East Riverside Environmental Evaluation Report (EER)

Wyandotte Street East to Jarvis Avenue Environmental Assessment
City of Windsor
Project #SYW205065

Prepared for:

City of Windsor

350 City Hall Square W, Windsor, Ontario, N9A 6S1

November 12 2020

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350 City Hall Square W, Windsor, Ontario, N9A 6S1

Prepared by:

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Canada
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12 November 2020

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1.0 Introduction

Wood Environment & Infrastructure Solutions (Wood) was retained by the City of Windsor (the City) to evaluate the natural environment associated with the Wyandotte Street East to Jarvis Avenue Environmental Assessment (EA) as part of a Schedule 'B' Municipal Class EA study. The EA assesses the extension of Wyandotte Street East to Jarvis Avenue to serve neighbourhood transportation and infrastructure needs for a 20-year period. The purpose of this Environmental Evaluation Report (EER) is to meet the requirements/obligations of the City of Windsor's Official Plan, specifically section 10.2.5, which outlines the expectations of an Environmental Evaluation Report (EER). The purpose of an Environmental Evaluation Report is to demonstrate that the proposed infrastructure extensions may proceed in or adjacent to lands designated as Natural Heritage, Environmental Policy Area A or B and/or Candidate Natural Heritage Site (Subsections 5.3.3, 5.3.4, and 5.3.5 of the Official Plan). However, Natural Heritage, Environmental Policy Area A or B and/or Candidate Natural Heritage Site do not occur on-site (Exhibit 1). Rather this EER is serving as part of the Environmental Study Report (ESR) completed for the EA.

The EER will aim to characterize the existing conditions such as geomorphology, drainage, flora, fauna, microclimate and soils and significant natural functions of the area, such as shelter habitats and natural recharge or discharge areas. Only preliminary development drawings have been provided, as the planning process is in the beginning stages. Therefore, high-level potential impacts and mitigation measures will be considered.

Existing conditions will be largely described based on a background information review and assessment of existing conditions (as stated in the proposal by Wood October 2019.

Exhibit 1: The Orange block is the Study Area. No Natural Heritage, Environmental Policy Area A or B and/or Candidate Natural Heritage Site occur on site.

1.1 Study Area

Located in the City of Windsor, Ontario, the Study Area is bounded by Riverside Drive East (to the north), Jarvis Avenue (to the east), Little River Boulevard (to the south) and Banwell Road (to the west), as shown in Figure 1. The Ganatchio Trail is a public multi-use trail that runs parallel to Riverside Drive East, approximately 10 m south of the road. Lake St. Clair occurs to the north (approximately 75 m). The Study Area is approximately 250 metres (m) wide and 1 kilometre (km) long in a north-south orientation and is composed of residential lots with mowed cool-season grass groundcover, a sparsely treed canopy of native early successional species and small sections of naturalized habitat throughout. The surrounding landscape is dominated by residential communities, with some agricultural and municipal parklands located to the south and east of the site, which could potentially influence wildlife movement within the Study Area.

Located in Ecoregion 7E, the Study Area does not contain any provincially designated natural heritage features. The Ganatchio Trail, along with the associated green space, is part of a linkage corridor connecting natural and recreational areas between lands designated as Community and Regional Parks, Natural

Heritage, Waterfront Recreation and/or Waterway Corridors. Lastly, the Study Area falls within the Essex Region Conservation Authority (ERCA) regulation limit due to the 100-year flood-line from Lake St. Clair.

Field investigations performed to assess the Study Area were limited to the publicly accessible lands associated with Wyandotte Street East and Beverly Glen Street Right-Of-Ways (ROWs) bisecting the Study Area (Figure 1). Assessment of the privately owned properties occurred where visible through thick vegetation from the ROWs boundary and aerial imagery.

1.2 Description of the Proposed Project

During the last five inter-census periods, the district which contains the Study Area has experienced positive population growth and an increased number of occupied dwellings. Wyandotte Street East needs to be upgraded to meet safety and operational needs, including for emergency services, transportation needs and land use planning. The Official Plan designated Wyandotte Street East as a Class II Arterial, which typically has sidewalks on both sides of the road equalling a ROW width of 30 metres. A 24-metre right-of-way is currently available in the present road allowance. Extension of Wyandotte Street East is to allow for vehicular, pedestrian, transit, and bikeway connections, traffic calming, drainage, and sanitary sewage connections.

The proposed works involve new roads extending Wyandotte Street East and Beverly Glen Street. Wyandotte Street East will be constructed within its present alignment, and Beverly Glen Street will be constructed along the existing sanitary sewer corridor (Figure 2). In addition, the study will evaluate the servicing needs required to improve neighbourhood infrastructure to current municipal standards on Jarvis Avenue. Jarvis Avenue is a local residential road that has been constructed below the standard 8.60m pavement width, and storm sewer service in the area is limited. The cul-de-sac of Jarvis Avenue at Little River Boulevard requires an upgrade to meet municipal standards, and the pavement structure of Jarvis Avenue is rated as "Now Deficient". The current roadway is subject to poor drainage and deteriorated conditions and needs to be re-done. Operational deficiencies at Banwell Road and Little River Boulevard would be expected within the 10-year and 20-year horizons. A signalized intersection or a roundabout can be considered to improve the intersection operations in the future.

As stated above, preliminary proposed construction drawings have been provided by the City. The drawings are provided below and show the proposed roads, new lot lines, service areas, the extent of proposed vegetation removal/retention, and sidewalks. Elements such as stormwater management areas, drainage features (e.g. swales, culverts, tile beds), erosion and sedimentation control measures; grading limits and post-grading contours; surrounding natural heritage features or areas; development or land use alternatives; timing of construction, including any phasing of development; all proposed activities associated with the development that may have environmental impacts (e.g. removal of vegetation, grading, filling, draining, and other construction activities) will be provided during detailed design.

P:\2020\Projects_Other\SYW205065_COW_East_Riverside_EIS\11_GIS\Environmental_Evaluation_Report\MXD\Breeding_Bird_Survey_Locs_3.mxd

LEGEND

- Breeding Bird Survey Location
- Study Area
- Trails
- Municipal Parks
- Municipal Boundary

0 50 100 200 300 400 500 Metres

NOTES:
- Aerial imagery extracted from Essex County interactive map, scene date 2019.

Datum: NAD83
Projection: UTM Zone 17N

N W E S

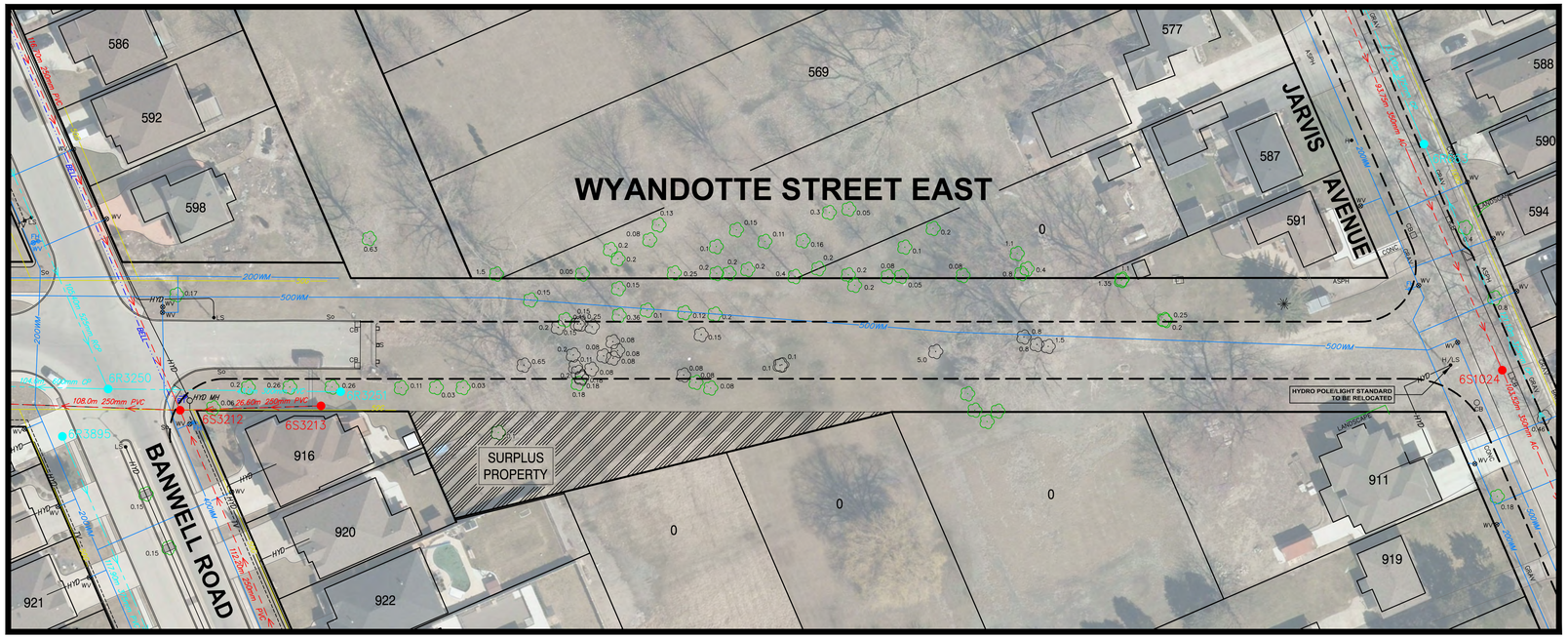
THE CITY OF WINDSOR ONTARIO, CANADA

wood.

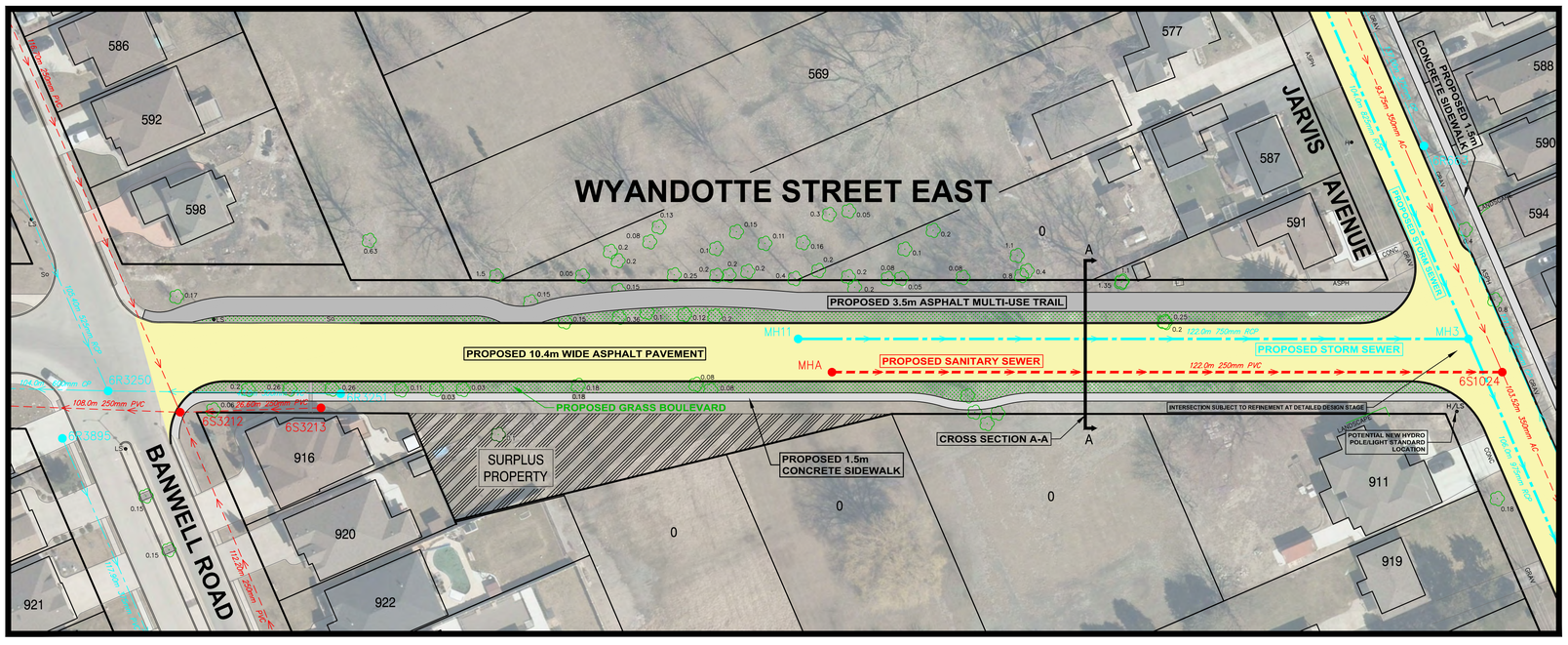
EAST RIVERSIDE EER

Study Area and Survey Locations

PROJECT N°: SYW205065	**FIGURE: 1**
SCALE: 1:6,000	DATE: November 2020

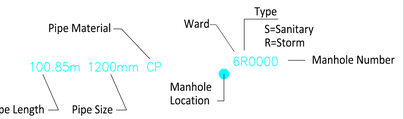


EXISTING CONDITIONS



PROPOSED CONSTRUCTION

LEGEND



- PROPOSED ASPHALT PAVEMENT
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- DITCH
- 200WM — WATERMAIN
- 100G — GASMAIN
- BELL — UNDERGROUND BELL
- HYD — UNDERGROUND HYDRO
- TV — UNDERGROUND TV
- LS — LIGHT STANDARD
- H — HYDRO POLE
- WV — WATER VALVE
- FH — FIRE HYDRANT
- CB — CATCH BASIN
- TREE TO REMAIN
- TREE TO BE REMOVED

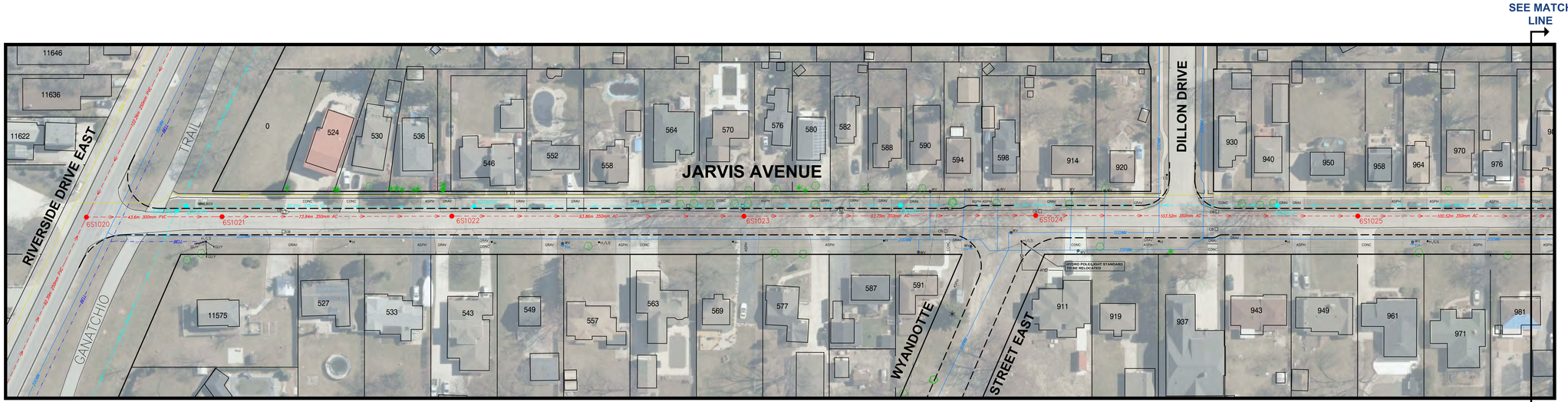
WYANDOTTE STREET EAST

Banwell Road to Jarvis Avenue

DRAWN BY:	DATE:	SCALE:
P. RUGGERI	OCTOBER 24, 2019	1:500

GEOMATICS
ENGINEERING DEPARTMENT
CITY OF WINDSOR

THE CITY OF WINDSOR
ONTARIO, CANADA



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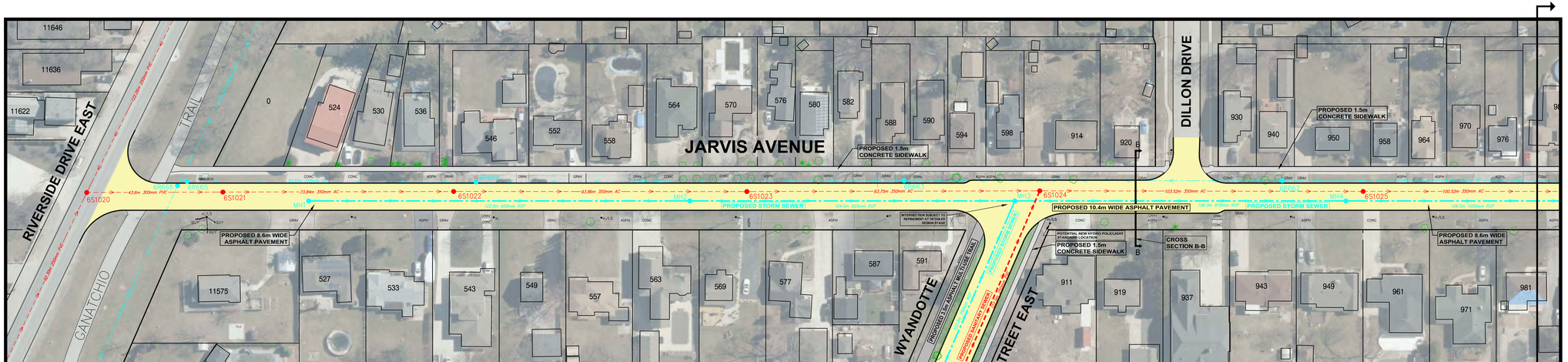

PROPOSED CONSTRUCTION

LEGEND

Pipe Material — Ward — Type (S=Sanitary, R=Storm) — Manhole Number

100.85m 1200mm CP — 6R0000

Pipe Length — Pipe Size — Manhole Location

- PROPOSED ASPHALT PAVEMENT
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- DITCH
- WATERMAIN
- GASMAIN
- UNDERGROUND BELL
- UNDERGROUND HYDRO
- UNDERGROUND TV
- LIGHT STANDARD
- HYDRO POLE
- WATER VALVE
- FIRE HYDRANT
- CATCH BASIN
- TREE TO REMAIN
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JARVIS AVENUE

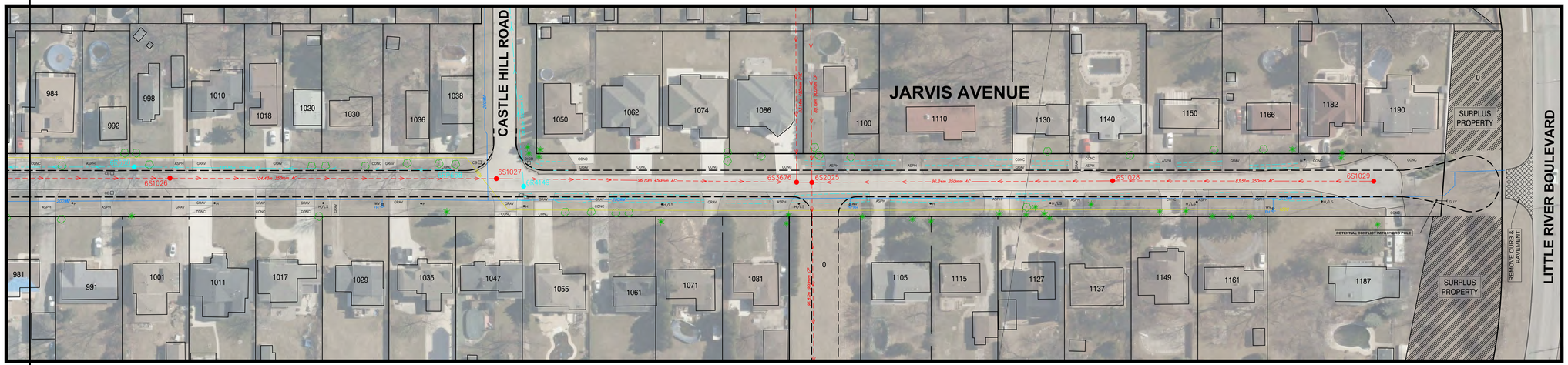
Riverside Drive East to Little River Boulevard

DRAWN BY:	DATE:	SCALE:
P. RUGGERI	OCTOBER 24, 2019	1:500

GEOMATICS
ENGINEERING DEPARTMENT
CITY OF WINDSOR

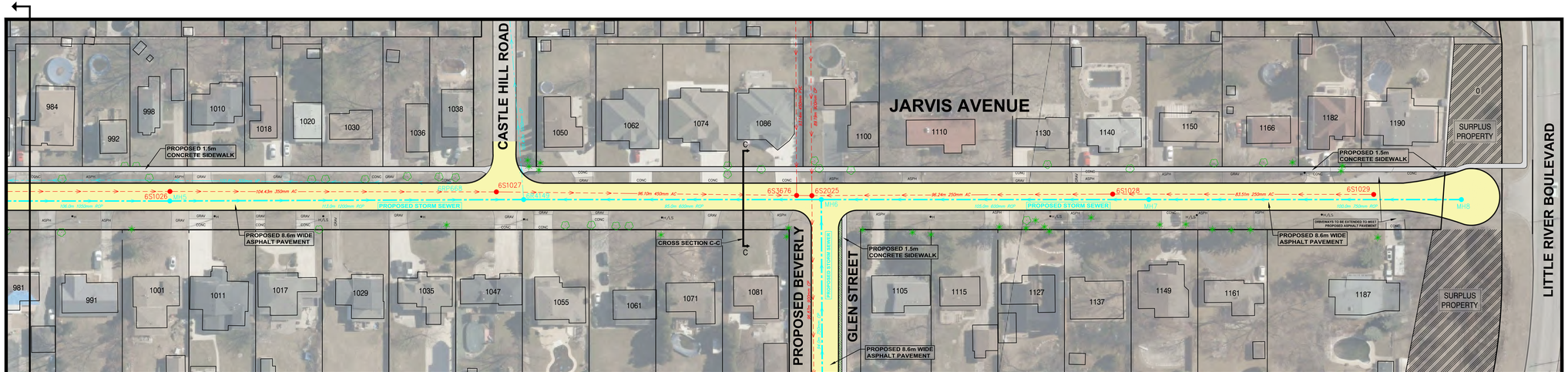
THE CITY OF WINDSOR
ONTARIO, CANADA

SEE MATCH LINE



EXISTING CONDITIONS

SEE MATCH LINE



PROPOSED CONSTRUCTION

SEE MATCH LINE

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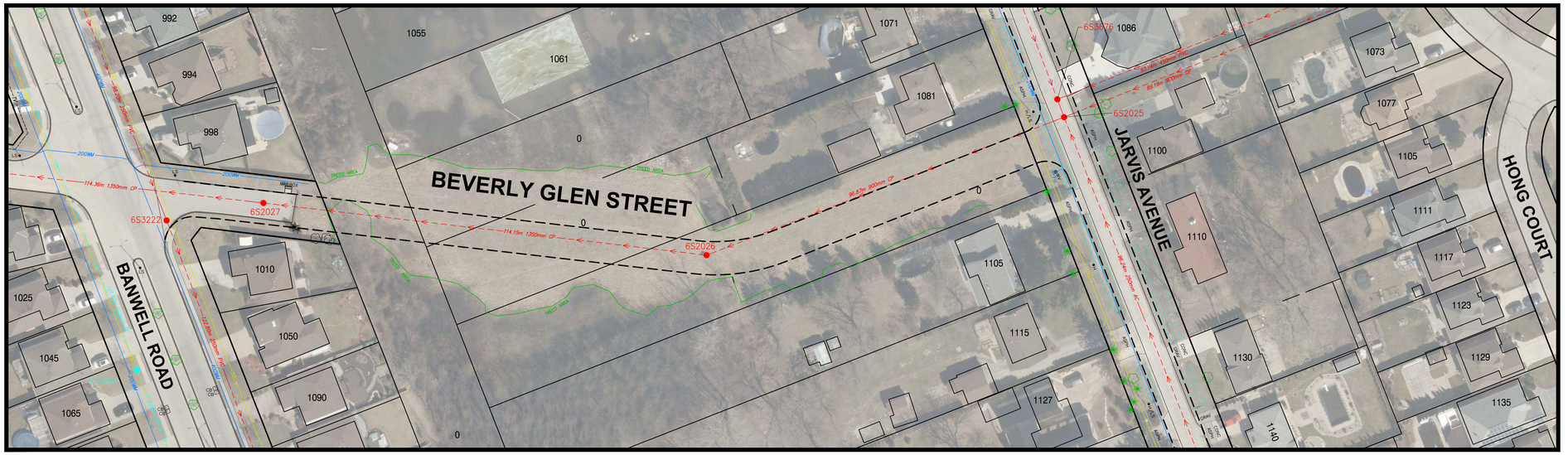
JARVIS AVENUE

Riverside Drive East to Little River Boulevard

DRAWN BY:	DATE:	SCALE:
P. RUGGERI	OCTOBER 24, 2019	1:500

GEOMATICS ENGINEERING DEPARTMENT CITY OF WINDSOR

THE CITY OF WINDSOR ONTARIO, CANADA



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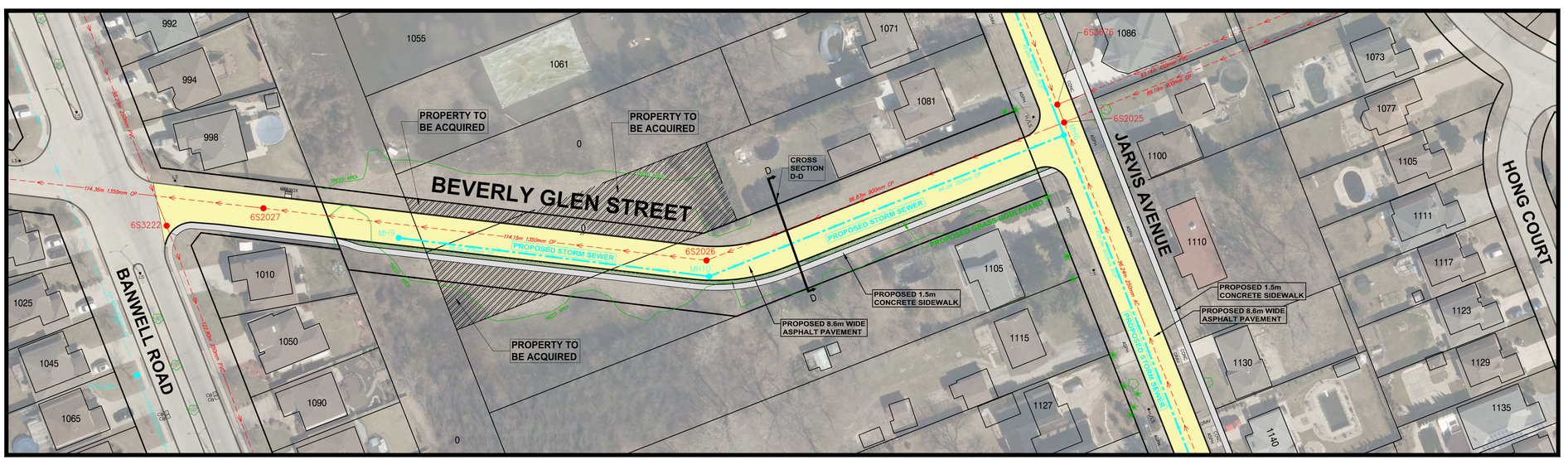

PROPOSED CONSTRUCTION

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BEVERLY GLEN STREET

Banwell Road to Jarvis Avenue

DRAWN BY:	DATE:	SCALE:
P. RUGGERI	OCTOBER 24, 2019	1:500

GEOMATICS
ENGINEERING DEPARTMENT
CITY OF WINDSOR

THE CITY OF WINDSOR
ONTARIO, CANADA

2.0 Consultation

2.1 Ministry of Environment, Conservation and Parks

Wood will support the City to initiate consultation with the Ministry of Environment, Conservation and Parks (MECP) regarding compliance with the provincial Endangered Species Act (ESA, 2007), as needed.

2.2 City of Windsor

As a City project, various departments were contacted early on. Karen Cedar, a Naturalist with the Ojibway Nature Center, identified Species at Risk habitat in the Study Area and noted the Bald Eagle nest nearby. On the 29th of October 2020, it was confirmed with Karen Cedar that the potential Species at Risk habitat referred to was for Climbing Prairie Rose (*Rosa setigera)*, Willowleaf Aster (*Symphyotrichum praealtum*), Eastern Foxsnake (*Pantherophis gloydi*), and to a lesser extent Butler's Gartersnake (*Thamnophis butleri*). The area of concern for Species at Risk habitat is the Beverly Glen Street ROW extension.

2.3 Essex Region Conservation Authority

Essex Region Conservation Authority (ERCA) was contacted via phone on February 6, 2020, regarding potential environmental concerns/ requirements for the project. ERCA identified no natural heritage features of concern within the Study Area requiring ERCA attention for the project.

3.0 Policy Context

This section will elaborate on the current planning context by discussing current land uses and land use policy and regulations on, and adjacent to, the subject property. Plans, policies and legislation relating to the natural heritage that will be considered and screened for compliance include the following:

3.1 Federal Species at Risk Act (2002)

The purpose of the Species at Risk Act (SARA) is to prevent wildlife species in Canada from disappearing, to provide for the recovery of wildlife species, and to manage species to prevent further risk to their status. Only species listed as Threatened, Endangered, or Extirpated under Schedule 1 are afforded both individual and habitat protection under the SARA. On provincial lands, SARA legislation does not apply, except for Migratory Birds that also fall under schedule 1 of SARA (not including their habitat) and aquatic species. Notably, prohibitions can be applied if provincial legislation or voluntary measures do not adequately protect federally listed species and their residence. Generally, compliance with provincial ESA legislation will satisfy the requirements under the SARA.

3.2 Federal Fisheries Act (1985)

The Federal Fisheries Act governs the protection of fisheries and aquatic habitat and was amended on November 25, 2013 and June 21, 2019. This Act provides protection to fish and fish habitat such that:

The Fisheries Act requires that any activity avoid harmful alteration, disruption or destruction of fish habitat (HADD) unless authorized by Fisheries and Oceans Canada (DFO). If mitigation measures cannot be applied, and residual effects may cause HADD, then provisions under the Act may apply (i.e., approval). Fish habitat is defined by the Act as "*water frequented by fish and any other areas on which fish depend directly or*

indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas".

This project does not involve work in or near potential fish habitat, as such, the Fisheries Act does not apply to this project. Lake St. Clair is located approximately 75 m north of the Study Area, with residential properties between the Study Area and the lake.

3.3 Migratory Birds Convention Act (1994)

The Migratory Birds Regulation protects (listed) migratory birds in Canada through the conservation of populations, individuals, and their nests. These policies and regulations ensure the protection of listed migratory bird species, their nests, eggs and offspring. Species listed under Article I of the Migratory Birds Convention Act (MBCA) identifies migratory species that are protected under this Act. It is a contravention of this Act to harass, harm, or kill migratory birds, remove or disrupt their nests, and/or eggs.

3.4 Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) is issued under Section 3 of the Planning Act by the Ministry of Municipal Affairs and Housing. The Province of Ontario updated the PPS in 2019, and the new PPS came into effect on 1st May 2020 (MMAH 2020). The PPS guides the formulation of municipal policies and regulations, such as the Official Plans listed below. The PPS is comprised of various policies on development and land use patterns, resource protection and management, and public health and safety. The Natural Heritage policies within the PPS identify natural features in which development is prohibited and where development is permitted, both within and adjacent to specified features, as long as there are no negative impacts on the features or their ecological functions.

As a part of the PPS Significant Wildlife Habitat is identified as a natural heritage area. The Significant Wildlife Habitat Technical Guide and Ecoregion schedules were prepared by the Ministry of Natural Resources and Forestry (MNRF) to assist planning authorities and other participants in the land use planning system. Significant Wildlife Habitat was screened using the Significant Wildlife Habitat Technical Guideline (MNRF 2000) and Ecoregion 7E Criteria Schedules (MNRF 2015).

The following sections of the PPS are relevant to this EER. Section 2 of the PPS provides direction for the wise use and management of resources, including the protection of natural areas and features. Relevant natural heritage policies are in Section 2.1 of the PPS and generally states that the diversity and connectivity of natural heritage (including surface and groundwater features) should be maintained, restored or, where possible, improved. Section 2.2 of the PPS relates more specifically to water resources and supports planning authorities to protect, improve, and restore the quality and quantity of water.

Policy 2.1.4 lists significant natural heritage features where development and site alteration is not permitted in (concerning Ecoregion 7E):

- significant wetlands; and
- significant coastal wetlands.

Policy 2.1.5 lists significant natural heritage features where development and site alteration is not permitted unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, including (concerning Ecoregion 7E):

- significant woodlands;
- significant valleylands;

- significant wildlife habitat;
- significant areas of natural and scientific interest; and
- coastal wetlands that are not subject to policy 2.1.4(b).

Policy 2.1.6 states development and site alteration are not permitted in fish habitat except in accordance with provincial and federal requirements.

Policy 2.1.7 states development and site alteration are not permitted in the habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

Policy 2.1.8 states development and site alteration are not permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions. Adjacent lands for the purposes of policy 2.1.8 are lands contiguous to a specific natural heritage feature or area where it is likely that development or site alteration would have a negative impact on the feature or area. The extent of the adjacent lands may be recommended by the Province or based on municipal approaches which achieve the same objectives.

Negative impacts in regard to natural heritage features and areas means "degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities".

Development, in context of the PPS, means the creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the Planning Act, but does not include activities that create or maintain infrastructure (Infrastructure includes sewage and water systems and transit and transportation corridors and facilities) authorized under an environmental assessment process or works subject to the Drainage Act.

3.5 Provincial Endangered Species Act (2007)

The Endangered Species Act (ESA) provides science-based assessment, automatic species protection, and habitat protection to protect species at risk of disappearing from Ontario. Under Section 9 of the ESA, species are afforded individual protection, providing they are listed as Threatened, Endangered, or Extirpated on the Species at Risk in Ontario list. Section 10 of the ESA is in place to protect the habitat of Threatened or Endangered species only, where no damage is permitted to the habitat of those species unless under the authorization of the Ministry of the Environment, Conservation and Parks (MECP) by way of registration or permit. Destruction of Species at Risk and their habitats constitutes a contravention of the Endangered Species Act.

3.6 Provincial Fish and Wildlife Conservation Act (1997)

This act lists specially protected species in Ontario, including mammals, birds, herpetofauna, and invertebrates. "A person shall not hunt or trap specially protected wildlife or any bird that belongs to a species that is wild by nature and is not a game bird". This includes the nests and eggs of some birds that are not covered under the Migratory Birds Convention Act.

3.7 City of Windsor Official Plan (2013)

The Official Plan provides guidance for the physical development of the municipality over a 20-year period while taking into consideration important social, economic and environmental matters and goals. This plan is adopted by Council under the provisions of the Ontario Planning Act.

Schedule A identifies planning districts and policy areas and their associated policies. The Study Area is within the Lakeview Planning Area which contains guidelines regarding new development with rear yards abutting existing development.

Schedule B identifies the Greenway System, which recognizes a narrow Community and Regional Park along the south side of Riverside Drive East, in the northern edge of the Study Area. The Greenway System encompasses the Ganatchio Trail, which runs parallel to Riverside Drive East. Within this schedule, a proposed recreation way is identified at the location of this proposed project.

Schedule C identifies Development Constraint Areas, identifying the Study Area as within a shoreline and flood-prone area. No other potential development constraints are identified in this mapping.

Schedule D identifies Land Use, with a narrow band of Open Space along the south side of Riverside Drive East (Ganatchio Trail and adjacent maintained landscape) and Natural Heritage land use south of Little River Boulevard outside the Study Area.

4.0 Methods

Characterization of the natural environment is based on a review of available secondary source information, observations made during field investigations, and information gathered through consultation with ERCA. Field investigations were performed within the Wyandotte Street East and Beverly Glen Street ROWs and from the roadsides within and adjacent to the Study Area, as there was no access to properties outside of the ROW. Natural heritage features and wildlife habitat within the Study Area were undertaken through the application of alternative methods of observation (i.e., visual assessment from within the ROW and aerial/satellite imagery interpretation). Natural heritage features examined included Ecological Land Classification (ELC) of vegetation communities, plant species occurrence, breeding birds, reptiles, Species at Risk (SAR) habitat and areas of candidate significant wildlife habitat. A record of surveys completed, including survey type, date and time, general weather conditions, and surveyors, is provided in Table 1. In addition to targeted surveys, incidental wildlife observations were collected during all surveys to record presence and habitat use. Methods used in conducting the field program components and dates for each survey type are outlined in their respective sections below. Field sheets and representative photographs are included in Appendix A.

Table 1: Record of Surveys Completed

Survey Type	Date	Time	Weather	Surveyor(s)
Reconnaissance, Breeding Bird Surveys, SAR habitat surveys and ELC	2020-05-25	7:00-11:30am	Partly cloudy, 26°C, South wind 12 km/hr, No precipitation	Shane Butnari
Reconnaissance, Breeding Bird Surveys, SAR habitat surveys and ELC	2020-06-17	7:00-11:00am	Sunny, 14°C, North wind 9 km/hr, No precipitation	Shane Butnari

4.1 Desktop Screening

Screening of available background information from existing studies, plans, databases, and other sources was completed. The desktop screening assisted in the preliminary determination of existing Natural Heritage Features as well as candidate features, additional sensitivities, to ascertain plant and wildlife species present within the Study Area, and to contribute to the fish community and aquatic habitat data for watercourses within the Study Area. Data also included potential occurrences of species of conservation concern, including SAR and provincially rare species and whether any Areas of Natural or Scientific Interest (ANSI), Environmentally Sensitive Areas and/or Provincially Significant Wetlands (PSW) are located within or adjacent to the Study Area.

Relevant background sources include;

- City of Windsor Official Plan (City of Windsor 2013);
- Essex Region Conservation Authority (ERCA) Interactive Mapping (ERCA 2020);
- Natural Heritage Information Centre (NHIC) (grid 17LG4388 and 17LG4387) (MNRF 2020a);
- Ontario Nature Reptile & Amphibian Atlas (ORRA) (grid 17LG48) (Ontario Nature 2019);
- Atlas of Breeding Birds of Ontario (OBBA) (grid 17LG48) (Cadman et al. 2007);
- Atlas of the Mammals of Ontario (Dobbyn 1994);
- eBird Hotspots and SAR records (eBird 2020);
- Land Information Ontario (Aquatic Resource Area) (MNRF 2020b);
- Ontario Butterfly Atlas (OBA) by the Toronto Entomologists' Association (TEA) (grid 17LG48) (MacNaughton et al. 2020);
- DFO Aquatic species at risk map (DFO 2020);
- iNaturalist (iNaturalist 2020).

Data for grid ID 17LG48 is presented on a 10 kilometre (km) by 10 km grid square. The square overlapped with the Study Area and was used to determine a potential fauna list. However, the Study Area is a small portion of the grid square, and it is therefore not certain all species indicated will occur. Habitat type, size, connectivity, and availability will contribute to species use.

The NHIC database provides data in 1 km x 1 km grid squares, which provides for more accuracy, but habitat type, size, connectivity, and availability will still factor into species use

4.2 Ecological Land Classification

Ecological Land Classification (ELC) vegetation communities were delineated using aerial photography and ground-truthing from public ROW accesses and the surrounding roadsides during the two (2) field surveys. The Ecological Land Classification for Southern Ontario: Second Approximation (Lee et al. 2008) was used. The Second Approximation was used as the vegetation descriptions more accurately described the vegetation communities, and the Second Approximation still keeps in line with the standardized protocol.

Generally, communities at least 0.5 ha in size are mapped following ELC protocols; however, given the nominal size of the area, vegetation communities less than 0.5 ha have been included. Additionally, communities that are considered unique (rare and wetland communities) are also delineated if less than 0.5 ha. Topography, floral composition, stand structure and disturbance were inventoried to describe and classify vegetation communities. The terminology used is based on ELC sampling protocols that collect

information on four vegetation layers (note: some layers may not be present within a vegetation community sampled). The four (4) layers are:

Canopy consists of tall vegetation that reaches the light first, typically composed of tall trees (in a forest community).
Sub-canopy includes vegetation growing just under the canopy, vegetation that receives filtered sunlight through the canopy, typically composed of trees and tall shrubs (in a forest community).
Understory includes vegetation growing below the sub-canopy, typically composed of both tall and low-growing shrubs (in a forest community).
Ground layer consists of the vegetation which is closest to and covers the ground, typically composed of herbaceous vegetation.

4.3 Breeding Birds

Two (2) rounds of breeding bird surveys were conducted on 25 May and 17 June 2020 using proper protocol methodology as outlined in the North American Breeding Bird Survey guidelines (OBBA 2001). Surveys occurred during suitable weather conditions for survey protocol (i.e., no precipitation, no or low wind speed and good visibility) and surveys were initiated no earlier than 30 minutes after dawn and did not proceed beyond 9 am. Three (3) point counts were completed during each round (Appendix A). At each point count survey location, the biologist waited two (2) minutes to allow the birds to adjust to the observers' presence followed by a 10-minute listening period. During the listening period, all birds heard or observed were recorded at intervals of 0 to 50 m, 50 to 100 m, greater than 100 m and flyovers (birds seen flying overhead). At each survey location, each bird was recorded once and mapped on the field data sheets to ensure no or limited duplication of individual birds.

4.4 Herptiles and Habitat

The presence of reptiles and amphibians and suitable habitat features were visually surveyed for during field investigations. Specifically, surveys were conducted during appropriate conditions for animals to be observed.

4.5 Incidental Wildlife

Incidental wildlife includes documentation of wildlife sighting and evidence or signs of wildlife use during the two (2) site visits (e.g., birds, mammals, insects).

5.0 Biophysical Conditions

5.1 Desktop Screening

The Study Area is within the Mixedwood Plains ecozone and is contained within the Lake Erie-Lake Ontario Ecoregion (Ecoregion 7E-1). Land use in the surrounding area is predominantly agricultural, with only 8% of the regions remaining natural cover (the lowest of all regions). One-quarter of this natural cover is concentrated in the Lake St. Clair delta. The remaining natural cover supports a high richness of species at risk. With 86 different species at risk (as of 2009), this is the highest number of any region in the ecozone. In addition, the region has notable aquatic habitats and contains 9,184 hectares of coastal wetlands. The remaining natural cover is important land bird stopover habitat. This cover, in addition to poorly drained agricultural fields that are often flooded in the spring, also provides habitat for migrating shorebirds. (OMAFRA 2020).

Secondary source review revealed the presence of 10 bird, six (6) reptile, two (2) plant, two (2) fish and two (2) invertebrate SAR/ provincially rare species potentially documented within the vicinity of the Study Area. It is important to note that the exact locations of these species are not available through the reviewed secondary sources. Potential SAR occurrence within the Study Area is discussed in Section 5.1 below.

5.1.1 Physiography and Soils

The Study Area is located within the Essex Clay Plain, which itself is a subdivision of the St. Clair Plain physiographic region, characterized by clayey till soils, high in lime, with poor drainage, essentially stone free, and very gently sloping. The topography is flat and overlain by deep undulating deposits of ground moraine. Most substrates in the ecoregion are comprised of calcareous mineral material with a minor component of the landscape composed of organic material (OMAFRA 2020).

5.1.2 Surface Water and Groundwater Features

There are no watercourses or wetlands or seeps, springs or other notable areas of groundwater discharge in the Study Area. There are no groundwater recharge areas, intake protection zones, wellhead protection areas or other vulnerable areas in the Study Area. There is an area of temporary pooling, however, the source and the hydrologic regime is not known.

5.1.3 Fish and Aquatic Habitat

As there are no watercourses in the Study Area there are no fish or aquatic habitat features.

5.1.4 Essex Region Conservation Authority

Through personal communication, ERCA identified no natural heritage features of concern within the Study Area requiring attention by ERCA for the project.

5.2 Ecological Land Classification

Due to limited access, only general community observations were made. The land within the Study Area includes residential properties and cultural and natural vegetation habitats influenced by human disturbance. A summary table of the vegetation communities and land use within the Study Area is presented in Table 2, and the distribution of land use and ELC units are illustrated in Figure 3. Due to property access limitations, communities could not be investigated thoroughly, and some were evaluated based solely on satellite photography. ELC designations were undertaken at a high level based on observations possible from the ROWs. A total of five (5) ELC communities were identified within the

Exhibit 2: MEMM4

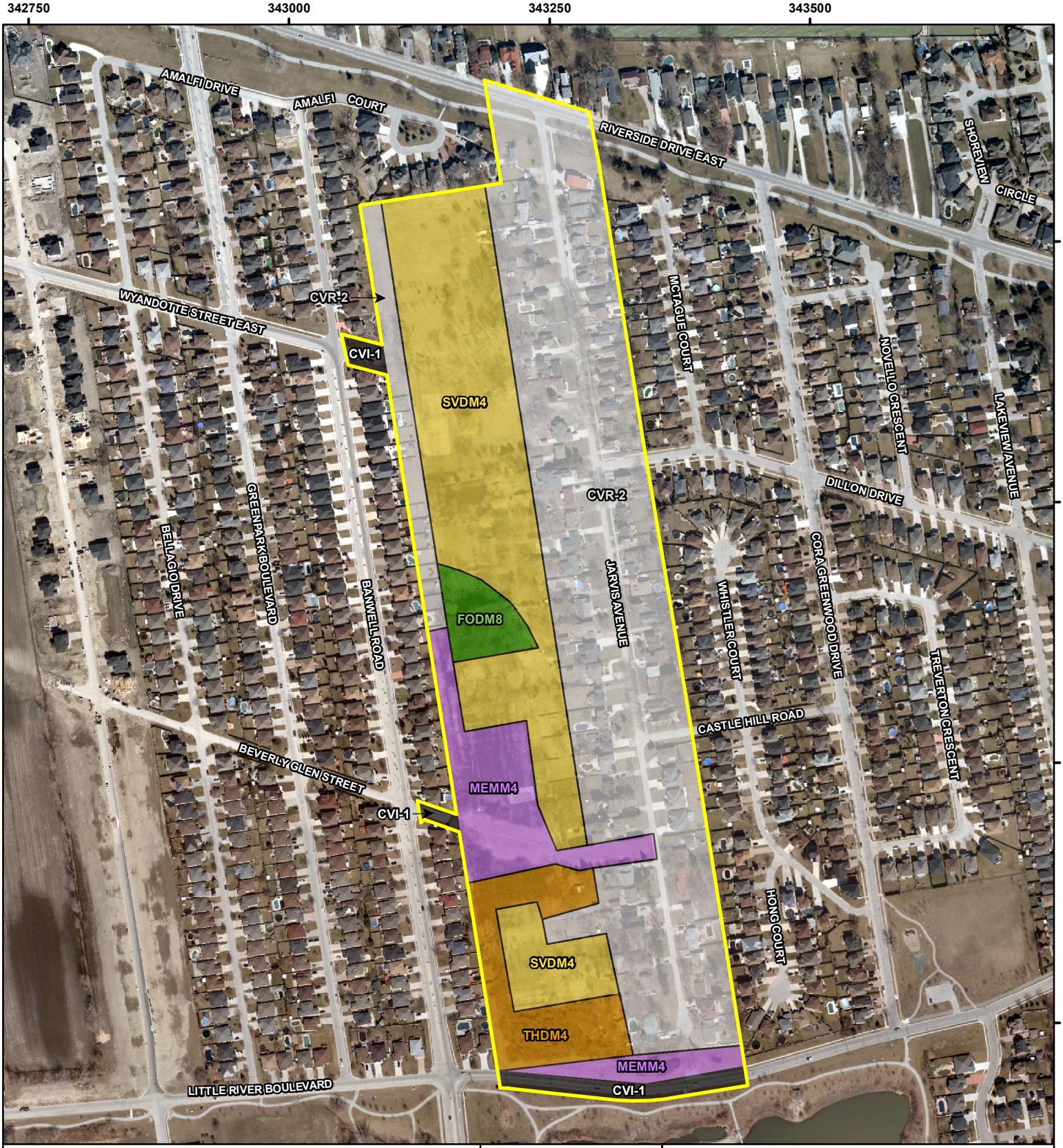
Study Area. Of the approximately 21 hectares (ha) that make-up the Study Area, 51.7% was residential, 27.3% was savanna, 9.3% was meadow, followed by 6.6% thicket and 2.5% forest. All communities are heavily influenced by human disturbance and are suspected to contain numerous non-native species due to their proximity to cultural habitats.

As described above, the vegetation communities were portrayed with the Second Approximation (Lee et al. 2008). For some ELC communities, the Second Approximation offers a conversion to the First Approximation codes, such as FODM8 in the Second Approximatation equaling FOD8 in the First Approximation. However, the remaining communities determined in the Study Area are distinct and not transferable to the First Approximation. The Ontario Natural Heritage Information Centre (NHIC) has not updated the Ontario Plant Community List with Second Approximation ELC; therefore rarity of the vegetation communities is unknown. However, savannahs with grasses and forbs in the understory that are characteristic of prairie communities are considered rare vegetation communities (OMNRF 2014). Cultural Savannahs, such as the SVDM4 found in the Study Area, lack the characteristic prairie community in the understory (OMNRF 2014). None of the vegetation communities found in the Study Area are considered rare.

Table 2: ELC Vegetation Communities and Land Uses

ELC Type	Community Description
Vegetated / Natural Communities	
CVR_2 High-Density Residential Total Area: 11.1 ha (51.7%)	This residential community is dominated by a combination of mowed grass and landscaped ornamental garden species, with a canopy of both native and ornamental tree species.
MEMM4 Fresh-Moist Mixed Meadow Ecosite Total Area: 2.0 ha (9.3%)	This mixed meadow community is dominated by a combination of grass and forb cultural meadow species with woody plants (mostly dogwood sp.) establishing sporadically throughout the site. Through long-distance observations and aerial imagery, it appears that this portion of the meadow is wet and has a higher abundance of wet meadow species, such as a variety of *Carex spp*. and *Juncus spp*. This community contained tallgrass prairie indicator species in low numbers such as Giant Ironweed (*Vernonia gigantea*) and Climbing Prairie Rose and many high-quality native species such as Swamp Milkweed (*Asclepias incarnata* subsp. *incarnata*), Black-eyed Susan (*Rudbeckia hirta*), Silverweed (*Potentilla anserina*), Bebb's Sedge (*Carex bebbii*), Fox Sedge (*Carex vulpinoidea*), and aster species (*Symphyotrichum* spp) (Appendix A Photo 13).
SVDM4 Fresh-Moist Deciduous Savannah Ecosite Total Area: 5.9 ha (27.3%)	This deciduous savannah is dominated by a mix of Eastern Cottonwood (*Populus deltoides*), Silver Maple (*Acer saccharinum*), willow species (*Salix* sp.), and American Elm (*Ulmus americana*) in the canopy. The understory is sparse and composed of dogwood species (*Cornus* sp.), Green Ash (*Fraxinus pennsylvanica*) and regenerating native deciduous species. The groundcover is dominated by mowed cool-season grass species, with sparse patches of early successional meadow species establishing. A large portion of the community was not readily visible from the ROW but appeared to be a similar habitat to visible areas. The proposed road is located within this ecosite (Appendix A Photo 1).

ELC Type	Community Description
THDM4 Dry-Fresh Deciduous Regeneration Thicket Ecosite Total Area: 1.4 ha (6.6%)	This deciduous thicket is dominated by regenerating native early successional tree species such as Green Ash, American Elm, Eastern Cottonwood, Silver Maple, willow sp. and Black Walnut (*Juglans nigra*), as well as shrub species such as dogwood spp. and Staghorn Sumac (*Rhus typhina*). The groundcover was not readily visible from the ROW but some areas appeared to be exposed mineral soil in very dense thickets and dominated by mixed meadow species found throughout the rest of the site (Appendix A Photo 10 and 18).
FODM8 Fresh-Moist Poplar-Sassafras Successional Deciduous Forest Ecosite (First Approximation: FOD8 Fresh-Moist Poplar-Sassafras Deciduous Forest Ecosite) Total Area: 0.5 ha (2.5%)	This deciduous forest canopy is dominated by Eastern Cottonwood, with Silver Maple, American Elm and willow sp. present. Understory and groundcover species were not readily visible from the ROW or roadside.



P:\2020\Projects_Other\SYW205065_COW_East_Riverside_EIS\11_GIS\Environmental_Evaluation_Report\MXD\ELC_2.mxd

LEGEND

- Study Area

Ecological Land Classification

- CVI-1 *(Transportation)*
- CVR-2 *(High Density Residential)*
- FODM8 *(Fresh-Moist Poplar-Sassafras Successional Deciduous Forest Ecosite)*
- MEMM4 *(Fresh-Moist Mixed Meadow Ecosite)*
- SVDM4 *(Fresh-Moist Deciduous Savanna Ecosite)*
- THDM4 *(Dry-Fresh Deciduous Regeneration Thicket Ecosite)*

0 50 100 200 300 400 500 Metres

NOTES:
- Aerial imagery extracted from Essex County interactive map, scene date 2019.

Datum: NAD83
Projection: UTM Zone 17N

N W E S

THE CITY OF WINDSOR ONTARIO, CANADA

wood.

EAST RIVERSIDE EER

Ecological Land Classification

PROJECT N°: SYW205065 | **FIGURE: 3**

SCALE: 1:5,000 | DATE: September 2020

5.2.1 Flora

Most of the plant species observed are early successional or weedy species, but these may not represent the species present within areas away from the roadsides and ROWs. Due to limited access, only general vegetation observations were made. The two NHIC grids (17LG4388 and 17LG4387) which cover the Study Area did not reveal any plant SAR. The two NHIC grids directly adjacent (17LG4288 and 17LG4287) report Climbing Prairie Rose. Climbing Prairie Rose was also found during field surveys in the Study Area (Figure 4).

Giant Ironweed, which inhabits mesic prairies, thickets, moist woods, roadsides, and grassy meadows in the Carolinian Zone of southwestern Ontario (Argus et al. 1982-1987), was found along Little River Boulevard (Figure 4). Giant Ironweed is listed as 'S1?' by the NHIC; meaning the numeric rank (i.e., '1') is inexact, however it is thought to be Critically Imperiled sub-nationally (i.e., provincially).

Exhibit 3: Climbing Prairie Rose (*Rosa setigera*)

Exhibit 4: Giant Ironweed (*Vernonia gigantea*)

5.3 Breeding Birds

During the two (2) field investigations, 19 bird species were identified within the Study Area (Table 3). Due to the time of the field investigations, the suitability of the habitat within the Study Area and the location of the Study Area, it is assumed that the majority of bird species recorded are breeding within the Study Area or the adjacent municipal parklands and agricultural areas. One SAR, Eastern Wood-pewee was recorded during field studies and in background sources. Eastern Wood-pewee is Probably breeding in the Study Area, and the approximate center of the defended territory is represented in Figure 4. Eastern Wood-pewee is discussed in Section 6.1 and 6.2 below. Field sheets are included in Appendix A.

In background review and consultation, 11 SAR bird species have been identified in the area (Table 4) and may have the potential to occur. Due to the previously discussed large search area, a couple of species will not occur in the Study Area and are likely documented from Lake St. Clair (e.g., Horned Grebe and American White Pelican) or as migrants (e.g., Canada Warbler, Cerulean Warbler) and will not be discussed further. Bald Eagle was documented in several sources, including from the City (Section 2.2). Bald Eagle is specifically discussed in the SAR screening (Section 6.1; Table 4) and the Significant Wildlife Habitat screening (Section 6.2). The potential for Bald Eagle to occur in the Study Area is possible, but currently, no nests occur, and the known existing nest is approximately 800m away.

Table 3: Bird Species Identified by Wood

Common Name	Scientific Name	S-Rank	SARA	ESA
American Robin	*Turdus migratorius*	S5B	-	-
Baltimore Oriole	*Icterus galbula*	S4B	-	-
Brown-headed Cowbird	*Molothrus ater*	S4B	-	-
Carolina Wren	*Thryothorus ludovicianus*	S4	-	-
Chestnut-sided Warbler	*Setophaga pensylvanica*	S5B	-	-
Chipping Sparrow	*Spizella passerina*	S5B	-	-
Common Grackle	*Quiscalus quiscula*	S5B	-	-
Eastern Wood-pewee*	*Contopus virens*	S5B	THR	SC
Gray Catbird	*Dumetella carolinensis*	S4B	-	-
House Sparrow	*Passer domesticus*	SNA	-	-
House Wren	*Troglodytes aedon*	S5B	-	-
Killdeer	*Charadrius vociferus*	S5B	-	-
Mallard	*Anas platyrhynchos*	S5B	-	-
Mourning Dove	*Zenaida macroura*	S5B	-	-
Northern Cardinal	*Cardinalis cardinalis*	S5	-	-
Red-winged Blackbird	*Agelaius phoeniceus*	S5B	-	-
Song Sparrow	*Melospiza melodia*	S5B	-	-
Warbling Vireo	*Vireo gilvus*	S5B	-	-
Yellow Warbler	*Setophaga petechia*	S5B	-	-

Provincial S-Rank: S2 Imperiled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SNA Not Applicable/Provincially non-native, not suitable target for conservation activities. Qualifiers B=Breeding—refers to the breeding population, N=Non-breeding—refers to the non-breeding population.
SARA = Species at Risk Act
ESA = Endangered Species at Risk Act
SARA/ESA Designation: END Endangered, THR Threatened, SC Special Concern

Table 4: SAR Birds Identified by Secondary Sources

Common Name	Scientific Name	S-Rank	SARA	ESA
Bald Eagle	*Haliaeetus leucocephalus*	S2N,S4B	-	SC
Bank Swallow	*Riparia riparia*	S4B	THR	THR
Barn Swallow	*Hirundo rustica*	S5B	THR	THR
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR
Chimney Swift	*Chaetura pelagica*	S4B,S4N	THR	THR
Common Nighthawk	*Chordeiles minor*	S4B	THR	SC
Eastern Meadowlark	*Sturnella magna*	S4B	THR	THR
Eastern Wood-pewee	*Contopus virens*	S5B	THR	SC
Grasshopper Sparrow	*Ammodramus savannarum*	S4B	SC	SC
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S4B	THR	SC
Wood Thrush	*Hylocichla mustelina*	S4B	THR	SC

Provincial S-Rank: S2 Imperiled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SNA Not Applicable/Provincially non-native, not suitable target for conservation activities. Qualifiers B=Breeding—refers to the breeding population, N=Non-breeding—refers to the non-breeding population.
SARA = Species at Risk Act
ESA = Endangered Species at Risk Act
SARA/ESA Designation: END Endangered, THR Threatened, SC Special Concern

5.4 Herptiles

No reptiles were recorded within the Study Area during field investigations, however, limited access made wildlife observations difficult. Potential snake habitat features were present within the Study Area, including brush piles (used for thermoregulation). Crayfish burrows were present in the wet mixed meadow habitats in the Beverly Glen Street ROW, which provide suitable hibernation sites for multiple snake species commonly found in the region of the Study Area (Figure 4). Anthropogenic features were also present, which are used for snake thermoregulation and hibernating (Appendix A). There are stormwater management ponds located directly to the south of the Study Area (70 m), which may provide suitable turtle habitat, with Midland Painted Turtle and Common Snapping Turtle observations confirmed at the ponds through secondary source data (iNaturalist, 2020).

Additionally, several SAR reptiles were documented in the area through secondary sources (Table 5). Of note, Eastern Foxsnake is known to occur in the area and habitat does exist on site. Eastern Foxsnake, and all SAR documented in secondary sources, are included in the SAR screening in Section 6.1.

No amphibians were observed; moreover, no permanent ponds were observed within the Study Area during field investigations or aerial imagery review. Low lying wet areas were observed within the Study Area, which appear to provide temporary water sources (Appendix A) and may serve as amphibian habitat. No SAR amphibians were documented in secondary sources.

Table 5: SAR Herptiles Identified by Secondary Sources

Common Name	Scientific Name	S-Rank	SARA	ESA
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	S5	-	-
DeKay's Brownsnake	*Storeria dekayi*	S5	-	-
Eastern Foxsnake (Carolinian population)	*Pantherophis gloydi pop. 2*	S2	END	END
Northern Leopard Frog	*Lithobates pipiens*	S5	-	-
Northern Map Turtle	*Graptemys geographica*	S3	SC	SC
Northern Watersnake	*Nerodia sipedon sipedon*	S5	-	-
Snapping Turtle	*Chelydra serpentina*	S4	SC	SC
Blanding's Turtle	*Emydoidea blandingii*	S3	THR	THR
Midland Painted Turtle	*Chrysemys picta marginata*	S4	-	-
Red-eared Slider/Pond Slider	*Trachemys scripta*	SNA	-	-
Green Frog	*Lithobates clamitans*	S5	-	-
Butler's Gartersnake	*Thamnophis butleri*	S2	END	END
Mudpuppy	*Necturus maculosus*	S4	-	-
Western Chorus Frog - Carolinian Population	*Pseudacris triseriata pop. 2*	S4	-	-
American Toad	*Anaxyrus americanus*	S5	-	-

Provincial S-Rank: S2 Imperiled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SNA Not Applicable/Provincially non-native, not suitable target for conservation activities. Qualifiers B=Breeding—refers to the breeding population, N=Non-breeding—refers to the non-breeding population.
SARA = Species at Risk Act
ESA = Endangered Species at Risk Act
SARA/ESA Designation: END Endangered, THR Threatened, SC Special Concern

5.5 Incidental and Other Wildlife

Two (2) mammal species were observed during field investigations; Eastern Gray Squirrel (*Sciurus carolinensis)* and Eastern Cottontail (*Sylvilagus floridanus*). As previously identified, field investigations were conducted from the ROW, and the majority of potentially occurring species are small, secretive and/or nocturnal, making observations difficult. Additionally, a few common species of butterfly (Least Skipper, Cabbage White, European Skipper, Painted Lady), dragonfly (Green Darner), and damselfly (Eastern Forktail) were observed within the Study Area. No rare species or SAR insects were observed during the field investigations. In secondary sources, several SAR insects and mammals have ranges that overlap the Study Area (Table 6). One fish species, Northern Madtom (*Noturus stigmosus*) was documented, however, this record is from Lake St. Clair and will not be discussed further. A couple species of SAR bumblebees have historic ranges in the area and are no longer considered to occur. Likewise, Eastern Small-footed Myotis

(*Myotis leibii*) and Northern Myotis (*Myotis septentrionalis*) is not considered to have a range in Windsor (Humphrey 2017) and is not considered further.

Table 6: Other Wildlife Identified by Secondary Sources

Common Name	Scientific Name	S-Rank	SARA	ESA
Mammals				
Gray Fox	*Urocyon cinereoargenteus*	S1	THR	THR
Eastern Small-footed Myotis	*Myotis leibii*	S2S3	-	END
Little Brown Myotis	*Myotis lucifugus*	S3	END	END
Northern Myotis	*Myotis septentrionalis*	S3	END	END
Tricolored Bat	*Perimyotis subflavus*	S3?	END	END
Fish				
Northern Madtom	*Noturus stigmosus*	S1	END	END
Insect				
Monarch	*Danaus plexippus*	S2N,S4B	SC	SC
Variegated Meadowhawk	*Sympetrum corruptum*	S3	-	-

Provincial S-Rank: S2 Imperiled; S3 Vulnerable; S4 Apparently Secure; S5 Secure; SNA Not Applicable/Provincially non-native, not suitable target for conservation activities. Qualifiers B=Breeding—refers to the breeding population, N=Non-breeding—refers to the non-breeding population.
SARA = Species at Risk Act
ESA = Endangered Species at Risk Act *SARA/ESA Designation: END Endangered, THR Threatened, SC Special Concern*

LEGEND

- Study Area

Natural Heritage Feature (Labelled with number of occurences)

- Brush Pile
- Climbing Prairie Rose
- Crayfish Burrow
- Eastern Woodpee
- Giant Ironweed
- Rock Pile

NOTES:
- Aerial imagery extracted from Essex County interactive map, scene date 2019.

Datum: NAD83
Projection: UTM Zone 17N

0 50 100 200 300 400 500 Metres

THE CITY OF WINDSOR ONTARIO, CANADA

wood.

EAST RIVERSIDE EER

Species and Natural Heritage Features

PROJECT N°: SYW205065 | **FIGURE: 4**

SCALE: 1:5,000 | DATE: November 2020

6.0 Evaluation of Significance

This section provides an analysis and evaluation of potential SAR within the Study Area and potential significant wildlife habitat.

6.1 Species of Conservation Concern, Including Species at Risk

In Ontario, Species of Conservation Concern include Species at Risk as well as rare and rapidly declining species. Species at Risk (SAR) are species whose individuals or populations are considered Extirpated (EXT), Endangered (END), Threatened (THR), or Special Concern (SC), as determined by the provincial Committee on the Status of Species at Risk in Ontario (COSSARO) and the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Provincially rare species are those with a provincial rank (sub-national rank) of S1, S2, or S3 and considered provincially vulnerable to imperilled. Provincially rare species are tracked by the Natural Heritage Information Center (NHIC), and provincially rarity does not automatically provide listing under the ESA. Table 7 below indicates the probability of terrestrial species using the Study Area (i.e., not just flying over or passing through). Fish are not included due to the absence of water bodies within the Study Area. The probabilities of occurrence are defined as High, Moderate, Low, and None and are based on the following definitions:

- **High**: Those species recorded in the vicinity of the Study Area (typically within 10 km and recorded in the past 20 years) and whose preferred habitat is abundant within the Study Area. Species with a high probability of occurrence would be expected to breed within or frequently use the habitats available within the Study Area. They would be known to have a high relative abundance within the region (i.e., compared to other areas of Ontario).
- **Moderate**: Those species in the vicinity of the Study Area but have limited suitable habitat within the Study Area. Species with moderate probabilities of occurrence may not occur within the Study Area frequently. Still, they may intermittently use it for foraging, migration or movement to other parts of their home-range.
- **Low**: Those species recorded in the vicinity of the Study Area, but whose preferred habitat does not occur or is extremely limited within the Study Area. These species may intermittently move through the Study Area but are unlikely to become permanent residents.
- **None**: Those species whose preferred habitat is entirely absent from the Study Area and may only migrate intermittently through the Study Area.

Table 7: Probability of Terrestrial Species of Conservation Concern Occurring within the Study Area

Species Name and Status (SARA, ESA, S-Rank)[1,2,3,4]	Probability of Occurrence within the Study Areas based on Habitat Requirements
Plants	
Climbing Prairie Rose (*Rosa setigera*) SARA – Special Concern ESA - Special Concern S-Rank – S3 Source – City of Windsor, Wood	**Confirmed –** The Climbing Prairie Rose is typically found in open habitats with moist heavy clay to clay-loam soils such as old fields, abandoned agricultural land, as well as prairie remnants and shrub thickets. This rose depends on areas being kept open by periodic fire or other disturbances (MECP 2019f). This species was observed in the meadow communities on the west and south sides of the Study Area, including in the Beverly Glen

Species Name and Status (SARA, ESA, S-Rank)[1,2,3,4]	Probability of Occurrence within the Study Areas based on Habitat Requirements
	Street ROW during the field investigations (Figure 4, Appendix A Photos 11, 15, 17).
Willowleaf Aster (*Symphyotrichum praealtum*) SARA – Threatened ESA - Threatened S-Rank – S3 Source – City of Windsor	**High** – In Ontario, Willowleaf Aster is typically found in tallgrass prairies, oak savannas, thickets, meadows, edge of woods and woodland openings. It has also been found along railways, roadsides, abandoned farm fields, and other open, unshaded, anthropogenic habitats (OMNR, 2013).
Giant Ironweed (*Vernonia gigantea*) SARA – Not Listed ESA – Not Listed S-Rank - S3 Source - Wood	**Confirmed –** Found in fields, open areas and woodlands (USDA 2020). This species was observed in the meadow communities on the west and south sides of the Study Area during the field investigations (Appendix A Photo 12).
Birds	
Bald Eagle (*Haliaeetus leucocephalus*) SARA - Threatened ESA - Special Concern S-Rank - S2N,S4B Source – OBBA, eBird, iNaturalist	**Low** - A confirmed nest is located approx. 800m to the west of the Study Area, in an Eastern Cottonwood tree within an agricultural hedgerow. Large canopy Eastern Cottonwoods are present within the Study Area and the stormwater ponds to the south and Lake St. Clair to the north provide multiple foraging locations on either side of the Study Area. Trees with large canopies, near water, in forested areas are generally used for nesting (Armstrong 2014). Bald Eagles tend to nest in areas with low levels of human disturbance but have high levels of fidelity and typically use the same nest over successive years (Armstrong 2014). The pair currently nesting has returned for several years and it is unlikely that another pair will occupy the Study Area, or the pair will move to the Study Area.
Bank Swallow (*Riparia riparia*) SARA – Threatened ESA - Threatened S-Rank – S4B Source - OBBA	**Low** –Breeds in a variety of natural and artificial sites with vertical banks, including riverbanks, lake and ocean bluffs, aggregate pits, road cuts, and stockpiles of soil. Sand-silt substrates are preferred for excavating nest burrows. Breeding sites are often situated near open terrestrial habitat used for aerial foraging (e.g., grasslands, meadows, pastures, and agricultural cropland). Large wetlands are used as communal nocturnal roost sites during post-breeding, migration, and wintering periods (Falconer et. al. 2016). Limited suitable habitat exists for this species within the Study Area, and communal nocturnal roost site habitat is absent from the Study Area.
Barn Swallow (*Hirundo rustica*) SARA - Threatened ESA - Threatened S-Rank – S4B Source - OBBA	**Moderate** – Prefers anthropogenic features to build nests on, which are present within the Study Area. Wet meadows and ponds are popular foraging locations with abundant insects which are present within and adjacent to the Study Area (Heagy et. al. 2014).
Bobolink (*Dolichonyx oryzivorus*) SARA – Threatened	**Low** – Prefers large tracts of grassland habitat with an abundant thatch layer to nest and forage in (McCracken et. al. 2013). Most of the Study Area

Species Name and Status (SARA, ESA, S-Rank)[1,2,3,4]	Probability of Occurrence within the Study Areas based on Habitat Requirements
ESA - Threatened S-Rank – S4B Source - OBBA	is composed of short mowed grass, with a relatively high amount of canopy cover and therefore does not provide ideal nesting or forging habitat.
Chimney Swift (*Chaetura pelagica*) SARA – Threatened ESA - Threatened S-Rank – S4B, S4N Source - OBBA	**Moderate** – Prefers to nest in anthropogenic features with suitable access and shelter for nesting/roosting. Chimney Swifts depend on these features for reproduction, providing areas for resting, shelter, refuge from the elements, and are habitually used (COSEWIC 2007). The residential areas located within the Study Area, as well as the suitable insect foraging locations above the wet meadows and stormwater ponds provide suitable habitat.
Common Nighthawk (*Chordeiles minor*) SARA – Threatened ESA - Special Concern S-Rank – S4B, SZN Source - OBBA	**Low** - Habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings and along gravel roads and railways, they tend to occupy natural sites (MECP 2019a). This habitat is limited within the Study Area which may be used as foraging or stopover habitat during migration.
Eastern Meadowlark (*Sturnella magna*) SARA - Threatened ESA - Threatened S-Rank – S4B Source: OBBA	**Low** - Prefers large tracts of grassland habitat with an abundant thatch layer to nest and forage in (McCracken et. al. 2013). Most of the Study Area is composed of short mowed grass, with a relatively high amount of canopy cover and therefore does not provide ideal nesting or forging habitat.
Eastern Wood-Pewee (*Contopus virens*) SARA – Special Concern ESA - Special Concern S-Rank – S5B, SZN Source: Wood, OBBA	**Confirmed** – Inhabits the mid-canopy layer of forest clearings and deciduous and mixed forests edges. Occurs most in intermediate-age mature forest stands with little understory vegetation (MECP 2019c). Confirmed present in both Wood breeding bird surveys. Considering the timing of the breeding bird surveys, it is assumed this species is nesting within or adjacent to the Study Area.
Grasshopper Sparrow (*Ammodramus savannarum*) SARA – Special Concern ESA - Special Concern S-Rank – S4B Source: eBird	**Low –** Lives in open grassland areas with well-drained, sandy soil. It will also nest in hayfields and pasture, as well as alvars, prairies and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated. Its nests are well-hidden in the field and woven from grasses in a small cup-like shape. The Grasshopper Sparrow is a short-distance migrant and leaves Ontario in the fall to migrate to the southestern United States and Central America for the winter (MECP, 2019).
Red-headed Woodpecker (*Melanerpes erythrocephalus*) SARA - Threatened ESA – Special Concern S-Rank – S4B Source - OBBA	**Moderate** - Inhabits open woodland and woodland edges, and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching (MECP 2019b). This habitat does occur throughout the Study Area within the deciduous savanna and forest communities, however, large standing dead trees appeared to be limited within the Study Area.
Wood Thrush (*Hylocichla mustelina*) SARA – Threatened	**Low** - Prefers fairly large tracts of interior forest, and typically do not nest in sparsely canopied habitats heavily influenced by human activities (COSSARO 2013a). The Study Area could be used as a stopover location

Species Name and Status (SARA, ESA, S-Rank)[1,2,3,4]	Probability of Occurrence within the Study Areas based on Habitat Requirements
ESA - Special Concern S-Rank – S5B, SZN Source - OBBA	during migration, but high-quality nesting habitat is absent from the Study Area.
Reptiles	
Blanding's Turtle (*Emydoidea blandingii*) SARA – Threatened ESA – Threatened S-Rank – S3 Source - ORRA	**Low** – Inhabits shallow water in large wetlands and shallow lakes with abundant aquatic vegetation. Overwintering occurs in the mud bottom of permanent water bodies. This species may travel hundreds of metres from water during the active summer season for foraging, mating and nesting. Terrestrial habitat includes upland forest and shoreline areas such as sand bars, beaches, rocky outcrops, forest clearings and meadows. Movement through terrestrial habitat, including human-altered habitat, also occurs (COSEWIC 2016). Habitat is not present within the Study Area.
Butler's Gartersnake (*Thamnophis butleri*) SARA – Endangered ESA – Endangered S-Rank – S2 Source - ORRA	**Moderate** - Prefers grassland, prairie and marshy habitats with a relatively open canopy and will frequently use anthropogenically influenced habitats for cover and foraging (COSEWIC 2010). Abundant crayfish burrows observed within the wet meadow habitats on the west and south sides of the Study Area which this species uses frequently as hibernacula. Brush piles found in the Study Area also provide good cover habitat for this species (Figure 4, Appendix A). It has also been documented by the City of Windsor that the Study Area may be suitable Butler's Gartersnake habitat.
Eastern Foxsnake (*Pantherophis gloydi*) SARA – Endangered ESA – Endangered S-Rank – S2 Source – ORRA, City of Windsor	**High** - Prefers grassland, thicket and marshy habitats with relatively open canopy and will frequently use anthropogenic features for cover, foraging and hibernation (Eastern Foxsnake Recovery Team 2010). Abundant crayfish burrows observed within the wet meadow habitats on the west and south sides of the Study Area which this species uses frequently as hibernacula. Brush piles found in the Study Area also provide good cover habitat for this species (Figure 4, Appendix A). It has also been documented by the City of Windsor that the Study Area is foxsnake habitat. The Study Area is within the local range and there is potential for movement across this site from surrounding habitats.
Northern Map Turtle (*Graptemys geographica*) SARA – Special Concern ESA - Special Concern S-Rank – S3 Source - ORRA	**Low** - Prefers larger bodies of water such as Lake St. Clair and Detroit River located to the north of the Study Area (COSSARO 2013b). Clair located north of the Study Area. There are no permanent water sources within the Study Area, therefore no permanent habitat is present within the Study Area.
Snapping Turtle (*Chelydra serpentina*) SARA – Special Concern ESA - Special Concern S-Rank – S4 Source - ORRA	**Low** – Prefer shallow water with soft mud and leaf litter. Females travel during summer to nest, usually in sandy or gravel areas along streams. Roads, dams and aggregate pits may also be used for nesting (MECP 2019d). Stormwater management ponds south (70 m) of the Study Area may provide suitable habitat. There are no permanent water sources within the Study Area, therefore permanent habitat is not present within the Study Area.
Mammals	

Species Name and Status (SARA, ESA, S-Rank)[1,2,3,4]	Probability of Occurrence within the Study Areas based on Habitat Requirements
Little Brown Myotis (*Myotis lucifugus*) SARA – Endangered ESA – Endangered S-Rank – S2 Source – Dobbyn 1994, Humphrey and Fotherby 2019	**Moderate -** Roosts in tree cavities, including small spaces or crevices found in loose bark, hollow trees, rock faces and human structures such as attics, walls and bat boxes. Hibernates in caves and abandoned mines during the winter months. Typically forages over water (COSEWIC 2013b). Maternity roosts are primarily live deciduous trees and males, juveniles, and non-reproductive females can be found in dead trees, on average all trees are over 20 cm DBH (Humphrey and Fotherby 2019). Maternity sites typically have sufficient protection from predators, an abundance of roosting locations, and adequate solar exposure (Humphrey and Fotherby 2019). Deciduous trees and older houses occur in the Study Area, however, without further studies presence is unknown. If the species is in the area, it is likely they will forage in the area.
Tri-colored Bat (Perimyotis subflavus) SARA – Endangered ESA – Endangered S-Rank – S2 Source - Dobbyn 1994, Humphrey and Fotherby 2019	**Low** – Roosts in dead leaf clusters in the shape of an umbrella, dense clusters of live foliage, Arboreal lichens or epiphytes, and buildings (Humphrey and Fotherby 2019). Maternity sites typically have sufficient protection from predators, an abundance of roosting locations, and adequate solar exposure (Humphrey and Fotherby 2019). They forage over water and along streams in the forest. They overwinter in caves or other underground cavities where they typically roost by themselves rather than part of a group (MECP, 2014). The species range is reported in Essex County, however, no observations have been made in the area according to the Little Brown Myotis, Northern Myotis and Tri-colored Bat recovery strategy (Humphrey and Fotherby 2019).
Insects	
Monarch (*Danaus plexippus*) SARA – Special Concern ESA – Special Concern S-Rank – S2N, S4B Source – ABO, iNaturalist	**High** - Common Milkweed and Swamp Milkweed were observed within the Study Area which is the main food plant for the larval stages of the Monarch butterfly (MECP 2019e). This region is also along the major migration route for this species (Appendix A Photo 16).
Variegated Meadowhawk (*Sympetrum corruptum*) SARA – Not at Risk ESA – Not at Risk S-Rank - S3 Source - NHIC	**Moderate** - Suitable habitat for this species includes ponds and wet meadows which are present within and adjacent to the Study Area. (WDNR 2015).

[1] *Species At Risk Act, 2002* (SARA). Schedule 1 status.

[2] *Endangered Species Act, 2007* (ESA).

[3] S1 - Extremely rare throughout its range in the province; S2 - Rare throughout its range in the province; S3 - Uncommon or vulnerable species; S4 - Apparently Secure Species; S5 - Secure Species; SX - Extirpated; B - Breeding; N - Non-breeding; ? - Uncertainty

[4] NHIC = Natural Heritage Information Centre, OBBA = Atlas of the Breeding Birds of Ontario, ORRA = Ontario Reptile and Amphibian Atlas; ABO = Ontario Butterfly Atlas, Wood = observed during 2020 field investigations

6.2 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) is considered of Provincial significance in Ontario. Development in SWH is prohibited unless it can be demonstrated that development will have no negative impact on features and functions. Wildlife habitat is considered "significant" if it is deemed ecologically important in terms of feature, function, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System (MMAH 2020). Within Ecoregion 7E, criteria for evaluating Significant Wildlife Habitat (SWH) are provided in MNRF Ecoregion schedules for Ecoregion 7E (MNRF 2015).

SWH has been evaluated for the Study Area, and the majority is not applicable as either habitat requirements or species are not present (Appendix B). Four SWH discussed below as the category either has bearing on the site, is considered potential SWH, or is confirmed SWH. **Bald Eagle and Osprey nesting, foraging and Perching Habitat** is discussed as this category has bearing on the site and requires more discussion, however, it is not considered potential SWH in the Study Area. Potential SWH for the Study Area includes **Reptile Hibernaculum** and confirmed SWH include **Terrestrial Crayfish Habitat** and **Special Concern and Rare Wildlife Species**.

Bald Eagle and Osprey Nesting, Foraging and Perching Habitat- Not Present

According to the SWH Technical Guide for 7E, this SWH criterion includes forest communities (including forested swamps) directly adjacent to riparian areas – rivers, lakes, ponds and wetlands (MNRF 2015). A small forest ecosite (FODM8) is present within the Study Area, however, it is not directly adjacent to riparian areas. While stormwater management ponds are located to the south (approx. 470 m) and Lake St. Clair to the north (approx. 540 m) offering foraging locations, the Study Area FODM8 does not meet the criteria for SWH.

A confirmed Bald Eagle nest is located approximately 800m west, in an Eastern Cottonwood tree within an agricultural hedge row. The nest location is not within a forest community and not directly adjacent to riparian areas (and therefore does not meet the criteria for SWH), however, must offer suitable foraging. Bald Eagles tend to nest in areas with low levels of human disturbance, however, eagles also have high fidelity and typically return to the same nest over successive years (Armstrong 2014). The current pair is likely brought back to this nest due to site fidelity and not as a result of preferred habitat consequently it is unlikely that another pair will occupy the anthropogenic Study Area, or the pair will move to the Study Area. As the Study Area is not considered **Bald Eagle and Osprey Nesting, Foraging and Perching Habitat SWH** and It is unlikely that the pair currently nesting will be impacted by this proposed development, therefore impacts to this specific SWH will not be carried forward to impact analysis.

Reptile Hibernaculum- Potential

The SWH Technical Guide for 7E describes this criterion as occurring in all ecosites other than very wet ones; however, wetlands can be important for over-wintering habitat. To confirm the SWH surveys timed for spring emergence or fall hibernation must be completed and congregations of a minimum of five individuals of one species or individuals of two or more species near the potential hibernacula must be found (MNRF 2015). Wood surveys did not document any snakes in the Study Area, however, maximum survey effort not completed, and survey areas were limited to ROWs. Additionally, the City of Windsor notes this site may contain snake habitat and Eastern Foxsnake and Butler's Gartersnake; if either species is documented and though to be using the site as hibernaculum, it would be an automatically confirmed SWH.

Hibernation takes place below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below the frost line, such as rock piles and crayfish burrows, are suitable for identifying candidate (or potential) SWH (MNRF 2015). Abundant crayfish burrows were observed in the

Fresh-Moist Mixed Meadow Ecosite (MEMM4) on the south and west sides of the Study Area, which provide suitable hibernation sites for multiple snake species commonly found in the region (and confirmed to be on-site by the City). **Reptile Hibernaculum SWH** is considered potential SWH and is carried forward in the impact analysis. The area considered potential SWH is represented in Figure 5.

Terrestrial Crayfish Habitat- Confirmed

The SWH Technical Guide for 7E listed all wet meadow, swamp (along shallow edges), and meadow (with wet inclusions) communities as potential for terrestrial crayfish. The presence of one or more terrestrial crayfish or their chimney (burrow) in the above suitable habitat confirms SWH (MNRF 2015). Numerous chimneys were found in the Fresh-Moist Mixed Meadow Ecosite (MEMM4), confirming **Terrestrial Crayfish SWH**. The area confirmed as SWH is displayed in Figure 5; **Terrestrial Crayfish SWH** is carried forward to the impact analysis.

Exhibit 5: Terrestrial Crayfish Chimney

Special Concern and Rare Wildlife Species- Confirmed

This criterion is a catch all for all Special Concern and Provincially Rare (S1-S3, SH) species. The Habitat is specific to the species; however, the criterion also includes the element occurrence. The element occurrences are a record in any of the background source grids (1km or 10 km). Wood has screened all element occurrences (Section 6.1) and will only consider those which have high potential to occur in the Study Area or were found during field investigations. When a Special Concern or Rare species is confirmed on site the area of habitat to the finest ELC scale that protects the habitat form and function is the SWH (MNRF 2015).

Low numbers of Giant Ironweed and Climbing Prairie Rose were observed in the Study Area during field investigations within the Fresh-Moist Mixed Meadow Ecosite (MEMM4) along the Beverly Glen Street ROW and Little River Boulevard (Figure 5). As both species are typically found in open habitats the SWH is mapped based on the open inclusions (Figure 5).

Milkweed was observed within the Study Area, which is the main food plant for the larval stages of the Monarch butterfly (MECP 2019). This region is also along the major migration route for this species (MECP, 2014). Milkweed was observed in the same communities as Giant Ironweed and Climbing Prairie Rose, and therefore the SWH protection applied to the MEMM4 and area along Little River Boulevard (Figure 5), will protect milkweed.

A singing male Eastern Wood-pewee was recorded during both rounds of breeding bird surveys from the same location at the Wyandotte Street East ROW (Figure 5). According to the Ontario Breeding Bird Atlas Guide for Participants (OBBA 2001), the registration of territorial song on at least 2 days, a week or more apart, at the same place is presumed permanent territory and therefore Probable Breeding. The wood-pewee prefers forests edges with little understory vegetation (MECP 2019c) and size of forest fragments does not appear to be an important factor in habitat selection (COSEWIC 2012). However, it is documented that Eastern Wood-pewee occur less frequently in woodlots with surrounding residential development than in those without houses (COSEWIC 2012). The entire canopy area (i.e., SVDM4 and FODM8) is designated as SWH as both communities fit the habitat criteria.

Special Concern and Rare Wildlife Species SWH will be carried through in the Impact Analysis.

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LEGEND

- Study Area

Significant Wildlife Habitat

- Terrestrial Crayfish
- Special Concern and Rare Species (Eastern Wood-pewee)
- Special Concern and Rare Species (Plant Species)

Natural Heritage Feature (Labelled with number of occurences)

- Climbing Prairie Rose
- Crayfish Burrow
- Eastern Woodpee
- Giant Ironweed

NOTES:
- Aerial imagery extracted from Essex County interactive map, scene date 2019.

Datum: NAD83
Projection: UTM Zone 17N

0 50 100 200 300 400 500 Metres

N W E S

THE CITY OF WINDSOR ONTARIO, CANADA

wood.

EAST RIVERSIDE EER

Confirmed Significant Wildlife Habitat

PROJECT N°: SYW205065 | **FIGURE: 5**

SCALE: 1:5,000 | DATE: November 2020

7.0 Development Alternatives

Five alternatives were considered:

- Scenario 1: Do nothing;
- Scenario 2a: Extension of Wyandotte Street East as an offset intersection at Jarvis Avenue (i.e., closure of Jarvis Avenue and Riverside Drive East intersection);
- Scenario 2b: Extension of Wyandotte Street East as a continuous alignment connecting to Dillon Drive;
- Scenario 3: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, extension of Beverly Glen Street to Jarvis Avenue, and closure of Jarvis Avenue at Riverside Drive East;
- Scenario 4: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, and extension of Beverly Glen Street to Jarvis Avenue; and
- Scenario 5: Extension of Wyandotte Street East with an offset intersection at Jarvis Avenue, extension of Beverly Glen Street to Jarvis Avenue, and extension of Jarvis Avenue to Little River Boulevard.

In each scenario, except the 'do nothing' approach, it was acknowledged that trees and habitat would be removed. However, social and economic benefits resulted in all the scenarios (except 'do nothing') being carried forward. Elements of each Scenario were considered, as opposed to the full scenario. Ultimately, 2a and 2b were rejected as there was no technical support. Scenario 3, 4 and 5 recommend the construction of the Beverly Glen Street extension to comply with best practices; however, there are no transportation requirements to open Beverly Glen Street. Should the Beverly Glen Street extension not occur, the opening of the Jarvis Avenue and Little River Boulevard intersection would be required. The current chosen alternative, however, is to open Beverly Glen Street and maintain the closure at Jarvis Avenue and Little River Boulevard.

8.0 Assessment of Potential Impacts

Potential impacts on NHS features and other aspects of the natural environment due to the road expansions may be short-term (i.e., occurring during construction and resolving a short time after construction) or long-term (i.e., lasting effects of construction or effects resulting from the altered ground). Potential negative impacts can be minimized by implementing mitigation measures during construction and incorporating long-term mitigation measures into the project design.

The proposed works involve new roads extending Wyandotte Street East and Beverly Glen Street. Trees, species at risk habitat, and SWH will have to be removed to accommodate both of these alignments.

8.1 Short-term Impacts

8.1.1 Impacts Migratory Birds

Impact Assessment: Most species of birds in Canada are protected under the Migratory Birds Convention Act (MBCA), 1994, through the Migratory Birds Regulations and the Migratory Birds Sanctuary Guidelines. These policies and regulations ensure the protection of listed migratory bird species, their nests, eggs and offspring. The MBCA prohibits harm or destruction of migratory birds and their nests. Removal of vegetation to accommodate the construction of the project could directly harm nesting birds.

Mitigation: To prevent harm to nesting birds removal of woody vegetation (i.e., trees and shrubs) should be conducted outside of the typical bird nesting period in this area (April 1st to August 31st). These timing constraints should not be perceived as absolutes. This period represents the core breeding period, although some species may nest in March and September. Ultimately, the objective from a compliance perspective is to not circumvent the MBCA and its regulations. Due diligence measures should be implemented and documented for any nest searching efforts, including record control, to ensure compliance with the MBCA.

For activities (including vegetation removal) that must occur during bird nesting season, surveys to identify nesting activity should be completed by an experienced Avian Biologist within 24 hours of scheduled work activities. The Avian Biologist conducting the nest sweeps must be able to identify birds by species and be knowledgeable of nesting seasons and activities for appropriate species. Due to the uncertainty that lies with nest sweeps during construction, especially during leaf-on conditions, it is, as noted, recommended that all vegetation clearing activities occur outside the above-noted bird nesting window. In the event that bird nests protected under the MBCA, FWCA or ESA are encountered during construction, work must stop in the vicinity of the sighting until further direction is provided. These species and their nests must not be disturbed, tormented, injured in any way, destroyed, and/or separated from young. A protective buffer area should be established around the nest and should be determined in consultation with a qualified avian biologist, as well as the MNRF, MECP and/or Canadian Wildlife Service (CWS), as necessary. Nest surveys should only be completed in simple habitats such as singular trees or a small and well-defined area. Complex habitats such as vegetation communities with layers and dense foliage reduce the certainty of capturing all potential breeding.

8.1.2 Wildlife Mortality During Construction

Impact Assessment: During site prep and construction wildlife may cross the site and be at risk for mortality.

Mitigation: The brush piles and other moveable habitat features in the area should be relocated before construction. As feasible, the work area will be surrounded by a silt (exclusion) fence within 48 hours of the commencement of construction activities to keep wildlife out of the site. The exclusion fencing will be examined daily and repaired as needed to ensure it functions as intended.

8.1.3 Noise, Vibrations and Light Pollution

Impact Assessment: Construction activity may cause localized, short-term increases in noise and vibrations, which could disturb wildlife and deter animals from the area. Wildlife could also be disturbed by artificial lighting if construction occurs outside of daylight hours.

Mitigation: In order to prevent impacts to wildlife as a result of noise and vibrations, equipment idling should be kept to a minimum during construction. Minimizing equipment idling will also reduce carbon emissions and reduce the overall carbon footprint of construction. Construction outside of daylight hours should be avoided.

8.2 Long-term Impacts

8.2.1 Impacts on Trees

Impact Assessment: Potential negative impacts on the natural environment may occur due to the proposed extensions. Though access was limited within the Study Area during field investigations, the existing ROW allowed for a minimal assessment during field investigations.

Mitigation: Mitigation for the loss of trees which would have to be removed to accommodate the extensions should occur in the form of replacement trees and shrubs. Replacement vegetation must be native species and suited to the local hydrology and soils of the area they are planted.

8.2.2 Impacts on Significant Wildlife Habitat

Impact Assessment: Most of the SWH is located within the Beverley Glen Street opening. Impacts on SWH as a result of construction will be the removal of **Terrestrial Crayfish Habitat** and **Special Concern and Rare Wildlife Species**. Wyandotte Street East is expected to be a road 200 m long and 24 m wide through savanna habitat (SVDM4). Though access was limited within the Study Area during field investigations, the existing ROW allowed for a minimal assessment during field investigations. Eastern Wood-pewee is Probably breeding in this location, and this community falls under **Special Concern and Rare Wildlife Species** SWH (Section 8.2.1). Eastern Wood-pewee is also discussed in Section 8.2.3 below. There is also potential **Reptile Hibernaculum.** Construction activity will remove habitat, directly removal plants and could directly harm terrestrial crayfish or other species which are underground.

Surface water from roads that is directed toward crayfish habitat has the potential to have adverse effects. Surface water may also result in flooding and unstable water levels within burrows and the introduction of contaminants into the crayfish habitat. Likewise, roads can affect reptile hibernaculum by altering underground moisture regime, humidity levels or, conversely, increase the water table. These effects could cause animals to desiccate, drown or freeze (increased water table reduces the area between the water table and the frost line). Roads may act as a barrier to surface water and shallow groundwater movement resulting in wetter conditions on one side of the road and drier conditions on the other. Crayfish may also be forced to move where the water table is lower to obtain the correct mix of air and water within the burrow. If the water table declines or if areas are drained/dewatered, the soil may become too hard and dry for the crayfish to burrow in it, or they may have to burrow an excessive depth to reach the water. When hibernation sites are lost in an area, snakes are forced to select alternate sites which may be unavailable or unsuitable and risks mortality. Development may affect a number of hibernacula or the effectiveness of hibernacula in more open habitats if development occurs over them (Significant Wildlife Habitat Mitigation Support Tool Version 2014).

Roads have the potential for direct loss of individuals and habitat for rare species and species of conservation concern. The footprint of the road, along with associated shoulders, banks, ditches, and multi-use pathways will result in loss of habitat. Indirect loss of habitat may occur through hydrology changes, the introduction of non-native plant species, the introduction of sediments and other contaminants, and salt spray and runoff. The road may act as a barrier to wildlife movement and may also result in an increased incidence of roadkill (Significant Wildlife Habitat Mitigation Support Tool Version 2014).

Mitigation: Development is not permitted if it cannot be demonstrated that there will be no negative impacts on the feature or its ecological function (OMNRF 2014). The ELC ecosite that contains the ***Terrestrial Crayfish Habitat*** and the ***Special Concern and Rare Wildlife Species*** is the SWH (Figure 5). Ultimately, for potential **Reptile Hibernaculum**, mitigation is limited as the development will physically destroy the habitat and should be avoided.

Vegetation clearing, excavation, draining and filling for development in terrestrial crayfish habitat will destroy the affected habitat and ecological function of the remaining habitat will be reduced or lost if the development alters the hydrology of the habitat, or if compression of the soil damages or destroys burrows or subterranean tunnels. Vegetation should never be removed immediately adjacent to crayfish habitat, as this is important forage. Spraying of pesticides to control roadside vegetation should be avoided in areas near crayfish habitat, as this has the potential to affect the crayfish food supply. Consideration should be given to using de-icing compounds other than salt near the habitat. Roadside ditches should be designed

so that they do not drain crayfish burrows or dry up the soils where burrows are located. Surface water runoff should always be directed away from crayfish habitat to avoid sedimentation that adversely affects the crayfish's ability to dig burrows.

Maintenance of ditches should be scheduled for periods when the crayfish are less likely to be present (e.g., early spring, when adults are often found in streams, lakes, and rivers) (Crocker and Barr 1968). Sufficient culverts should be installed under the road to ensure the unimpeded movement of surface water and groundwater. Natural flow to the significant habitat should be maintained. It may be necessary to designate an area along the road as a "no-spray" area to ensure that significant plant species are not adversely affected. Planting the roadside with native flowers mixes (ensuring that the plants within the mix are native) may reduce the incidence of invasion of the significant habitat for the species by non-native species. If the species or their habitats are susceptible to salt, an alternative de-icing compound may need to be used on the road surface.

8.2.3 Impacts on Eastern Wood-pewee

Impact Assessment: An Eastern Wood-pewee was heard from the Wyandotte Street East breeding bird survey point and is considered a Probable breeder (Section 6.2). Fractioning the habitat will reduce the capacity to retain Eastern Wood-pewee in subsequent years. Habitat loss and degrading habitat due to urban development is cited as a threat to the species (MECP 2019c).

Mitigation: Habitat enhancements and a long-term adaptive monitoring plan could be suitable to maintain habitat for Eastern Wood-pewee in the area (Section 9.0).

8.2.4 Impacts on Eastern Foxsnake and Other Species

Impact Assessment: Large woody brush piles and one rock pile were observed within or immediately adjacent to the proposed extensions, which would be suitable habitat for SAR snakes identified in the background information review (Appendix A Photo 2). Snake habitat features (including the crayfish burrows) observed within the Study Area are concentrated on the south end within the meadow communities associated with the Beverly Glen Street ROW and adjacent to Little River Boulevard (Figure 4, Appendix A). The City of Windsor notes that this Beverly Glen Street extension is likely foxsnake habitat, and completion of the extension would result in direct removal of SAR habitat. By this assumption, the habitat is protected under the ESA (Section 3.5). The description of the habitat which is protected under the habitat regulation is:

> *"The habitat regulation for Eastern Foxsnake (Carolinian population) protects sites used for nesting, hibernation, and communal shedding and basking, as well as areas within 1500 metres of an Eastern Foxsnake (Carolinian population) that are suitable for it to carry out its life processes (e.g. foraging and thermoregulation).*
>
> *The regulation applies where the snake occurs in the following areas: the City of Windsor; the counties of Essex…" Eastern Foxsnake (Carolinian Population) Habitat Protection Summary (MECP 2019g)*

The construction of roads is not compatible with the regulated habitat. Further studies should confirm if SAR snakes are present at the Study Area, and the MECP should be consulted.

Mitigation: There is no mitigation recommended at this time as more information is required.

8.2.5 Impact to Temporary Areas Of Pooling Water

Impact Assessment: Temporary areas of pooling water which may provide amphibian habitat in the spring or other important hydrological processes were observed within the Study Area, though outside of the

proposed extensions (Appendix A Photos 6, 10, 14). Without an understanding of the local hydrology, it is difficult to say what impacts the road will have on this area. The roads may act as a barrier to surface water and shallow groundwater movement resulting in wetter conditions on one side of the road and drier conditions on the other. The road may also increase surface runoff and cause flooding conditions with an increased quantity of water, which is unable to drain/evaporate. Permission to enter the area was not provided to Wood staff, and it is unknown what plant species the pooling water supports. Surface runoff from a road may alter the quality of the water and reduce biodiversity.

Mitigation: Field surveys to better understand the area should be required. A hydrological assessment could also occur. Post-conditions construction should maintain flow conditions.

8.3 Other Direct Impacts

Other direct impacts of the road extensions may include:

- Vegetation loss or damage to facilitate construction activities;
- Soil compaction from equipment, access routes, or laydown areas;
- Introduction of invasive plant material from previous construction sites and disturbance activities;
- Dust from work activities may settle on vegetation;
- Contamination of vegetation and/or natural features due to unplanned release or discharge of deleterious substances to the environment, including fuels, lubricants (engine oil, etc.) and coolants;
- Altering wildlife movement due to avoidance of the roads and traffic; and
- Fragmenting wildlife habitat.

Mitigation: Most impacts can be mitigated with an appropriate Erosion and Sediment Control Plan, including dewatering, if necessary, and a construction staging and project phasing plan. In general:

- Staging, and access areas will be minimized as feasible to avoid disturbing the natural environment beyond the proposed disturbance limit;
- Operate and store materials and equipment in such a manner that prevents any deleterious substance from entering the natural environment;
- Prohibit access to the extent possible to any natural areas outside of the project footprint to ensure the protection of these areas; this includes temporary access. A sediment control fence should be installed around the perimeter of the work area to provide a visual barrier and to isolate wildlife from the work area;
- Ensure a Spill Management Plan (including spill kit materials, instructions regarding their use, education of staff, and emergency contact numbers) is present on-site at all times for implementation in the event of an accidental spill. All spills are to be reported to the MECP Spills Action Centre (SAC) at 1 800-268-6060;
- Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds; and
- Identify local regulatory authorities and have contact information available on site. Local regulatory authorities are to include the MECP, MNRF, ERCA, the City and local emergency service providers

Other impacts are more difficult to mitigate. Wildlife movement through the area is unknown; however, as this Study Area does not currently have roads, it is feasible wildlife choose to move through it. Mitigation

would include the implementation of wildlife passages, which is not supported without understanding movement in the area and the necessity. Mitigation of fragmenting wildlife habitat would also include maintaining connectivity as well as managing adjacent areas in order to improve habitat available (e.g., invasive species management, plantings, restoration programs).

9.0 Recommendations

This report has identified the biophysical conditions and the significance of the Study Area. Specific actions that would be undertaken to eliminate, reduce or compensate the impacts listed in Section 8.0 are provided here. A comparison of proposed activities with relevant policies is also summarized.

SWH and habitat of endangered species and threatened species are protected under the PPS, and development and site alteration is not permitted unless it can be demonstrated that there will be no negative impacts (MMAH, 2020; Section 3.4). However, it is also noted that the PPS states communities are sustained by "ensuring that necessary infrastructure and public service facilities are or will be available to meet current and projected needs" (MMAH 2020). The PPS also excludes "activities that create or maintain infrastructure authorized under an environmental assessment process" from the definition of development (MMAH 2020). Therefore, if an EA for this project is approved, the extensions could be completed. It is also noted that while the Study Area is not designated in the City's Official Plan, Section 5.3.1.3 states that an objective of Environmental Quality is "[t]o protect biological diversity and the habitats of endangered, threatened and vulnerable species."

Reducing or compensating for removed and destroyed habitat is not preferred; elimination of the risk is preferred. To eliminate the expected negative impacts, it is recommended that the development alternatives are reconsidered, and the development of the Beverly Glen Street extension does not occur. The Beverly Glen Street extension will remove SWH and SAR habitat. Moreover, the local hydrology around the Beverly Glen Street ROW is not understood, and a road extension could severely alter hydrology and, therefore, the biodiversity of the area.

Similarly, the extension of Wyandotte Street East is proposed through SWH. However, the impact of the Wyandotte Street East extension could be compensated with a restoration program for the SVDM4. Note that no compensation will be suitable for the extension of Beverly Glen Street Extension. As noted above (Section 6.2), Eastern Wood-pewee prefers forest edges with little understory vegetation (MECP 2019c), and the size of forest fragments does not appear to be an important factor in habitat selection (COSEWIC 2012). It is also noted that woodlots with surrounding residential development are apparently less frequented than woodlots without houses (COSEWIC 2012). However, in a region with minimal wooded cover, perhaps residential woodlands are accepted as we see in the Study Area. The Wyandotte Street East extension will remove trees and fragment the canopy of the SVDM4; however, the fragment size may not be a negative impact. If the removal of trees is adequately compensated and buffers to residential yards increased, the habitat loss may be offset, and habitat quality possibly increased long-term.

The compensation for the Wyandotte Street East extension will require plantings (preferably of large calliper) and effectiveness monitoring. Replacement plantings will be required for removed trees and additional plantings to achieve a desirable density north and south of the Wyandotte Street East extension. Plantings must be monitored for the long-term and maintained accordingly (e.g., pruned, stand thinned as required). Residential mowing and use are expected to be compatible and may still occur. A program to eliminate the use of pesticides (City and residential use) is also recommended as Eastern Wood-pewees are insectivores.

It is also recommended that a tree inventory, arborist report and preservation plan occur for the Wyandotte Street East Extension. As this report is apart of the Environmental Assessment process, it is assumed there will be more public consultation. It is recommended before further public engagement, a decision on each extension be reached, and specific compensation decided.

10.0 Monitoring

This report explores the proposed development and the compensation and development strategy has not been determined. Therefore a monitoring program has not been completed at this time.

11.0 Conclusions

Wyandotte Street East needs to be upgraded to meet safety and operational needs, including for emergency services, transportation needs and land use planning. The proposed works involve new roads extending Wyandotte Street East and Beverly Glen Street. Through consultation, desktop screening of secondary sources and field investigations, it was found that SAR, species of conservation concern, and SWH were found in the Study Area.

The Study Area is not designated as Natural Heritage in the City of Windsor Official Plan, however, based on the description in Section 6.8 of the Official Plan, the Study Area is a candidate for the Land Use designation. The Official Plan describes Natural Heritage as lands "provid[ing] for the protection and conservation of Windsor's most environmentally significant and sensitive natural areas, including provincially designated Areas of Natural and Scientific Interest (ANSI) and wetlands".

Per the guidelines in the City of Windsor Official Plan, the EER (this report) is to "[d]emonstrate how and why the proposal may proceed such that there will be no negative impact on the natural features and functions for which the area is identified". The current proposal may not proceed as there will be a negative impact on natural features and functions. However, if the Beverly Glen Street extension is removed from the scope and habitat compensation and monitoring are applied to offset the impacts from the extension of Wyandotte Street East, the proposal could probably proceed while maintaining the natural features and functions.

12.0 Closure

This report has been prepared based on Wood's understanding of the proposed project at the time this report was prepared. The contents of this report reflect the results obtained from a review of secondary source information, agency consultation, and field investigations relative to the Study Area. We trust that this EER provides a level of detail and technical expertise to help guide the detailed design and construction processes.

If you should have any questions regarding this submittal or require further project related information, please contact the undersigned.

Sincerely,

Wood Environment & Infrastructure Solutions,

A Division of Wood Canada Limited

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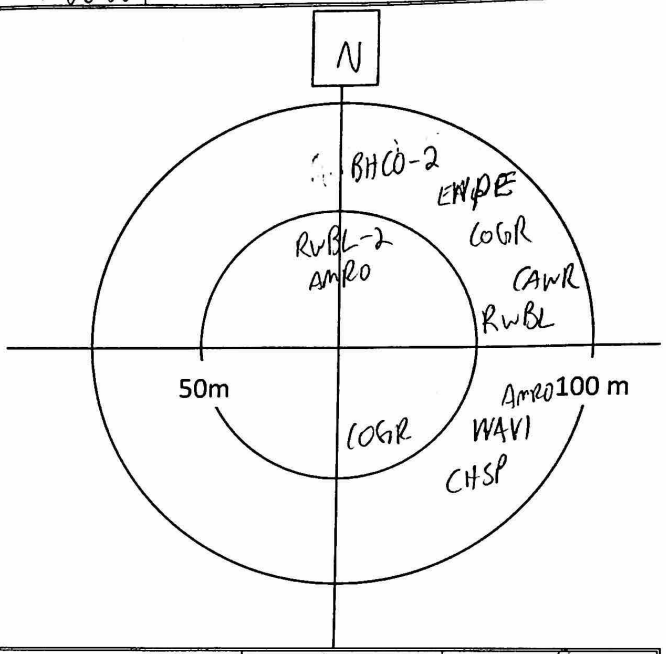
Appendix A

Field Sheets and Representative Photographs

Breeding Bird Survey Form

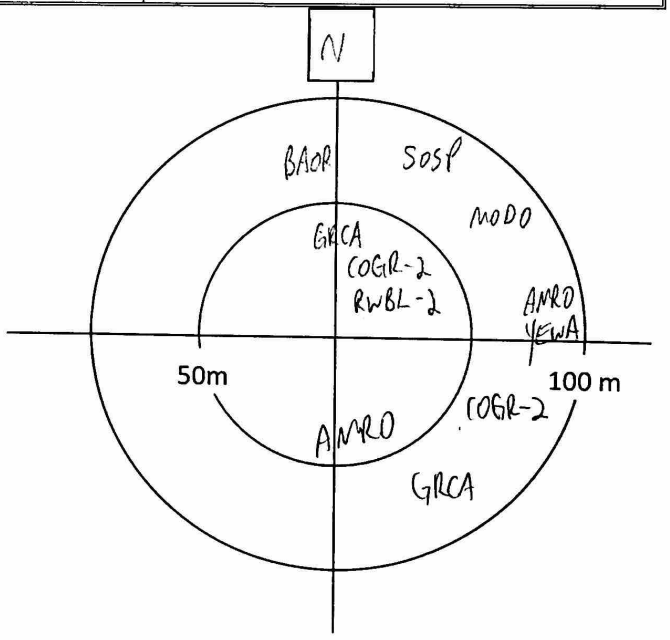
Project Name: East Riverside		**Project Number:** SYW2025065		**Observers:** SB	**Date:** June 17, 2025	**Round:** 2	
Point Count #: 1 (Yardoffe)		**UTM:** 343128 / 4688374			**Primary Habitat:** Meadow	**Modifier:** 2	
Cloud: 10%	**Temp (°C):** 14	**Wind:** 1	**Precip:** 0	**Start (24hr):** 06:50	**Secondary Habitat:** Cultural/Woodland	**Modifier:** 3	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
RWBL	II			I						X
COGR	I				I					X
BHCO				II						X
AMRO	I				I					S
CHSP								I		S
EWPE								I		S
WAVI						I				S
CAWR									I	S



Project Name: East Riverside		**Project Number:** SYW2025065		**Observers:** SB	**Date:** June 17, 2025	**Round:** 2	
Point Count #: 2 (Burly Glen)		**UTM:** 343155 / 4687938			**Primary Habitat:** Cultural/Meadow	**Modifier:** 2	
Cloud: 10%	**Temp (°C):** 15	**Wind:** 1	**Precip:** 0	**Start (24hr):** 07:20	**Secondary Habitat:** Woodland	**Modifier:** 3	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
GRCA	I			I						S
COGR	II			II						X
YEWA				I	I					S
MODO					I					S
SOSP					I					S
BAOR					I					S
RWBL	II									X
AMRO		I			I					S



Weather:

Wind Scale: 0 – Calm, 1 – Light Air, 2 – Light Breeze, 3 – Gentle Breeze	**Precipitation Scale:** 0 – None, 1 – Haze/Fog, 2 – Drizzle, 3 - Rain

Habitat:

1. Poplar Forest	6. Spruce Forest	11. Coniferous Treed Swamp	16. Shrub Bog/Poor Fen	21. Hay Crop	**Modifiers:**
2. Poplar-Birch Forest	7. Jack Pine-Spruce Forest	12. Shrub/Thicket Swamp	17. Open Bog/Fen	22. Clearcut	1. Plantation
3. Poplar-Spruce Forest	8. Jack Pine Forest	13. Sedge/Meadow Marsh	18. Open Shrubland	23. Roadside	2. Regenerating/Young
4. Poplar-Jack Pine Forest	9. Deciduous Treed Swamp	14. Cattail/Open Water Marsh	19. Dense Shrubland	24. Open Cut-Line	3. Mid-aged
5. Birch-Spruce Forest	10. Mixed Treed Swamp	15. Treed Bog/Fen	20. Pasture	25. Cultural	4. Mature

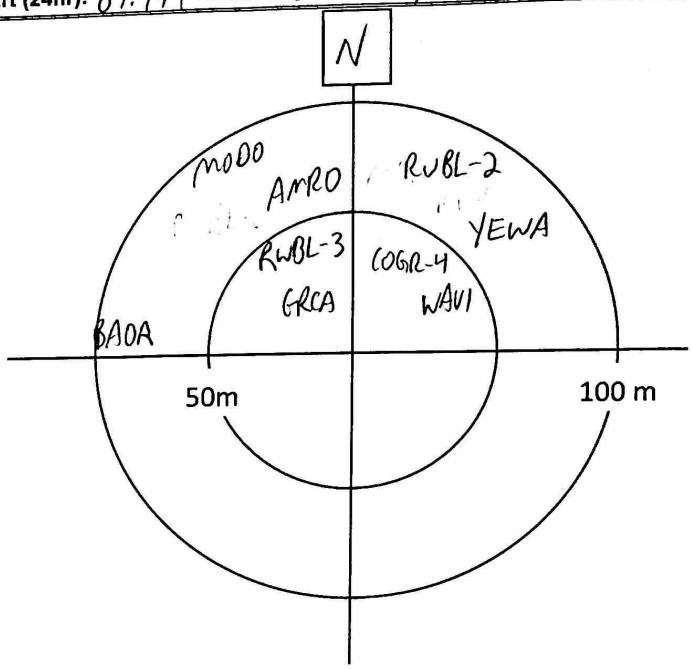
Breeding Evidence

Observed (OB)		Probable (PR)			Confirmed (CO)			
X	Species Observed	P	Pair Observed	A	Aggressive Behaviour	DD	Distraction Display	FS	Carrying Fecal Sac
Possible (PO)		T	Territory	N	Nest	NU	Used Nest	CF	Carrying Food
H	Suitable Habitat	D	Courtship or Display	V	Visiting Probable Nest Site	FY	Feeding Young	NE	Nest With Eggs
S	Male Singing					AE	Adults Entering or Leaving Nest	NY	Nest With Young

Breeding Bird Survey Form

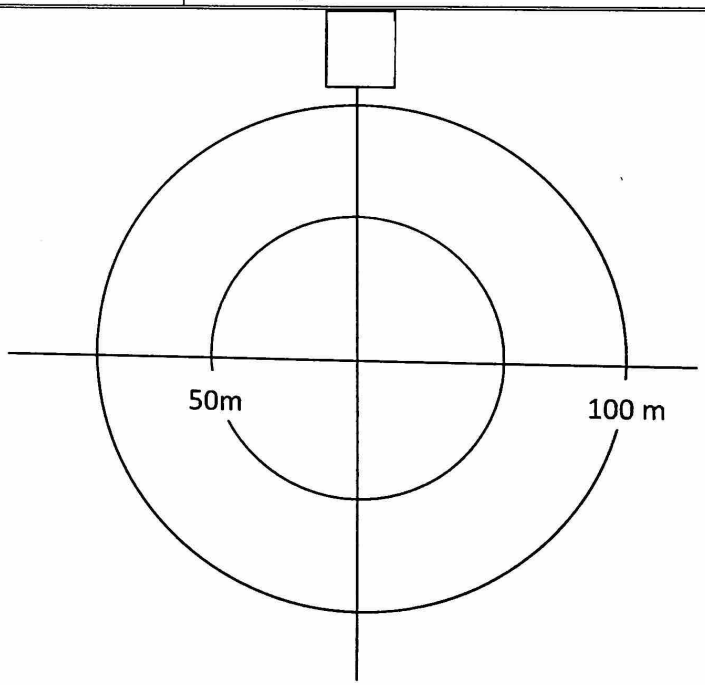
Project Name:	East Riverside	**Project Number:**	SYW2050005	**Observers:**	SB	**Date:**	June 17, 2020	**Round:**	2
Point Count #:	3 (Little River)	**UTM:**	343297/4687716			**Primary Habitat:**	Thicket	**Modifier:**	2
Cloud:	15%	**Temp (°C):**	16	**Wind:**	1	**Precip:**	0	**Start (24hr):**	07:44	**Secondary Habitat:**	Meadow	**Modifier:**	2

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
RWBL	III				II					X
COGR	IIII									X
GRCA	I									X
AMRO					I					S
YEWA					I					S
BAOR						I				X
MODO						I				S
WAVI			I							S



Project Name:		**Project Number:**	**Observers:**	**Date:**	**Round:**
Point Count #:		**UTM:**		**Primary Habitat:**	**Modifier:**
Cloud:	**Temp (°C):**	**Wind:**	**Precip:**	**Start (24hr):**	**Secondary Habitat:**	**Modifier:**

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	



Weather:

Wind Scale:	0 – Calm, 1 – Light Air, 2 – Light Breeze, 3 – Gentle Breeze
Precipitation Scale:	0 – None, 1 – Haze/Fog, 2 – Drizzle, 3 - Rain

Habitat:

1. Poplar Forest	6. Spruce Forest	11. Coniferous Treed Swamp	16. Shrub Bog/Poor Fen	21. Hay Crop	**Modifiers:**
2. Poplar–Birch Forest	7. Jack Pine–Spruce Forest	12. Shrub/Thicket Swamp	17. Open Bog/Fen	22. Clearcut	1. Plantation
3. Poplar–Spruce Forest	8. Jack Pine Forest	13. Sedge/Meadow Marsh	18. Open Shrubland	23. Roadside	2. Regenerating/Young
4. Poplar–Jack Pine Forest	9. Deciduous Treed Swamp	14. Cattail/Open Water Marsh	19. Dense Shrubland	24. Open Cut-Line	3. Mid-aged
5. Birch–Spruce Forest	10. Mixed Treed Swamp	15. Treed Bog/Fen	20. Pasture	25. Cultural	4. Mature

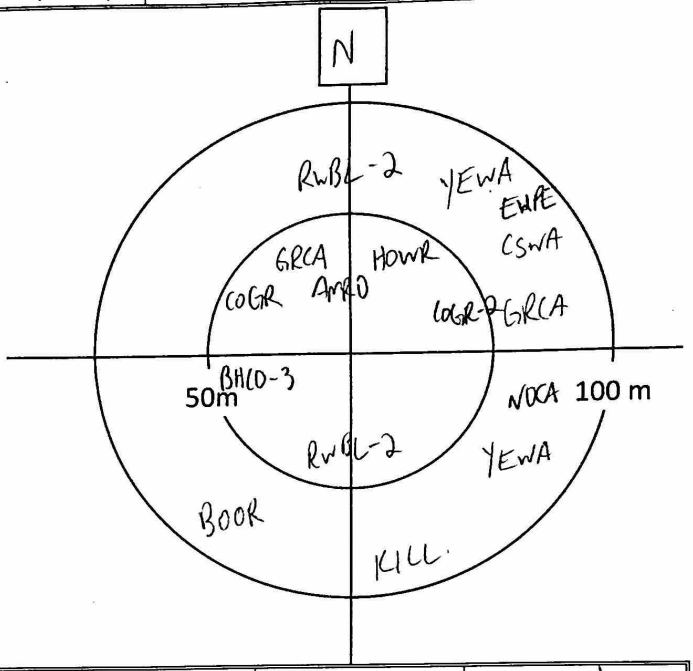
Breeding Evidence

Observed (OB)		Probable (PR)		Confirmed (CO)			
X	Species Observed	P	Pair Observed	A	Aggressive Behaviour	DD	Distraction Display	FS	Carrying Fecal Sac
Possible (PO)		T	Territory	N	Nest	NU	Used Nest	CF	Carrying Food
H	Suitable Habitat	D	Courtship or Display	V	Visiting Probable Nest Site	FY	Feeding Young	NE	Nest With Eggs
S	Male Singing					AE	Adults Entering or Leaving Nest	NY	Nest With Young

Breeding Bird Survey Form

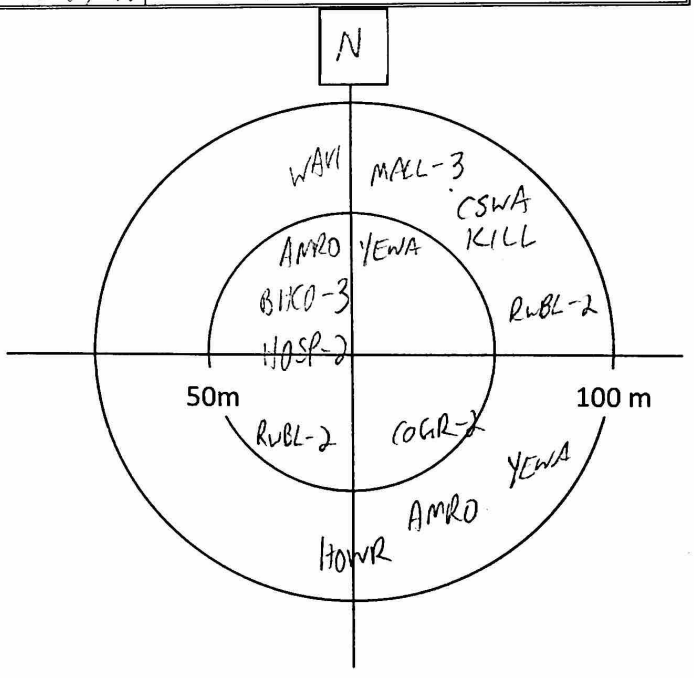
Project Name: East Riverside		**Project Number:** SYW2050G5	**Observers:** SB	**Date:** May 25, 2020	**Round:** 1		
Point Count #: 1 (Wyandotte)	**UTM:** 343128 / 4688374			**Primary Habitat:** Meadow	**Modifier:** 2		
Cloud: 25%	**Temp (°C):** 26	**Wind:** 1	**Precip:** 0	**Start (24hr):** 07:11	**Secondary Habitat:** Cultural Woodland	**Modifier:** 3	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
HOWR	1									S
EWPE				1						S
GRCA	1			1						S
RWBL	11			11						S
YEWA				1	1					X
AMRO	1			1						S
BOOR					1					S
NOCA					1					S
CSWA					1					S
BHCO		111								X
COGR	1					11				X
KILL						1				S



Project Name: East Riverside		**Project Number:** SYW2050G5	**Observers:** SB	**Date:** May 25, 2020	**Round:** 1		
Point Count #: 2 (Beverly Glen)	**UTM:** 343186 / 4687935			**Primary Habitat:** Cultural meadow	**Modifier:** 2		
Cloud: 40%	**Temp (°C):** 26	**Wind:** 1	**Precip:** 0	**Start (24hr):** 07:48	**Secondary Habitat:** Woodland	**Modifier:** 3	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
AMRO	1			1						S
KILL				1						S
MALL				111						X
RWBL	11				11					S
COGR	11									X
YEWA		1		1						S
CSWA					1					S
WAVI					1					S
HOWR		1			1					X
HOSP		11								X
BHCO		111								X



Weather:

Wind Scale: 0 – Calm, 1 – Light Air, 2 – Light Breeze, 3 – Gentle Breeze	**Precipitation Scale:** 0 – None, 1 – Haze/Fog, 2 – Drizzle, 3 - Rain

Habitat:

1. Poplar Forest	6. Spruce Forest	11. Coniferous Treed Swamp	16. Shrub Bog/Poor Fen	21. Hay Crop	**Modifiers:**
2. Poplar–Birch Forest	7. Jack Pine–Spruce Forest	12. Shrub/Thicket Swamp	17. Open Bog/Fen	22. Clearcut	1. Plantation
3. Poplar–Spruce Forest	8. Jack Pine Forest	13. Sedge/Meadow Marsh	18. Open Shrubland	23. Roadside	2. Regenerating/Young
4. Poplar–Jack Pine Forest	9. Deciduous Treed Swamp	14. Cattail/Open Water Marsh	19. Dense Shrubland	24. Open Cut-Line	3. Mid-aged
5. Birch–Spruce Forest	10. Mixed Treed Swamp	15. Treed Bog/Fen	20. Pasture	25. Cultural	4. Mature

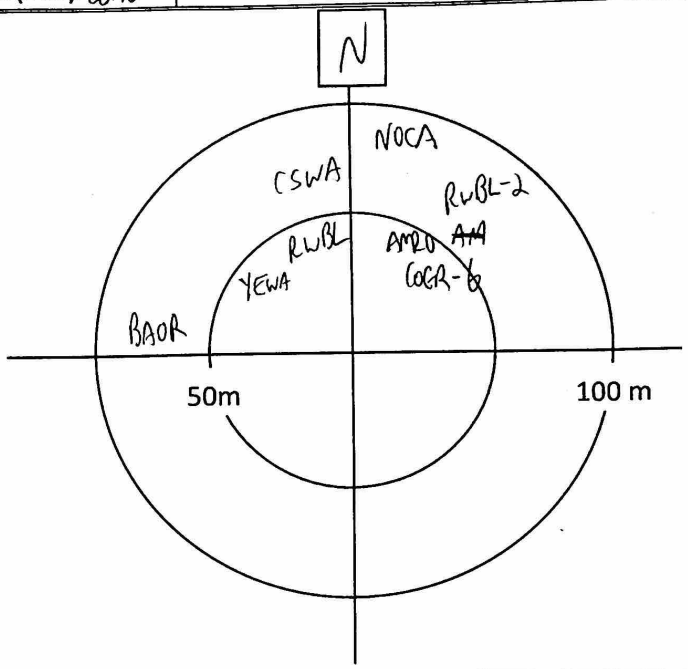
Breeding Evidence

Observed (OB)		Probable (PR)		Confirmed (CO)			
X	Species Observed	P	Pair Observed	A	Aggressive Behaviour	DD	Distraction Display	FS	Carrying Fecal Sac
Possible (PO)		T	Territory	N	Nest	NU	Used Nest	CF	Carrying Food
H	Suitable Habitat	D	Courtship or Display	V	Visiting Probable Nest Site	FY	Feeding Young	NE	Nest With Eggs
S	Male Singing					AE	Adults Entering or Leaving Nest	NY	Nest With Young

Breeding Bird Survey Form

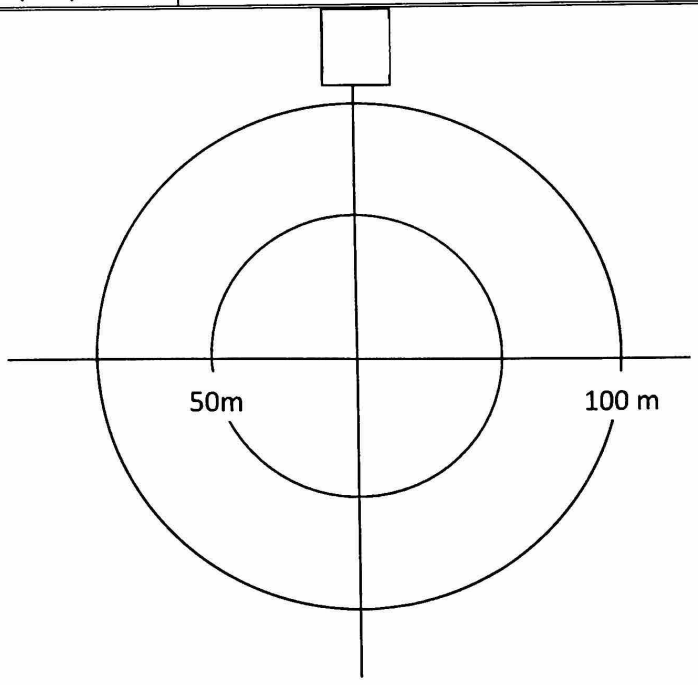
Project Name: East Riverside		**Project Number:** SW20806	**Observers:** SB		**Date:** May 25, 2020	**Round:** 1	
Point Count #: 3 (Little River)		**UTM:** 343297 / 4687716			**Primary Habitat:** Thicket	**Modifier:** 2	
Cloud: 40%	**Temp (°C):** 26	**Wind:** 1	**Precip:** 0	**Start (24hr):** 08:10	**Secondary Habitat:** Meadow	**Modifier:** 2	

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	
COGR	IIII									X
RWBL	1			II						X
YEWA	1									X
CSWA					1					S
AMRO		1								S
NOCA					1					S
BAOR					1					X



Project Name:		**Project Number:**	**Observers:**	**Date:**	**Round:**
Point Count #:		**UTM:**		**Primary Habitat:**	**Modifier:**
Cloud:	**Temp (°C):**	**Wind:**	**Precip:**	**Start (24hr):**	**Secondary Habitat:**	**Modifier:**

Species	<50 m			50-100 m			>100 m			Breeding Evidence
	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	0-3m	3-5m	5-10m	



Weather:

Wind Scale: 0 – Calm, 1 – Light Air, 2 – Light Breeze, 3 – Gentle Breeze	**Precipitation Scale:** 0 – None, 1 – Haze/Fog, 2 – Drizzle, 3 - Rain

Habitat:

1. Poplar Forest	6. Spruce Forest	11. Coniferous Treed Swamp	16. Shrub Bog/Poor Fen	21. Hay Crop	**Modifiers:**
2. Poplar–Birch Forest	7. Jack Pine–Spruce Forest	12. Shrub/Thicket Swamp	17. Open Bog/Fen	22. Clearcut	1. Plantation
3. Poplar–Spruce Forest	8. Jack Pine Forest	13. Sedge/Meadow Marsh	18. Open Shrubland	23. Roadside	2. Regenerating/Young
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5. Birch–Spruce Forest	10. Mixed Treed Swamp	15. Treed Bog/Fen	20. Pasture	25. Cultural	4. Mature

Breeding Evidence

Observed (OB)		Probable (PR)		Confirmed (CO)			
X	Species Observed	P	Pair Observed	A	Aggressive Behaviour	DD	Distraction Display	FS	Carrying Fecal Sac
Possible (PO)		T	Territory	N	Nest	NU	Used Nest	CF	Carrying Food
H	Suitable Habitat	D	Courtship or Display	V	Visiting Probable Nest Site	FY	Feeding Young	NE	Nest With Eggs
S	Male Singing					AE	Adults Entering or Leaving Nest	NY	Nest With Young

Little River Access Point

Canopy Species

- E. Cottonwood
- Black Walnut
- Swamp White Oak

Understory Species

- Green Ash
- Am. Plum
- Sandbar Willow
- White Mulberry
- Silky Dogwood
- Gray Dogwood
- Am. Elm
- Tatarian Honeysuckle
- Black Elderberry
- Black Cherry
- Staghorn Sumac
- Manitoba Maple
- E. Cottonwood
- Black Walnut

Groundcover Species

- Carex spp.
- Jerusalem Artichoke
- Wild Strawberry
- Virginia Creeper
- Water Plantain
- Tall Fescue
- Orchard Grass
- Common Evening Primrose
- Wild Grape
- Canada Thistle
- Swamp Rose
- Spreading Dogbane
- Tall Ironweed
- Tall Goldenrod
- Carex vulpinoidea
- Agrostis gigantea
- Silverweed
- Common Milkweed

Wyandotte Access Point

Canopy Species

- Eastern Cottonwood
- Silver Maple
- Willow sp.
- Am. Elm

Understory Species

- E. Red Cedar
- E. Cottonwood
- White Mulberry
- Honey Locust
- Silky Dogwood
- Norway Maple
- Manitoba Maple
- Gray Dogwood
- Green Ash
- Pin Oak
- Com. Hackberry
- Silver Maple
- Black Walnut

Groundcover Species

- Cool season grass mix
  - ↳ Agrostis gigantea
  - ↳ Tall Fescue
  - ↳ Poa compressa
  - ↳ Orchard Grass
- Tall Goldenrod
- Com. Dandelion
- Rumex crispus
- Wild Grape
- Hedge Bindweed
- New England Aster
- Panicled Aster
- Plantago major
- Red Clover
- Scirpus pendulus
- Juncus dudleyi
- Carex granularis

Beverly Glen Access Point

Canopy Species

- E. Cottonwood
- Am. Elm
- Silver Maple
- Willow sp.

Understory Species

- Green Ash
- Am. Elm
- E. Cottonwood
- Manitoba Maple
- Silky Dogwood
- Willow sp.
- Silver Maple
- White Mulberry
- E. Red Cedar

Groundcover Species

- Tall fescue
- Tall Ironweed
- Moneywort
- Scirpus pendulus
- Spreading Dogbane
- Carex granularis
- Tall Goldenrod
- Common Milkweed
- Carex bebbii
- Swamp Milkweed
- Carex vulpinodea
- Potentilla recta
- Plantago lanceolata
- Orchard Grass
- Red Clover
- Wild Carrot
- Wild Strawberry
- Virginia Creeper
- Canada Thistle
- Common Dandelion
- Silverweed
- Wild Grape
- Panicled Aster
- Rumex Crispus
- Climbing Prairie Rose
- Black eyed Susan
- New England Aster
- Frost Aster
- Heath Aster

Appendix A

Representative Photographs

Project Photo	Description
	Photo 1. Planted native trees adjacent to the Wyandotte St. ROW, within the Fresh-Moist Deciduous Savanna Ecosite.
	Photo 2. Large brush pile observed within the Wyandotte St. E. ROW recorded as suitable snake habitat.
	Photo 3. Study area directly south of the Wyandotte St. E. ROW.

Photo 4. Location of Beverly Glen St. ROW and the second Breeding Bird Survey location (Beverly Glen St.).

Photo 5. Habitat looking north from the Beverly Glen St. ROW.

Photo 6. Portions of the Beverly Glen St. ROW were flooded during the first field investigation.

Photo 7. Rock pile on the east end of the Beverly Glen St. ROW identified as suitable snake habitat.

Photo 8. Brush pile on the east end of the Beverly Glen St. ROW identified as suitable snake habitat.

Photo 9. Rock pile on the east end of the Beverly Glen St. ROW identified as suitable snake habitat.

Photo 10. Dry-Fresh Deciduous Regeneration Thicket Ecosite located south of the Beverly Glen St. ROW showing seasonal flooding.

Photo 11. Climbing Prairie Rose observed within the Beverly Glen St. ROW.

Photo 12. Crayfish burrow and Tall Ironweed (S3) located within the Beverly Glen St. ROW.

	Photo 13. Fresh-Moist Mixed Meadow Ecosite with abundant Carex spp. and Juncus spp. Adjacent to Little River Rd. located on the south end of the study area.
	Photo 14. Portions of the habitat adjacent to the Beverly Glen St. ROW were seasonally flooded.
	Photo 15. Climbing Prairie Rose located on the south end of the study area adjacent to Little River Rd.

	Photo 16. Common Milkweed, the food plant of the larval stages of the monarch butterfly located on the south end of the study area adjacent to Little River Rd.
	Photo 17. Climbing Prairie Rose located on the far south end of the study area.
	Photo 18. Dry-Fresh Deciduous Regeneration Thicket Ecosite on the south end of the study area where the third BBS point was conducted (Little River Rd.).

Appendix B

Significant Wildlife Habitat Screening

Significant Wildlife Habitat Type (7E)	Wildlife Species	Ecosites/ Habitat Description	Criteria and Information Sources	Defining Criteria	Known or Candidate SWH present?
Seasonal Concentration Areas					
Waterfowl Stopover and Staging Areas:					
· **Terrestrial** **(Rationale – Habitat important to migrating waterfowl)**	American Black Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from meltwater or run-off within these Ecosites.	•Fields with sheet water during Spring (mid-March to May) •Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl •Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available •Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. •Reports and other information available from Conservation Authorities •Sites documented through waterfowl planning processes (*e.g.,* EHJV implementation plan) •Field Naturalist Clubs •Ducks Unlimited Canada •Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Any mixed species aggregations of 100 or more individuals required • The flooded field ecosite habitat plus a 100-300m radius, dependent on local site conditions and adjacent land use is the significant wildlife habitat • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates) • SWH MIST Index #7 provides development effects and mitigation measures.	**Not Present** No ponds, marshes, lakes, bays, coastal inlets, watercourses (aquatic), or fields (terrestrial) with evidence of standing water in spring and concentrations of waterfowl.
· **Aquatic** **(Rationale – Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district)**	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	•Ponds, marshes, lakes, bays, coastal inlets and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify •These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). •Environment Canada •Naturalist clubs often are aware of staging/stopover areas. •OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. •Sites documented through waterfowl planning processes (*e.g.,* EHJV implementation plan) •Ducks Unlimited projects •Element occurrence specification by Nature Serve: http://www.natureserve.org •Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH • The combined area of the ELC ecosites and a 100m radius area is the SWH • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWH MIST Index #7 provides development effects and mitigation measures.	

Shorebird Migratory Stopover Area **(Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.)**	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area cxlviii • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects' • SWHMiST Index #8 provides development effects and mitigation measures.	**Not Present** No shorelines of lakes, rivers, wetlands, beach areas, bars, seasonally flooded muddy and un-vegetated habitats.
Raptor Wintering **(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 >20 ha with a combination of forest and upland • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting INFORMATION SOURCES • OMNRF Ecologist or Biologist • Naturalist clubs • Natural Heritage Information Centre (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts • Reports and other information available from Conservation Authorities	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; one of more Bald Eagles or; at least 10 individuals and two of the listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #10 and #11 provides development effects and mitigation measures.	**Not Present** No combination of fields and woodlands (>20ha)

Bat Hibernacula **(Rationale; Bat hibernacula are rare habitats in all Ontario landscapes.)**	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR3 CCA1 CCA2 (Note: buildings are not considered SWH)	•Hibernacula may be found in caves, mine shafts, underground foundations and Karsts •Active mine sites should not be considered as SWH •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 (*e.g.,* Sierra Club) •University Biology Departments with bat experts.	•All sites with confirmed hibernating bats are SWH •The area includes 200 m radius around the entrance of the hibernaculum for most development types and 1000 m for wind farms •Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #1 provides development effects and mitigation measures.	**Not Present** No caves, mine shafts, underground formations/foundations, crevices, or Karst observed.
Bat Maternity Colonies **(Rationale: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.)**	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD, FOM, SWD, SWM	•Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). •Maternity roosts are not found in caves and mines in Ontario •Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees •Female bats prefer wildlife trees (snags) in early stages if decay, class 1-3 or class 1 or 2 •Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred INFORMATION SOURCES •OMNRF for possible locations and contact for local experts •University Biology Departments with bat experts.	•Maternity colonies with confirmed use by: o>10 Big Brown Bats (EPFU) o>5 adult female Silver-haired (LANO) Bats •The area of habitat includes the entire woodland or a forest stand ELC Ecosite or an Eco element containing the maternity colonies •Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #12 provides the development effects and mitigation measures.	**Unlikely** Due to limited access it is not known if the Study Area contains over 10 large (>25 cm dbh) diameter wildlife trees per hectare. However, due to the successional nature of the vegetation on site, it does not appear the Study Area would meet the habitat criteria. Further studies would be required to confirm species and numbers of individuals. Animals must be using trees/vegetation and not buildings.
Turtle Wintering Areas **(Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.)**	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles: SW, MA, OA and SA; FEO and BOO. Northern Map Turtle: Open water areas such as deeper rivers or streams and lakes with current can also be used as overwintering habitat.	•For most turtles, wintering areas are in the same general areas as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. •Overwintering sites are permanent water bodies, large wetlands and bots or fens with adequate dissolved oxygen. •Manmade 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 •NHIC	•Presence of five overwintering Midland Painted Turtles is significant. •One or more Northern Map Turtle or Snapping Turtle overwintering within a wetland is significant. •The mapped ELC ecosite area with the overwintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are overwintering is the SWH. •Overwintering areas may be identified by searching for congregations (basking areas) of turtles on warm, sunny days during the fall (September to October) or spring (March to May). Congregation of turtles is more common where wintering areas are limited and therefore significant. •SWH MIST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	**Not Present** No turtle habitat observed.

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 other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator.	•For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. •Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line •Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. •Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. 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 Conservation Authorities. •Field Naturalist Clubs •University herpetologists •Natural Heritage Information Centre (NHIC) •OMNRF ecologist or biologist may be aware of locations of wintering skinks	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 (*e.g.,* foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) •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 30 m radius area is the SWH •SWH MIS Index #13 provides development effects and mitigation measures for snake hibernacula. •Presence of any active hibernaculum for skink is significant. •SWHMiST Index #37 provides development effects and mitigation measures for fivelined skink wintering habitat.	**Potential** Congregations of snakes not noted during spring or fall surveys. Maximum survey effort not completed. Numerous crayfish burrows documented.
Colonial Bird Nesting Habitat:					
cliff/bank **(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 populations 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 Conservation Authorities • Ontario Breeding Bird Atlas • Bird Studies Canada; http://www.birdscanada.org/birdmon • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 8 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 • 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” • SWH MIST Index #4 provides development effects and mitigation measures.	**Not Present** Habitat and species not present

· **tree/shrub** **(Rationale: Large colonies are important to local bird populations, 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 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 Conservation Authorities. • MNRF District Offices • Field Naturalist Clubs.	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15 ha with a colony is the SWH • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells • SWH MIST Index #5 provides development effects and mitigation measures.	**Not Present** Habitat and species not present
· **ground** **(Rationale: Colonies are important to local bird populations, 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, rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from Conservation Authorities. • 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 or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern • Presence of 5 or more pairs for Brewer's Blackbird • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3 ha with a colony is the SWH • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #6 provides development effects and mitigation measures.	**Not Present** Species not present
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 site for butterfly stopover will have a history of butterflies being observed.	• A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Erie or Lake Ontario • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes INFORMATION SOURCES • MNRF District Offices • Natural Heritage Information Centre (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days the site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • SWH MIST Index #16 provides development effects and mitigation measures.	**Not Present** Not within 5km of Lake Erie

			• Toronto Entomologists Association • Conservation Authorities		
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.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptor 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 >10 ha in size and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those woodlands <2 km from and Lake Ontario are more significant • Sites have a variety of habitats: forest, grassland and wetland complexes • The largest sites are more significant • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and within 5 km of and Lake Ontario are Candidate SWH. INFORMATION SOURCES • Bird Studies Canada • Ontario Nature • Local birders and field naturalist clubs • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the habitat by >200 birds/day and with >35 species and with at least 10 bird species recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant • Studies should be completed during spring (Mar.-May) and fall (Aug.-Oct.) migration using standardized assessment techniques. Evaluation to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWH MIST Index #9 provides development effects and mitigation measures.	**Not Present** Not within 5km of Lake Ontario
Deer Winter Congregation Areas **(Rationale: Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.)**	White-tailed Deer	All forested Ecosites with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • If deer are constrained by snow death refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule • Large woodlots >100 ha and up to 1,500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha • Woodlots with high densities of deer due to artificial feeding are not significant. 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 • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF • Studies should be completed during winter (Jan./Feb.) when >20 cm of snow is on the ground using aerial survey techniques, ground road surveys, or a pellet count deer survey If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule • SWH MIST Index #2 provides development effects and mitigation measures	**Not Present** Not delineated by MNRF
Rare Vegetation Communities					
Cliffs and Talus Slopes **(Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.)**		Any ELC Ecosite within Community Series: TAO, TAS, TAT, CLO, CLS, CLT A Cliff is vertical to near vertical bedrock >3 m 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 • SWH MIST Index #21 provides development effects and mitigation measures	**Not Present**

Sand Barren **(Rationale: Sand barrens are rare in Ontario and support rare species. Most sand barrens have been lost due to cottage development and forestry.)**		ELC Ecosites: SBO1, SBS1, SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60% Sand barrens typically are exposed sand, generally sparsely vegetated and caused by a lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	• A sand barren area >0.5 ha in size 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 Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) • SWH MIST Index #20 provides development effects and mitigation measures	**Not Present**
Alvar **(Rationale: Alvars are extremely rare habitats in Ecoregion 6E.)**	FIVE ALVAR INDICATOR SPECIES *Carex crawei* *Panicum philadelphicum* *Eleocharis compressa* *Scutellaria parvula* *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6E	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2 An Alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover	• An Alvar site >0.5 ha in size • Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie INFORMATION SOURCES • Alvars of Ontario (Federation of Ontario Naturalists, 2000) • Conserving Great Lakes Alvars (Ontario Nature) • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	• Field studies identify that four of the five ALVAR INDICATOR SPECIES at a Candidate Alvar Site is significant • Site must not be dominated by exotic of introduced species (<50% vegetative cover are exotic spp.) • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses • SWH MIST Index #17 provides development effects and mitigation measures	**Not Present**

Old Growth Forest **(Rationale: Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 6E.)**		Forest Community Series: FOD, FOC, FOM, SWD, SWC, SWM Old Growth Forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	• Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest INFORMATION SOURCES • OMNRF Forest Resource Inventory mapping • OMNRF Districts • Field Naturalist Clubs • Conservation Authorities • Sustainable Forestry License (SFL) companies will possibly know locations through field operations • Municipal forestry departments	Field studies will determine: • If dominant tree species of the forest are >140 years old, then the area containing these trees is SWH • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH • Determine ELC vegetation types for the forest area containing the old growth characteristics • SWH MIST Index #23 provides development effects and mitigation measures	**Not Present**
Savannah **(Rationale: Savannahs are extremely rare habitats in Ontario.)**		TPS1, TPS2, TPW1, TPW2, CUS2 A Savannah is a tallgrass prairie habitat that has tree cover between 25-60%.	• No minimum size to site • Site must be restored or a natural site. Remnant sites such as railway right-of-ways are not considered SWH INFORMATION SOURCES • Natural Heritage Information Centre (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	Field studies confirm: • One or more of the Savannah indicator species listed in Appendix N should be present. Note: savannah plant spp. List from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) • SWH MIST Index #18 provides development effects and mitigation measures.	**Not Present**
Tallgrass Prairie **(Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.)**		TPO1, TPO2 A tallgrass prairie has ground cover dominated by prairie grasses. An open tallgrass prairie habitat has <25% tree cover.	• No minimum size to site • Site must be restored or a natural site. Remnant sites such as railway right-of-ways are not considered SWH INFORMATION SOURCES • Natural Heritage Information Centre (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	Field studies confirm: • One or more of the Prairie indicator species listed in Appendix N should be present. Note: savannah plant spp. List from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) • SWH MIST Index #19 provides development effects and mitigation measures.	**Not Present**
Other Rare Vegetation Communities **(Rationale: Plant communities that often contain rare species which depend on the habitat for survival.)**		Provincially rare (S1, S2, S3) vegetation communities are listed in Appendix M of the Significant Wildlife Habitat Technical Guide (MNRF, 2000). 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 of the Significant Wildlife Habitat Technical Guide (MNRF, 2000). • 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 Naturalist Clubs • Conservation Authorities	• Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of the Significant Wildlife Habitat Technical Guide (MNRF, 2000). • Area of the ELC Vegetation Type polygon is the SWH. • SWH MIST Index #37 provides development effects and mitigation measures.	**Not Present**
Specialized Habitats for Wildlife					
Waterfowl Nesting Area **(Rationale: Important to local waterfowl populations, sites with greatest number of species and highest**	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck	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	• A waterfowl nesting area extends 120 m from a wetland (>0.5 ha) or a wetland (>0.5 ha) and any small wetlands (0.5 ha) within 120 m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur • Upland areas should be at least 120 m wide so that predators such as raccoons, skunks and foxes have difficulty	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant.	**Not Present** Habitat and species not present

number of individuals are significant)	Hooded Merganser Mallard	NOTE Includes adjacency to Provincially Significant Wetlands	finding nests • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites. INFORMATION SOURCES • Ducks Unlimited staff may know the locations of particularly productive nesting sites • MNRF Wetland Evaluations for indication of significant waterfowl nesting habitat • Reports and other information available from Conservation Authorities	• Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • A field study confirming waterfowl nesting habitat will determine boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest • SWH MIST Index #25 provides development effects and mitigation measures.	
Bald Eagle and Osprey nesting, foraging and Perching Habitat **(Rationale: Nest sites are fairly uncommon in Ecoregion 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.)**	Osprey SPECIAL CONCERN Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. • Nests located on man-made objects are not to be included as SWH (*e.g.,* telephone poles and constructed nesting platforms) INFORMATION SOURCES • NHIC compiles all known nesting sites for Bald Eagles in Ontario • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat • Nature Counts, Ontario Nest Records Scheme data. • OMNRF District. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800 m is dependent on sight lines from the nest to the development and inclusion of perching and foraging habitat • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid-August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • SWH MIST Index #26 provides development effects and mitigation measures	**Unlikely** A small forest ecosite (FODM8) is present within the Study Area. A confirmed Bald Eagle nest is located approximately 800m west, in an Eastern Cottonwood tree within an agricultural hedge row. Large canopy Eastern Cottonwoods are present within the Study Area and the adjacent stormwater management ponds to the south (approx. 470 m) and Lake St. Clair to the north (approx. 540 m) of FODM8 provide multiple foraging locations on either side of the Study Area. The small forest ecosite is located approximately 410 m south of the proposed Wyandotte St. East extension. As the Study Area is more active than the current eagle nest it is less likely to be the location of a future nest.

Woodland Raptor Nesting Habitat **(Rationale: Nest 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 >30 ha with > 4 ha of interior habitat. Interior habitat determined with a 200 m buffer. • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests, within tops or crotches of trees. Species such as Cooper's 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 or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of one or more active nests from species list is considered significant • Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha area of habitat is the SWH. The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest. • Barred Owl – A 200m radius around the nest is the SWH • Broad-winged Hawk and Coopers Hawk, – A 100m radius around the nest is the SWH • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH • Conduct field investigations from 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. • SWH MIST Index #27 provides development effects and mitigation measures	**Not Present** Habitat requirements not met.
Turtle Nesting Habitat **(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 (<100 m) 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 is 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 Centre (NHIC). • Field naturalist clubs.	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One ore more Northern Map Turtles or Snapping Turtles nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30 to 100 m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30 to 100 m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWH MIST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	**Not Present** Along Little River Blvd, road embankments may serve as nesting habitat. However, road embankments are not SWH. It is possible turtles will try and nest further north in the Study Area, however there is equal opportunity south of the road. No nesting attempts were documented in the Study Area.

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 Salamanders	Seeps/springs are areas where groundwater comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	• Any forested area (with <25% meadow/field/ pasture) within the headwaters of a stream or river system • Seeps and springs are important feeding and drinking areas. Especially in the winter will support a variety of plant and animal species. INFORMATION SOURCES • Topographical Map. • Thermography. • Hydrological surveys conducted by Conservation Authorities and MOECC. • Field Naturalists Clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped	Field studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of an ELC forest ecosite or an Eco element within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat • SWH MIST Index #30 provides development effects and mitigation measures	**Not Present**
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) >500 m2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. 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 species with at least 20 individuals (adults or egg masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (Mar.-Jun.) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands • The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • SWH MIST Index #14 provides development effects and mitigation measures	**Not Present** Habitat and species not present
· **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 (>120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (*e.g.,* Bullfrog) may be adjacent to woodlands.	• Wetlands >500m2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators • Bullfrogs require permanent water bodies with abundant emergent vegetation. INFORMATION SOURCES • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count.	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 or; Wetland with confirmed breeding Bullfrogs are significant • The ELC ecosite wetland area and the shoreline are the SWH • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered	**Not Present** Habitat and species not present

			• OMNRF Districts and wetland evaluations. • Reports and other information available from Conservation Authorities	as outlined in Table 1.4.1 of this Schedule. • SWH MIST Index #15 provides development effects and mitigation measures.	
Woodland Area-Sensitive Bird Breeding Habitat **(Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.)**	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren SPECIAL CONCERN Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD	CRITERIA • Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs. old) forest stands or woodlots >30 ha • Interior forest habitat is at least 200 m from forest edge habitat 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 Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH • Conduct field investigations in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWH MIST Index #34 provides development effects and mitigation measures	**Not Present** Habitat and species not present
Habitats of Species of Conservation Concern					
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 Moorhen 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 • 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 District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Centre (NHIC) Records. • Reports and other information available from Conservation Authorities • Ontario Breeding Bird Atlas	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWH MIST Index #35 provides development effects and mitigation measures	**Not Present** Habitat and species not present

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) >30 ha • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (*i.e.,* no row cropping or intensive hay or livestock pasturing in the last 5 years) • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species INFORMATION SOURCES • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • EIS Reports and other information available from Conservation Authorities	Field studies confirm: • Presence of nesting or breeding of 2 or more of the listed species • A field with 1 or more breeding Short-eared Owls is to be considered SWH • The area of SWH is the contiguous ELC ecosite field areas • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWH MIST Index #32 provides development effects and mitigation measures	**Not Present** Habitat and species not present
Shrub / Early Successional Breeding Bird 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 SPECIES Brown Thrasher Clay-coloured Sparrow COMMON SPECIES Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher SPECIAL CONCERN Yellow-breasted Chat Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	• Large field areas succeeding to shrub and thicket habitats >10 ha 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) • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands INFORMATION SOURCES • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities	Field studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWH MIST Index #33 provides development effects and mitigation measures	**Not Present** Habitat and species not present
Terrestrial Crayfish Habitat **(Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.)**	Chimney or Digger Crayfish Devil Crayfish or Meadow Crayfish	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) 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 meadow marsh, swamp or moist terrestrial sites • Area of ELC ecosite or an Eco element area of meadow marsh or swamp within the larger ecosite area is the SWH • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult • SWH MIST Index #36 provides development effects and mitigation measures	**Confirmed** Habitat and chimneys present

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, S2, S3, SH) plant and animal species. Lists of these species are tracked by the NHIC	All plant and animal element occurrences (EOs) within a 1 km or 10 km grid. Older EOs 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 INFORMATION SOURCES • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information": http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. Have little information available about their requirements	Studies confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species *e.g.,* specific nesting habitat or foraging habitat. • SWH MIST Index #37 provides development effects and mitigation measures	**Confirmed** Eastern Wood-pewee, Carolina Wren, Monarch, Climbing Prairie Rose, and Tall Ironweed present in the Study Area
Animal Movement Corridors					
Amphibian Movement Corridors **(Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.)**	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	• Movement corridors between breeding habitat and summer habitat • Movement corridors must be determined when amphibian breeding habitat is confirmed as SWH (Amphibian Breeding Habitat, Wetland) INFORMATION SOURCES • MNRF District Office. • Natural Heritage Information Centre (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat • SWH MIST Index #40 provides development effects and mitigation measures	**Not Present**