forests; canopy cover is essential; has strong affinity to nest sites; nests on ground	No	No	Suitable habitat is not present within the subject property.

Scientific Name	Common Name	S-RANK[1]	COSEWIC[2]	ESA/ COSSARO[3]	SARA	Background Source	Habitat Preference[4,5]	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
Riparia riparia	Bank Swallow	S4B	THR	T		OBBA 2016	Sand, clay or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits, road-cuts, grassland or cultivated fields that are close to water; nesting sites are limiting factor for species presence	No	No	Suitable habitat is not likely present. Field surveys to confirm potential habitat presence.
Sturnella magna	Eastern Meadowlark	S4B	THR	T	No Schedule	MNRF Background Information Request (2016)	Open, grassy meadows, farmland, 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	Yes	Yes	Cultivated and weedy areas are present within the subject property.
Vireo griseus	White-eyed Vireo	S2B				MNRF Background Information Request (2016)	Prefers dense, swampy thickets and hillsides with blackberry and briar tangles; forest edges, and early successional fields. Territory is 1-2 ha			

Scientific Name	Common Name	S-RANK[1]	COSEWIC[2]	ESA/ COSSARO[3]	SARA	Background Source	Habitat Preference[4,5]	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
Herpetofauna										
Apalone spinifera	Spiny Softshell	S3	THR	T	Schedule 1	NHIC 2016	Intolerant of pollution; large river systems, shallow lakes and ponds with muddy bottoms and aquatic vegetation; basks on sandbars, mud flats, grassy beaches, logs or rocks; eggs are laid near water on sandy beaches or gravel banks in areas with sun; requires acceptable feeding, nesting, habitat and natural, undisturbed corridors between these critical habitats	No	No	Project area does not contain suitable habitat; stream habitat too small to suport population
Chelydra serpentina serpentina	Snapping Turtle	S3	SC	SC	Schedule 1	Ontario Reptile and Amphibian Atlas 2015	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	No	No	Suitable habitat is not present within the subject property.
Lampropeltis taylori triangulum	Eastern Milksnake	S4	NAR	SC		Ontario Reptile and Amphibian Atlas 2015	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	No	No	Suitable habitat is not present within the subject property.
Sistrurus catenatus catenatus pop. 1	Eastern Massasauga Rattlesnake (*Great Lakes/St. Lawrence population*)	S3	THR	T	Schedule 1	Ontario Reptile and Amphibian Atlas 2015	Use upland, old field in summer; marsh, shrub swamp or bog; rivers and streams that provide sedge or low vegetative growth; in fall and winter; hibernate underground in mammal burrows, under rotting stumps, in rock crevices	No	No	Suitable habitat is not present within the subject property.
Thamnophis sauritus septentrionalis	Eastern Ribbonsnake	S3	SC	SC	Schedule 1	Ontario Reptile and Amphibian Atlas 2015	Sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams; hibernates in groups	Yes	Yes	Suitable habitat may be present within the subject property; however the watercourse is deeply entrenched and has steep banks. Field surveys to confirm presence of suitable habitat.
Mammals										
Myotis leibii	Eastern Small-footed Bat	S2S3	END			Ontario Mammal Atlas 1994	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests	No	No	Suitable habitat is not present within the subject property.
Myotis lucifugus	Little Brown Myotis	S4	END	E	Schedule 1	Ontario Mammal Atlas 1994	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges	Yes	Yes	Potential for snags and cavity trees within the wooded areas in the subject property. Field surveys to confirm potential habitat.
Taxidea taxus jacksoni	American Badger	S2	END	E	Schedule 1	MNRF Background Information Request (2016)	Open grasslands and oak savannahs; dens in new hole or enlarged existing hole; sometimes makes food caches. Tall grass prairie, sand barrens and farmland.	Yes	Yes	Woodland edges and farmland are present within the subject property. MNRF identified regulated habitat in the area.

Scientific Name	Common Name	S-RANK[1]	COSEWIC[2]	ESA/ COSSARO[3]	SARA	Background Source	Habitat Preference[4,5]	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
Fish										
Macrhybopsis storeriana	Silver Chub			SC	Schedule 1	NHIC 2016	Large lakes and connecting rivers, up to 20m in depth	No	No	Watercourse within subject property is too shallow. Suitable habitat is not present within the subject property.
Insects										
Danaus plexippus	Monarch	S2N,S4B				TEA 2016	Open areas, meadows, agricultural fields with milkweed (Asclepias spp.) (Layberry et al. 1997).	Yes	Yes	Common Milkweed was observed during the preliminary site investigation. Suitable habitat is present within the subject property.
Enallagma basidens	Double-striped Bluet	S3				OMNR 2005	Ponds and lakes with sparse emergent vegetation (Paulson 2012).	No	No	Suitable habitat is not present within the subject property.
Epiaeschna heros	Swamp Darner	S2S3				NHIC 2016	Preferred habitats are shallow, shaded woodland ponds, including those that are sometimes temporary; also some swamps and slow streams.	Yes	Yes	Suitable habitat is present within the subject property. The watercourse is a slow moving municipal drain.
Euphyes conspicua	Black Dash	S3				TEA 2016	Found in or near sedge patches, nectaring on flowers including milkweeds (Asclepias spp.) and thistles (Cirsium spp. And Carduus spp.) Host Plant - Carex stricta (Hall et al. 2014)	Yes	Yes	Preliminary site investigation confirmed the presence of common milkweed and Cirsium spp. Suitable habitat is present within the subject property.
Pholisora catullus	Common Sootywing	S3				TEA 2016	Open habitat, mostly disturbed areas. Host Plant - Amaranthaceae and Chenopodiaceae (esp Lamb's quarters) (Hall et al. 2014)	Yes	Yes	Suitable habitat is present within the subject property, as well as members of the Amaranthaceae and Chenopodiaceae families.
Sympetrum corruptum	Variegated Meadowhawk	S3				OMNR 2005	Low and still water, often in open or barren areas (Paulson 2012).	Yes	Yes	Suitable habitat may be present within and adjacent to the municipal drain. Additional field surveys will confirm presence of habitat.

[1] S-Ranks (OMNR 2013)
S1-critically imperiled
S2-imperiled
S3-vulnerable
S4- apparently secure
S5- secure

[2] COSEWIC – Committee on the Status of Endangered Wildlife in Canada (2016)

[3] COSSARO- Committee on Species at Risk in Ontario (2015), ESA – Endangered Species Act (2007)

[4] COSEWIC – Committee on the Status of Endangered Wildlife in Canada (2013)

[5] OMNR 2000

Ranks
END/E- Endangered
SC- Special Concern
THR/T – Threatened
NAR- Not at Risk

APPENDIX II

Significant Wildlife Habitat Screening

Significant Wildlife Habitat Assessment Tables

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Terrestrial)					
Rationale: Habitat important to migrating waterfowl	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites. - Fields with seasonal flooding and waste grain in the Long Point, Rondeau, Lake. St. Clair, Grand Bend and Pt. Pelee areas may be important to Tundra Swans.	Fields with sheet water during Spring (mid March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available[cxlviii] Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities (CAs) • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • Any mixed species aggregations of 100[i] or more individuals required. • The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependant on local site conditions and adjacent land use is the significant wildlife habitat[cxlviii]. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMIST[cxlix] Index #7 provides development effects and mitigation measures.	Correspondence with the landowner and a review of historic air photos indicates that suitable habitat is not present within the subject property. Not SWH.

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Aquatic)					
Rationale: Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district	Canada Goose Cackling Goose Snow Goose Green-winged Teal American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Blue-winged Teal Hooded Merganser Common Merganser Red-breasted Merganser Lesser Scaup Greater Scaup Common Goldeneye Bufflehead Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Canvasback Redhead Ruddy Duck Brant White-winged Scoter Black Scoter	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Information Sources • Environment Canada • Naturalist clubs often are aware of staging/stopover areas • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: • Aggregations of 100[i] or more of listed species for 7 days[i], results in >700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH[cxlix] • The combined area of the ELC ecosites and a 100m radius area is the SWH[cxlviii] • Wetland area and shorelines associated with sites identified within the SWHTG[cxlviii] Appendix K[cxlix] are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMIST[cxlix] Index #7 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Lake Erie shoreline is located approximately 500m to the south. Not SWH

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Shorebird Migratory Stopover Area					
Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH. Information Sources • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000[l] shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100[l] Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area[cxlviii] • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #8 provides development effects and mitigation measures.	Due to the developed nature of the site and proximity to populated areas it is unlikely that the site would be utilized by migratory shorebirds. Not SWH

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Raptor Wintering Area					
Rationale: Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Special Concern: Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class. Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW Bald Eagle: Forest Community Series: FOD, FOM, FOC, SWD, SWM, or SWC, on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering (hawk/owl) sites need to be > 20ha[cxlviii, cxlix] with a combination of forest and upland[xvi, xvii, xviii, xix, xx, xxi]. Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands[cxlix] Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water and large trees and snags aviable for roosting[cxlix] Information Sources • OMNRF Districts • Natural clubs • Natural Heritage Information Centre (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Reports and other information available from CAs • Results of Christmas Bird Counts	Studies confirm the use of these habitats by: • One or more Short-eared Owls, or, One of more Bald Eagles or; at least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years)[cxlix] for a minimum of 20 days by the above number of birds[l]. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #10 and #11 provides development effects and mitigation measures.	Suitable habitat is present within the subject area. Background information included 2 of the listed species: Red-tailed Hawk and Northern Harrier. Field surveys are required to confirm the presence of this SWH. Candidate SWH

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Bat Hibernacula					
Rationale: Bat hibernacula, are rare habitats in all Ontario landscapes.	Big Brown Bat Eastern Pipistrelle/Tri-colored Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. Active mine sites should not be considered The locations of bat hibernacula are relatively poorly known. Information Sources • OMNRF for possible locations and contact for local experts • Natural Heritage Information Centre (NHIC) Bat Hibernaculum • Ministry of Northern Development and Mines for location of mine shafts • Clubs that explore caves (eg. Sierra Club) • University Biology Departments with bat experts	• All sites with confirmed hibernating bats are SWH[i]. • The area includes 200m radius around the entrance of the hibernaculum[cxlviii, ccvii, i]. for the development types and 1000m for wind farms [ccv]. • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the[ccv]."Bats and Bat Habitats: Guidelines for Wind Power Projects" [ccv] • SWHMIST[cxlix] Index #1 provides development effects and mitigation measures.	No caves, mineshafts, or other sutable habitat is present within the subject property. Not SWH
Wildlife Habitat: Bat Maternity Colonies					
Rationale: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in building [sxxii, xxv, xxvi, xxvii, xxxi] (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario[xxii]. • Maternity colonies located in Mature deciduous or mixed forest stands[ccix, ccx] with >10/ha large diameter (>25cm dbh) wildlife trees[ccvii]. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3[ccxiv] or class 1 or 2[ccxii]. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred[ccx]. Information Sources • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts	Maternity Colonies with confirmed use by: • >10 Big Brown Bats[i] • >5 Adult Female Silver-haired Bats[i] • The area of the habitat includes the entire woodland or the forest stand ELC Ecosite containing the maternity colonies[i]. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"[ccv]. • SWHMIST[cxlix] Index #12 provides development effects and mitigation measures.	Suitable habitat may be present within the woodland on the west side of the subject property, and hedgerows. A cavity tree assessment is required to confirm this SWH. Candidate SWH

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Bat Migratory Stopover Area					
	Hoary Bat Eastern Red Bat Silver-haired Bat	No specific ELC types.	Long distance migratory bats typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migrations concentrate these species of bats at stopover areas. The location and characteristics of stopover habitats are generally unknown. Information Sources • OMNR for possible locations and contact for local experts • University of Waterloo, Biology Department	Long Point (42°35'N, 80°30'E to 42°33'N, 80°03'E) has been identified as a significant stop-over habitat for fall migrating Silver-haired Bats, due to significant increases in abundance, activity and feeding that was documented during fall migration[ccxv]. • The confirmation criteria and habitat areas for this SWH are still being determined. • SWHDSS[cxlix] Index #38 provides development effects and mitigation measures.	This habitat is believed not to be present on the subject property. Not SWH
Wildlife Habitat: Turtle Wintering Area					
Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles: ELC Community Classes: SW, MA, OA and SA ELC Community Series: FEO and BOO Northern Map Turtle: Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen[cix, cx, cxi, cxviii]. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH Information Sources • EIS studies carried out by Conservation Authorities • Field naturalists clubs • OMNRF Ecologist or Biologist • Natural Heritage Information Centre (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant[i]. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant[i]. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – Apr)[cvii]. Congregation of turtles is more common where wintering areas are limited and therefore significant[cix, cx, cxi, cxii]. • SWHMIST[cxlix] Index #28 provides development effects and mitigation measures for turtle wintering habitat.	No suitable habitat is present on the subject property. Not SWH

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Reptile Hibernaculum					
Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	Snakes: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Special Concern: Milksnake Eastern Ribbonsnake	For all snakes, habitat may be found in any ecosite in southern Ontario other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. The existence of rock piles or slopes, stone fences, and crumbling foundations assist in identifying candidate SWH.	For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line[xliv, l, li, lii, cxii]. Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). • Reports and other information available from CAs • Local naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • Natural Heritage Information Centre (NHIC)	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp., or, individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp., or, individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct)[i]. • Note: If there are Special Concern Species present, then site is SWH • Note: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30m buffer is the SWH[i]. • SWHMIST[cxlix] Index #13 provides development effects and mitigation measures for snake hibernacula.	Based on a preliminaary site investigation, suitable habitat is not present within the subject property. Not SWH
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)					
Rationale: Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources • Reports and other information available from CAs • Ontario Breeding Bird Atlas[ccv]. • Bird Studies Canada: Nature Counts http://www.birdscanada.org/birdmon/ • Field Naturalist clubs	Studies confirming: • Presence of 1 or more nesting sites with 8[cxlvix] or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests[ccvii]. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi]. • SWHMIST[cxlix] Index #4 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)					
Rationale: Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. Information Sources • Ontario Breeding Bird Atlas[ccv], colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Centre (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from CAs • MNRF District Offices • Field naturalist clubs	Studies confirming: • Presence of 2 or more active nests of Great Blue Heron or other list species. • The habitat extends from the the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH[cc, ccvii]. • Confirmation of active colonies must be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells • SWHMIST[cxlix] Index #5 provides development effects and mitigation measures.	Suitable habitat is not present in the subject property. Not SWH
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Ground)					
Rationale: Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6 MAS1 – 3 CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. Information Sources • Ontario Breeding Bird Atlas[ccv], rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs • Natural Heritage Information Centre (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field naturalist clubs	Studies confirming: • Presence of >25 active nests for Herring Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern[i]. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant[i]. • Presence of 5 or more pairs for Brewer's Blackbird[i]. • The edge of the colony and a minimum 150m radius area of the habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH[cc, ccvii]. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi]. • SWHMIST[cxlix] Index #6 provides development effects and mitigation measures.	Suitable habitat is not present in the subject property. Not SWH

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Migratory Butterfly Stopover Areas					
Rationale: Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter	Painted Lady Red Admiral Special Concern: Monarch	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUM CUT CUS Forest: FOC FOD FOM CUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10ha in size with a combination of field and forest habitat present, and will be located within 5km of Lake Ontario and Erie[cxlix]. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south [xxxii, xxxiii, xxxiv, xxxv, xxxvi]. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat [cxlviii, cxlix]. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes [xxxvii, xxxviii, xxxix, xl, xli]. Information Sources • MNRF District Offices • Natural Heritage Information Centre (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)[xliii]. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day[xxxvii], significant variation can occur between years and multiple years of sampling should occur[xl, xlii]. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD • MUD of >5000 or >3000 with the presence of Painted Ladies or White Admiral's is to be considered significant[í]. • SWHMIST[cxlix] Index #16 provides development effects and mitigation measures.	Although forested habitat is present, undisturbed field areas are not present. Field surveys will confirm the presence of host plants and butterfly species. Not SWH

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Landbird Migratory Stopover Areas					
Rationale: Sites with a high diversity of species as well as high numbers are most significant	All migratory songbirds Canadian Wildlife Service Ontario website: http://www.on.ec.gc.ca/wildlife_e.html All migrant raptors species Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	Woodlots need to be >5 ha[i] in size and within 5km [iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv] of Lake Ontario and Erie. If woodlands are rare in an area of shoreline, woodland fragments 2-5ha can be considered for this habitat • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Erie or Ontario are more significant[cxlix]. • Sites have a variety of habitats: forest, grassland and wetland complexes[cxlix]. • The largest sites are more significant[cxlix] • Woodlots and forest fragments are important habitats to migrating birds[ccxviii], these features located along the shore and located within 5km of Lake Ontario and Lake Erie are Candidate SWH[cxlviii]. Information Sources • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates[i]. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (March/May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi]. • SWHMIST[cxlix] Index #9 provides development effects and mitigation measures.	The subject property is within 5km of Lake Erie. Field surveys to confirm this SWH are required for both spring and fall migration seasons. Candidate SWH
Wildlife Habitat: Deer Winter Congregation Areas					
Rationale: Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions [cxlviii]	White-tailed Deer	All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD Conifer plantations (CUP) smaller than 50 ha may also be used.	• Woodlots >100 ha in size or if large woodlots are rare in a planning area woodlots>50ha[i]. • Deer movement during winter in Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands[cxlviii]. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha[ccxxiv]. • Woodlots with high densities of deer due to artificial feeding are not significant[i]. Information Sources • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF[cxlviii]. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF[i]. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques[ccxxiv], ground or road surveys, or a pellet count deer density survey[ccxxv]. • SWHMIST[cxlix] Index #2 provides development effects and mitigation measures.	MNRF has been contacted for background information including deer winter congregation areas. The Significant Woodland on the west side of the subject property does not meet the minimum size requirement. Not SWH

Significant Wildlife Habitat Assessment Tables

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 7E.

Rare Vegetation Community[1]	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes[1]	Habitat Description[1]	Detailed Information and Sources[1]	Defining Criteria[1]	Assessment Details
Cliff and Talus Slopes					
Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes[lxxviii] • SWHMIST[cxlix] Index #21 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH
Sand Barrens					
Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	A sand barren area >0.5ha in size Information Sources • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens[lxxviii] • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotics sp)[i]. • SWHMIST[cxlix] Index #20 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 7E.

Rare Vegetation Community[1]	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes[1]	Habitat Description[1]	Detailed Information and Sources[1]	Defining Criteria[1]	Assessment Details
Alvar					
Rationale: Alvars are extremely rare habitats in Ecoregion 7E	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Indicator Species:** 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum These indicator species are very specific to Alvars within Ecoregion 7E[cxlix]	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover[lxxviii].	An Alvar site > 0.5ha in size[lxxv]. Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie[cxcix]. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists[lxxvi]. • Ontario Nature – Conserving Great Lakes Alvars[ccviii]. • Natural Heritage Information Centre (NHIC) has location information available on their website • OMNRF Staff • Field Naturalist clubs • Conservation Authorities	Field studies identify four of the five **Alvar indicator species**[lxxv] at a candidate Alvar site is Significant • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses[lxxv]. • SWHMIST[cxlix] Index #17 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH
Old Growth Forest					
Rationale: Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 7E.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old growth forests are characterized by heavy mortality or turnover of overstorey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland area is >0.5ha Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts • Field naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat[cxlviii]. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities [cxlviii] (cut stumps will not be present) • Determine ELC Vegetation Type for forest area containing the old growth characteristics[lxxviii]. • SWHMIST[cxlix] Index #23 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 7E.

Rare Vegetation Community[1]	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes[1]	Habitat Description[1]	Detailed Information and Sources[1]	Defining Criteria[1]	Assessment Details
Savannah					
Rationale: Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. In Ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario)[cc].	No minimum size to site[l] Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location data available on their website • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in[bxxv] Appendix N should be present[l]. Note: Savannah plant spp. list from Ecoregion 7E should be used. • Area of the ELC Vegetation type is the SWH[lxxviii]. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHMIST[cxlix] Index #18 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH
Tallgrass Prairie					
Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. In Ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario)[cc].	No minimum size to site[l]. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Centre (NHIC has location information available on their website • OMNRF Districts • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in[bxxv] Appendix N should be present[l]. Note: Prairie plant spp. list from Ecoregion 7E should be used. • Area of the ELC Vegetation Type is the SWH[lxxviii]. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHMIST[cxlix] Index #19 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 7E.

Rare Vegetation Community[1]	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes[1]	Habitat Description[1]	Detailed Information and Sources[1]	Defining Criteria[1]	Assessment Details
Other Rare Vegetation Communities					
Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG[cxlviii]. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M[cxlviii]. The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Centre (NHIC) has location information available on their website • OMNRF Districts • Field naturalists clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG[cxlviii]. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMIST[cxlix] Index #37 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH

Significant Wildlife Habitat Assessment Tables

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Waterfowl Nesting Area					
Rationale: Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 **Note: includes adjacency to Provincially Significant Wetlands**	A waterfowl nesting area extends: 120m[cxlix] from a wetland (>0.5ha) or a wetland (>0.5ha) with small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120m of each individual wetland where waterfowl nesting is known to occur[cxlix]. • Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from CAs	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards[l], or, • Presence of 10 or more nesting pairs for listed species including Mallards[l]. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120m[cxlviii] from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMIST[cxlix] Index #25 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH
Wildlife Habitat: Bald Eagle and Osprey Nesting, Foraging and Perching Habitat					
Rationale: Nest sites are fairly uncommon in Ecoregion 7E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey Special Concern: Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario • MNRF values information (LIO/NRVIS) will list known nesting locations, Note: data from NRVIS is provided as a point format and does not include all the habitat. • Nature Counts, Ontario Nest Records Scheme data • OMNRF Districts • Check the Ontario Breeding Bird Atlas[ccv] or Rare Breeding Birds in Ontario for species documented • Reports and other information available from CAs • Field naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area[cxlviii]. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300m radius around the nest or the contiguous woodland stand is the SWH[ccvii], maintaining undisturbed shorelines with large trees within this area is important[cxlviii]. • For a Bald Eagle the active nest and a 400-800m radius around the nest is the SWH[cvi, ccvii]. Area of the habitat from 400-800m is dependant on site lines from the nest to the development and inclusion of perching and foraging habitat[cvi]. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for ≥3 years or suspected of not being used for >5 years before being considered not significant[ccvii]. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #26 provides development effects and mitigation measures.	A preliminary site visit identified FOD communities within the western woodland. The watercourse within the subject property does not provide suitable habitat, however the Lake Erie shoreline is within 500m of the subject property. Site investigations will confirm the presense of suitable habitat. Candidate SWH

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Woodland Raptor Nesting Habitat					
Rationale: Nests sites for these species are rarely identified; these area sensitive habitats are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands combined >30ha or with >4ha of interior habitat[lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv,xcvi, cxxxiii]. Interior habitat determined with a 200m buffer[cxlviii]. • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. Information Sources • OMNRF Districts • Check the Ontario Breeding Bird Atlas[ccv] or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada • Reports and other information available from CAs	Studies confirm: • Presence of 1 or more active nests from species list is considered significant[cxlviii]. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha of habitat is the SWH[ccvii].(the 28ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) • Barred Owl – A 200m radius around the nest is the SWH[ccvii]. • Broad-winged Hawk and Coopers Hawk – A 100m radius around the nest is the SWH[ccvii]. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH[ccvii]. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMIST[cxlix] Index #27 provides development effects and mitigation measures.	The western Significant Woodland meets the minimum size requirement. Field surveys to confirm presenceof suitable nesting habitat. Candidate SWH
Wildlife Habitat: Turtle Nesting Area					
Rationale: These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m)[cxlviii] or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. Information Sources • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) Field naturalist clubs	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles[i] • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH[i] • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH[cxlviii]. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat[cxlix]. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observation studies observing the turtles nesting is a recommended method. • SWHMIST[cxlix] Index #28 provides development effects and mitigation measures for turtle nesting habitat.	Suitable habitat is not present within the subject property. Not SWH

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Seeps and Springs					
Rationale: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system[cxvii, cxlix]. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species[cxix, cxx, cxxi, cxxii, cxiii, cxiv]. Information Sources • Topographical Map • Thermography • Hydrological surveys conducted by CAs and MOE • Field naturalists and landowners • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped	Field Studies confirm: • Presence of a site with 2 or more[l] seeps/springs should be considered SWH. • The area of a ELC forest ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation of the habitat[cxlviii]. • SWHMIST[cxlix] Index #30 provides development effects and mitigation measures.	Several potential seeps were located during the preliminary site visit on the eastern slope of the western Significant Woodland. Additional field surveys to confirm the number and quality of seeps. Candidate SWH
Wildlife Habitat: Amphibian Breeding Habitat (Woodland)					
Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about 25m diameter)[ccvii] within or adjacent (within 120m) to a woodland (no minimum size)[clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx]. Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat[cxlviii]. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF Districts and wetland evaluations • Field naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. • A combination of observational study and call count surveys [cviii] will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area[lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx, lxxi]. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • SWHMIST[cxlix] Index #14 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Amphibian Breeding Habitat (Wetland)					
Rationale: Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario Landscapes	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	• Wetlands >500m^2 (about 25m diameter)[ccvii] supporting high species diversity are significant: some small or ephemeral habitats may not be identified on MNR mapping and could be important amphibian breeding habitats[clxxxiv]. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from CAs	Studies confirm: • Presence of breeding population of 1or more of the listed newt/salamander species or 2 or more of the listed frog or toad species and with at least 20 breeding individuals (adults and eggs masses)[lxxi, lxxiii] or 2 or more of the listed frog/toad species with Call Level of 3. or; Wetland with confirmed breeding Bullfrogs are significant[l]. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys cviii to determine breeding/larval stages will be required during the spring (May March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMIST[cxlix] Index #15 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH
Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs. old) forest stands or woodlots >30ha[cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix]. • Interior forest habitat is at least 200m from forest edge habitat[clxiv]. Information Sources • Local birder clubs • Canadian Wildlife Service (CWS) for the location of forest bird monitoring • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. • Reports and other information available from CAs	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species[l]. • Note: any site with breeding Cerulean Warblers or Canada Warbler is to be considered SWH[l]. • Conduct field investigations in early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • SWHMIST[cxlix] Index #34 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH

Significant Wildlife Habitat Assessment Tables

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Marsh Bird Breeding Habitat					
Rationale: Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan Special Concern: Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	• Nesting occurs in wetlands • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present[cxxiv]. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • OMNRF Districts and wetland evaluations • Field naturalist clubs • Natural Heritage Information Centre (NHIC) • Reports and other information available from CAs • Ontario Breeding Bird Atlas[ccv]	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species[i]. • Note: any wetland with breeding of 1 or more Trumpeter Swans, Black Terns, Green Heron or Yellow Rail is SWH[i]. • Area of the ELC ecosite is the SWH • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #35 provides development effects and mitigation measures	Suitable habitat is not present within the subject property. Not SWH
Wildlife Habitat: Open Country Bird Breeding Habitat					
Rationale: This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern: Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30ha[clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix]. Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years)[i]. Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources • Agricultural land classification maps Ministry of Agriculture • Local birder clubs • Ontario Breeding Bird Atlas[ccv] • EIS Reports and other information available from CAs	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species[i]. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #32 provides development effects and mitigation measures	Suitable habitat is not present within the subject property. Not SWH

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Shrub/Early Successional Bird Breeding Habitat					
Rationale: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat such as woodland area for some bird species.	Large natural field areas succeeding to shrub and thicket habitats >10ha[clxiv] in size. Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years)[i]. Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species[clxxiii]. Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs • Ontario Breeding Bird Atlas[ccv] • Reports and other information available from CAs	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species[i]. • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat[i]. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #33 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH
Wildlife Habitat: Terrestrial Crayfish					
Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.[Ccii]	Chimney or Digger Crayfish (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish	Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. Information Sources • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites[cci]. • Area of ELC Ecosite or an ecoelement area of meadow marsh or swamp within the large ecosite area is the SWH • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult [cci] • SWHMIST[cxlix] Index #36 provides development effects and mitigation measures.	Suitable habitat is not present within the subject property. Not SWH

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Special Concern and Rare Wildlife Species					
Rationale: These species are quite rare or have experienced significant population declines in Ontario	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites[lxxviii]. Information Sources • Natural Heritage Information Centre (NHIC) will have the Special Concern and Provincially Rare (S1-S3, SH) species lists and element occurrences for these species. • NHIC Website: "Get Information" http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas[ccv] • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat neess to be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat for foraging habitat. • SWHMIST[cxlix] Index #37 provides development effects and mitigation measures.	Field surveys will confirm presence of suitable habitat for special concern and rare wildlife species. Candidate SWH

Significant Wildlife Habitat Assessment Tables

Table 5. Characteristics of Animal Movement Corridors for Ecoregion 7E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Amphibian Movement Corridors					
Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Blue-spotted Salamander Spotted Salamander Four-toed Salamander Gray Treefrog Northern Leopard Frog Pickerel Frog Western Chorus Frog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	Movement corridors between breeding habitat and summer habitat[clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi] Movement corridors must be considered when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat – Wetland) of this Schedule[i]. Information Sources • MNRF District Office • Natural Heritage Information Centre NHIC • Reports and other information available from CAs • Field naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant[cxlix]. • Corridors should have at least 15m of vegetation on both sides of waterwaycxlix or be up to 200m widecxlix of woodland habitat and with gaps <20m[cxlix] • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat[cxlix]. • SWHMIST[cxlix] Index #40 provides development effects and mitigation measures.	Watercourse within the subject property provides limited habitat for amphibian movement due to steep slopes, high entrenchment, and active bank erosion. Not SWH

Significant Wildlife Habitat Assessment Tables

Table 6. Exceptions for Ecodistricts within Ecoregion 7E.

	Wildlife Habitat and Species	Candidate SWH			Confirmed SWH	Study Area
		Ecosites	Habitat Description	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
EcoDistrict						
7E-2	Bat Migratory Stopover Area Rationale: Stopover areas for long distance migrant bats are important during fall migration. Hoary Bat Eastern Red Bat Silver-haired Bat	No specific ELC types		• Long distance migratory bats typically migrate during late summer and early fall migrating summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migration may concentrate these species of bats at stopover areas. • This is the only known bat migratory stopover habitats based on current information. <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • University of Waterloo, Biology Department	• Long Point (42°35'N, 80°30'E, to 42°33'N, 80°03'E) has been identified as a significant stop-over habitat for fall migrating Silver-haired bats, due to significant increases in abundance, activity and feeding that was documented during fall migration[ccxv]. • The confirmation criteria and habitat areas for this SWH are still being determined. • SWHMIST[cxlix] Index #38 provides development effects and mitigation measures	MNRF will be contacted for background information including possible bat migratory stopover habitat. Candidate SWH.

APPENDIX III

Environmental Impact Study Terms of Reference

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

December 23, 2016 Project No. 1823

Julian Novick
Development Manager
Wastell Homes
5-1895 Blue Heron Drive
London, Ontario
N6H 5L9

Dear Mr. Novick

Re: George Street, Port Stanley – Environmental Impact Study
Terms of Reference

Natural Resource Solutions Inc. (NRSI) was retained by Wastell Homes to complete an Issues Scoping Report (ISR) and Species at Risk (SAR) screening for a portion of Lot 15 Range1 North of Lake Road Southwold, George Street in Port Stanley, Ontario. As a result of the ISR and SAR screening, it was determined that an Environmental Impact Study (EIS) is required for the proposed development of these lands. An EIS was triggered by the presence of a Significant Woodland, potential fish habitat, and the adjacent lands of these features. As a result, a Terms of Reference (TOR) for a scoped EIS was prepared as part of the ISR process. This TOR is submitted as an appendix to the ISR.

Based on the presence of a Significant Woodland, potential fish habitat, habitat for SAR, and adjacent lands, the following TOR is presented for a scoped EIS.

Project Background

The subject property is located on George Street, south of the Kettle Creek Golf and Country Club, west of Highway 20 and east of Spring Street. The study area contains a Significant Woodland, an unrated municipal drain that provides indirect fish habitat, and Natural Hazard Lands consisting of steep slopes and flood fringe. These features are mapped on Schedule G of the Municipality of Central Elgin's Official Plan (2013).

According to the requirements for development or site alteration activities outlined in the Central Elgin Official Plan (2013), an Issues Scoping Report is required to assess the significance and function of existing natural heritage features within the subject property, as well as identifying potential cumulative impacts. Based on the results of the ISR, it is felt that a scoped EIS is required. The following outlines tasks that are proposed for the completion of a scoped EIS.

Scoped Environmental Impact Study

Background Review

Background information on the biological features and species present within and in the lands adjacent to the study area has been collected as part of the ISR and SAR screening. Detailed species lists with background records as well as observations made

by NRSI will be appended to the EIS report. Data from the various wildlife atlases, as well as the Natural Heritage Information Centre (NHIC) database, and other sources, will be summarized and presented alongside NRSI's observations made during field surveys, described below. Background information requests were sent to the Municipality of Central Elgin, the Kettle Creek Conservation Authority (KCCA), and the Ministry of Natural Resources and Forestry (MNRF) as part of the ISR. Information was received from the MNRF and KCCA and was incorporated into the SAR and Significant Wildlife Habitat (SWH) screenings, appended to the ISR. Any additional information received from the Municipality of Central Elgin will be included in the EIS. A detailed description of applicable policies, regulations, and legislation was provided in the ISR; however a summary will be provided in the EIS.

Proposed Undertaking

The details of the proposed undertaking will be provided and discussed in the context of natural heritage features and wildlife habitat. NRSI will provide guidance and advice to Wastell Homes for the ultimate development layout.

Field Investigations and Methods

Based on the background information collected to date, the SAR and SWH screenings, and the results of the ISR the following field studies are proposed to augment the background information and facilitate the completion of the scoped EIS.

Terrestrial Field Surveys

Vegetation Inventory

In order to take advantage of the season, a fall vegetation inventory has been conducted, as well as mapping of vegetation communities using the Ecological Land Classification (ELC) system (Lee 2008). Spring and summer vegetation inventories are recommended in order to identify the presence of significant or sensitive plant species, and species that may provide critical habitat for wildlife (e.g. butterflies). The spring field surveys will be conducted between mid-May and mid-June, while the summer inventory will be conducted between mid-June and mid-July.

Woodland Dripline Survey

During a follow-up site investigation to assess the connectivity of woodlands to offsite features, the woodland dripline was surveyed by a NRSI Certified Arborist. This information will be used to accurately determine the boundary of the Significant Woodland and other treed areas on site. The Certified Arborist surveyed the dripline boundary in the field using a backpack GPS unit on November 24, 2016. Should the Municipality of Central Elgin wish to review the dripline with NRSI staff, a site visit can be arranged.

Breeding Bird Survey

Breeding bird surveys are recommended to identify the presence of SAR birds that may be utilizing the subject site. Surveys will be conducted in accordance with the Ontario Breeding Bird Atlas methodology (OBBA 2001), which includes 2 surveys. The first survey will be conducted between May 24 and June 15, and the second survey will be conducted between June 16 and July 10, depending on suitable weather conditions. Surveys will identify bird species within the study area, as well as evidence of breeding. Area searches of the woodlands and the open field area will be conducted during both surveys to capture all suitable habitats and the highest diversity of species.

Butterfly and Odonate Survey

Butterfly and odonate surveys are recommended to address the potential presence of SAR within the subject property. Surveys will be carried out in early to mid-May and late June. Each survey will be carried out from mid-morning to late afternoon on sunny and warm days (generally >15˚C) with low wind. Area searches within suitable habitat will be carried out with the use of binoculars, an insect net, and a hand lens. All representative habitats (ELC ecosites) will be surveyed methodically. Suitable habitat is present within the adjacent lands to the woodlands and municipal drain.

American Badger Surveys

Surveys for evidence of American Badger (*Taxidea taxus jacksoni*) will be completed by a biologist with relevant knowledge. Surveys will take place in the spring when signs of American Badger may be more visible due to lack of vegetation, and the summer, when the species is most active. Surveys will consist of transects no further than 20 metres apart across the entire subject property, but no further than 10 metres apart in the forested communities. Detailed photographs and GPS coordinates will be recorded for any burrows greater than 15 centimeters. If burrows or dens are found that may be used, or may have been used, by American Badger, additional surveys and protection will be discussed with the MNRF.

Significant Wildlife Habitat

A preliminary assessment of SWH has been conducted based on the ELC mapping and observations made during a preliminary site investigation, detailed in the ISR. The following candidate SWH was identified through the ISR:

- Raptor Wintering Areas
- Bat maternity Colonies
- Landbird Migration Stopover Areas
- Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat
- Woodland Raptor Nesting Habitat
- Seeps and Springs
- Special Concern and Rare Wildlife Species, and

Given that development and site alteration will not occur within the Significant Woodland and the current concept plan has development occurring outside of the Significant Woodland and municipal drain setbacks, and well away from the potential seepage areas, surveys for several of these SWH types are not required. Field surveys for bat maternity colonies may be required if tree removal is proposed, and surveys for special concerns and rare wildlife species will be conducted. These surveys will be included in the field investigations detailed in this TOR.

Incidental Observations

Incidental observations of all wildlife species will be recorded while on the subject property. This will include direct observations, as well as observations of signs such as tracks, scat, vocalizations, etc.

Aquatic Field Surveys

Aquatic Habitat Assessment
An aquatic habitat assessment was conducted during the preliminary site investigation. Details from this assessment will be provided in the scoped EIS.

Impact Assessment
As part of the EIS, an analysis of potential impacts will be conducted based on the details of the proposed undertaking available at the time. The details of the proposed undertaking will be reviewed and compared to the existing conditions as detailed in the EIS report. NRSI will work with the client throughout the process to inform the layout of buildings and proposed grading in order to avoid direct impacts to the natural features. Any areas of conflict between natural features and the proposed undertaking that cannot be avoided will be discussed with the study team and options for avoiding or minimizing impacts will be recommended. Impacts will be determined based on the direct, indirect, induced, and cumulative effects of the undertaking, and methods for assessing each will be provided in the EIS.

In describing the significance and sensitivity of features and functions, and assessing the impacts of the proposed undertaking, the EIS will demonstrate that the proposed plan conforms to the various applicable legislation and policies. These features will be identified as constraints to the development and will be mapped. The constraints and opportunities map will include vegetation communities, as mapped using the ELC system (Lee 2008), watercourses, significant species habitats and floodline mapping. Mapping will also indicate the recommended buffers for each identified constraint.

EIS Report
A scoped EIS report will be prepared in accordance with the Municipality of Central Elgin Official Plan (2012) and the Elgin County Official Plan (2015). The EIS will include the following:

- description of the proposed undertaking,
- characterization of the existing natural environment including comprehensive species lists that identify observations made during original field surveys,
- description of the local soils and topography,
- analysis of direct and indirect impacts,
- identification of potential linkage opportunities not currently identified in the Official Plans
- a Management Plan including recommendations for pre-, during, and post-construction, enhancement opportunities, mitigation measures, and enhancement opportunities and buffers

We have endeavored to provide a comprehensive description of the proposed scoped EIS to serve as a useful Terms of Reference. Should you have any questions or comments regarding the above information, please do not hesitate to contact the undersigned.

Sincerely,
Natural Resource Solutions Inc.

Nyssa Hardie
Stream Corridor & Environmental Analyst