EAST DURHAM
WIND ENERGY CENTRE

NATURAL HERITAGE ASSESSMENT

ONTARIO REGULATION 359/09

prepared for

GENIVAR Inc.

on behalf of

EAST DURHAM WIND, INC. ENERGY

LGL LIMITED
environmental research associates

NOVEMBER 2012

LGL PROJECT TA8119

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ABBREVIATIONS AND DEFINITIONS

NHA – Natural Heritage Assessment

NHIC – Natural Heritage Information Centre (now referred to as the Biodiversity Database) as maintained by the Ministry of Natural Resources, available online on http://nhic.mnr.gov.on.ca/.

O. Reg. 359/09 – Ontario Regulation 359/09

OWES –Ontario Wetland Evaluation System

Project – East Durham Wind Energy Centre

Project Area – areas within 120m of project components (sees Figure 1 of this report for a mapped image of the project components and project area).

Project Location – part of a land and all or part of any building or structure in, or, over which a person is engaging in or proposed to engage in the project and includes air space. The location includes all components of the renewable energy facility such as wind turbines, lay down areas, access roads, crane assembly areas, walking paths, hydro lines/corridors, transformer stations, fencing, lighting, and construction yards.

SWH – significant wildlife habitat – wildlife habitat that meets the MNR criteria outlined in the Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule (OMNR, 2012a).

Study Area – general location of the wind energy project, is bounded by Concession Road 6 to the north; Sideroad 50 and Artemesia-Glenelg Townline to the east; the West Grey-Southgate municipal boundary to the south (Stone Hill Road); and, Baseline to the west.

1.0 INTRODUCTION

East Durham Wind, Inc. is proposing to construct a wind energy project in the Municipality of West Grey, Grey County, Ontario. The proposed project will be referred to as the East Durham Wind Energy Centre (Project). This facility will convert wind energy into electricity to be fed into the Hydro One grid. The wind turbine technology proposed for this Project is the GE 1.6-100 model wind turbine. With a total maximum nameplate capacity of up to 23 MW, the Project is categorized as a Class 4 facility.

As the proponent, East Durham Wind, Inc. is required to follow the provincial policies and standards outlined in The Renewable Energy Approvals (REA) process as prescribed in *Ontario Regulation 359/09* (O. Reg. 359/09) under the *Environmental Protection Act* as they pertain to wind energy projects. LGL Limited has been retained as a sub-consultant to Genivar Inc. to conduct a Natural Heritage Assessment (NHA) for the Project in accordance with the requirements of the REA process.

Under the REA process the proponent is required to conduct a NHA which includes the following:

- A Records Review to collect information about the project area and identify the natural features within (Part IV, Section 25 of O. Reg. 359/09);
- A Site Investigation to confirm accuracy of information obtained through Records Review as well as the boundaries of natural features within 120 metres of the project location, including those features identified through Records Review, and any additional natural features determined through Site investigation (Part IV, Section 26 of O. Reg. 359/09);
- An Evaluation of Significance of natural features within 120m of the project location to determine significance or provincial significance to then determine if development setbacks apply (Part IV, Section 27 of O. Reg. 359/09); and,
- An Environmental Impact Study Report when project components are proposed within established setbacks to identify potential negative environmental effects, and describe how they will be addressed through mitigation and monitoring (Part V, Section 38 of O. Reg. 359/09).

This document has been prepared in accordance with the above noted sections of the Regulation for submission to the Ministry of Natural Resources for review, as part of the larger REA process.

1.1 PROJECT DESCRIPTION

The East Durham Wind Energy Centre is a Class 4 Wind Facility, with a total nameplate capacity of up to 23 MW. Although the proponent has identified 16 potential locations for wind turbine siting, a total of up to 14 turbines are proposed for construction. The defined study area for the Project, as displayed in Figure 1, covers approximately 10,050 ha east of the Community of Durham and west of the Village of Priceville. Project components will be located within privately owned agricultural land with lease arrangements, or within municipal road right of ways.

The study area for the Project is located within the Municipality of West Grey, the County of Grey. The study area is generally bounded by: Concession Road 6 to the north; Sideroad 40, Townline Artemesia-Glenelg and Sideroad 50 to the east; the West Grey-Southgate municipal boundary to the south; and, Baseline to the west (Figure 1). The study area is located south of the Canadian Shield and outside of the Greenbelt and Oak Ridges Moraine Plan Areas. The area is generally comprised of a mix of naturalized areas interspersed with active agriculture and aggregate extraction areas. The natural features identified within the study area include hedgerows, forest, and wetland units, as well as reaches of the Upper Saugeen River.

Major project components for the East Durham Wind Energy Centre are proposed as follows:

- Up to 16 GE model wind turbine (with 14 turbines that are 1.6-100 (1.62 MW), Turbine 6 as a 1.34-100 (1.34 MW) and Turbine 2 as a 1.39-100 (1.39 MW)) generator locations and pad mounted step-up transformers are proposed for permitting (a maximum of 14 turbines will ultimately be constructed);
- Turbine laydown and storage areas (including temporary staging areas, crane pads and turnaround areas surrounding each wind turbine);
- Construction laydown area (including staging areas for construction materials, construction trailers and associated facilities and a temporary electrical service line to provide power to the construction trailers);
- Approximately 28.3 km of 34.5 kV underground electrical collection lines and ancillary equipment (e.g., above ground electrical junction boxes) to connect the turbines to the proposed transformer substation;
- Pad mounted 690 V/ 34.5 kV step up transformers located at or near the base of each turbine;
- A transformer substation to connect to the Hydro One distribution system;
- Overhead 44 kV line to connect the transformer substation to the Hydro One electrical grid;
- Approximately 13.8 km of turbine access roads;
- An operations and maintenance building (located outside the project location (building for Conestogo Wind Energy Centre will be used); and,
- 1 to 2 meteorological towers.

2.0 RECORDS REVIEW

As a first step in the preparation of an NHA for a renewable energy project O. Reg. 359/09 requires that the proponent determine the location of natural features through a Records Review process.

2.1 METHODS

During the Records Review process Section 25 of O. Reg. 359/09 requires applicants to search records related to natural features that are maintained by the following sources as they relate to the project study area:

- the Ministry of Natural Resources
- the Crown in the right of Canada
- a conservation authority
- each local and upper-tier municipality
- the planning board
- the municipal planning authority
- the local roads board
- the Local Services Board
- the Niagara Escarpment Commission

The Study Area for the East Durham Wind Energy Centre, as defined in Figure 1, was used for the purpose of data collection during the Records Review process as the Project Location, defining the location of all project components, was not yet fully determined.

The following resources were accessed for the purpose of background data collection in order to identify natural features within the Study Area:

- MNR Natural Heritage Information Centre (Biodiversity Explorer) database;
- MNR Natural Resources and Values Information System (NRVIS);
- Land Information Ontario (LIO) data layers;
- MNR Wetland Evaluations (from Owen Sound Area Office);
- MNR ANSI Reports (from Owen Sound Area Office);
- County of Grey Official Plan;
- County of Grey interactive GIS mapping;
- Provincial Water Quality Network (PWQN) data;
- Saugeen Valley Conservation Area published reports;

- Provincial Parks website;
- The Crown Land Use Policy Atlas;
- Ontario Renewable Energy Atlas; and,
- Various wildlife atlases (Ontario Breeding Bird Atlas, Ontario Reptile and Amphibian Atlas).

As well, the organizations listed in Table 1 were consulted for additional data that was available for the project study area. Details regarding dates and times of contact as well as specific contact information for those agencies consulted during Records Review are included in Appendix A. Those agencies whose records the proponent is obligated to search (as outlined in Section 25 of O. Reg. 359/09) only appear in Table 1if they were found to apply to the project study area.

Table 1: Summary of Agency Consultation

Source	Records Requested	Records Received
Ministry of Natural Resources – Renewable Energy Operations Team	September 20, 2011: a request for information within the study area was sent to the Renewable Energy Operations Team (REOT) May 4, 2012: MNR REOT was notified that a change to the study area (expansion in a north-east direction) was being proposed by the proponent and a request for information within the revised study area was initiated.	October 4, 2011: MNR REOT provided information on parks and conservation reserves, wetlands, woodlands, valleylands, ANSIs, and significant wildlife habitat within the original project study area (smaller area than what is shown in Figure 1). See full Records Review Report (OMNR, 2011c) in Appendix A. June 12, 2012: MNR REOT provided information on parks and conservation reserves, wetlands, woodlands, valleylands, ANSIs, and significant wildlife habitat within the revised project study area (as displayed in Figure 1). See full Records Review Report (OMNR, 2012b) in Appendix A.
Ministry of Natural Resources – Owen Sound Area Office	July 22, 2011: a request for background information pertaining to wetlands, fisheries inventories and other available data for natural features within the project study area was sent to the MNR area office.	July 28, 2012: a visit was made to the Owen Sound area office to make copies of wetland evaluations, the fisheries management plan as it pertains to the project study area; and, a dropped ANSI that had not yet been removed from NRVIS.
Saugeen Valley Conservation Authority	May 24, 2011: a request for natural heritage information relevant to the project study area, including species inventories, locations of valleylands, woodlands, wetlands and known wildlife habitat was made to the Resource Information department.	May 27, 2011: SVCA provided information regarding ESAs in the County and suggested contacting MNR for information pertaining to fisheries and wetlands.

Source	Records Requested	Records Received
	August 2, 2011: Follow up email to determine if SVCA had any GIS available for mapped floodlines and regulations.	August 8, 2011: SVCA confirmed that no digital data was available, a screening procedure by SVCA staff would be necessary once project components were determined to identify where components may be encroaching on regulation limits.
County of Grey	May 25, 2011: After review of the Official Plan the County was contacted to determine if any additional information was available with regard to natural heritage information. August 15, 2012: Contacted Mr. Taylor for information regarding the percent woodland cover established for the area.	May 27, 2011: Scott Taylor confirmed that the Official plan was the only mapping of features available through the County and also informed LGL that the OPA80 amendment to the Official Plan had been passed. August 15, 2012: Mr. Taylor declared a conflict on the file based on the revised study area and referred LGL to Sarah Morrison (intermediate Planner). August 21, 2012: Ms. Morrison confirmed by phone that the County did not have information on woodland cover for the area.
Municipality of West Grey	May 24, 2011: Contacted the Municipality to determine whether the municipality had completed its own Official Plan. August 15, 2012: Contacted the Municipality for information regarding the percent woodland cover established for the area.	May 24, 2011: The Municipality confirmed that its Official Plan only relates to the urban centres of the Town of Durham and Village of Neustadt, and that the rural areas of West Grey are governed by the County of Grey Official Plan. August 15, 2012: Mr. Turner confirmed by email that the Municipality did not have information on woodland cover for the area.

Ducks Unlimited was also contacted in follow up to information obtained from a landowner within the Study Area; those details are provided in the Site Investigation section of this report.

Details including dates and times of contact, as well as specific contact information for those agencies consulted during Records Review and throughout the NHA for the East Durham Wind Energy Centre are included in Appendix A. Those agencies whose records the proponent is obligated to search (as outlined in Section 25 of O. Reg. 359/09) only appear in Appendix1if they were found to apply to the project study area; for example, because the Project is not located within the planning area of the Niagara Escarpment Commission, that agency was not contacted.

The results obtained through the Records Review process are displayed in Figures 2 through 5, and further described in the following subsections.

2.2 RESULTS OF RECORDS REVIEW

2.2.1 Records Related to Provincial Parks and Conservation Reserves

2.2.1.1 Provincial Parks

Based on the Crown Land Use Policy Atlas, administered by the Ministry of Natural Resources (MNR), and the Provincial Parks and Conservation Reserves layers maintained by Land Information Ontario there were no provincial parks identified within the project Study Area. Likewise, a search of the Ontario Provincial Parks website did not identify any provincial parks within the project Study Area. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) confirmed that no provincial parks were present within the boundaries of the Study Area. As a result of these findings, no additional work will be completed for this type of feature in subsequent elements of the NHA.

2.2.1.2 Conservation Reserves

Based on the Crown Land Use Policy Atlas, administered by the Ministry of Natural Resources (MNR), and the Provincial Parks and Conservation Reserves layers maintained by Land Information Ontario there were no conservation reserves identified within the project Study Area. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) confirmed that no conservation reserves were present within the boundaries of the Study Area. As a result of these findings, no additional work will be completed for this type of feature in subsequent elements of the NHA.

2.2.2 Records Related to Natural Features

2.2.2.1 Areas of Natural and Scientific Interest (ANSIs)

Earth Science ANSIs

Records contained within the MNR Natural Resources and Values Information System (NRVIS) indicated that the Earth Science ANSI, referred to as Topcliff Crevasse Fillings, was located within the project Study Area. However, further review of records available through the MNR Owen Sound Area office, documented that the Topcliff Crevasse Fillings Earth Science ANSI was reviewed by Midhurst District in 2001 and subsequently dropped as an ANSI feature as it was determined as no longer representative as an ANSI (Appendix A). The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) confirmed that no Earth Science ANSIs were present within the boundaries of the project study area. As a result of these findings, no additional work will be completed for this type of feature in subsequent phases of the NHA.

Life Science ANSIs

Records contained within the MNR Natural Resources and Values Information System (NRVIS) did not include any Life Science ANSIs located within the project study area. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) determined the closest Life Science ANSI as the Rocky Saugeen River Life ANSI, located approximately 300m from the project Study Area boundary. As a result of these findings, no additional work will be completed for this type of feature in subsequent stages of the NHA.

2.2.2.2 Wetlands

Using the resources listed in Section 2.0 wetlands were identified within the project Study Area. The definition employed for this type of feature was that provided in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011) which defines a wetland as '*land such as a swamp, marsh, bog or fen, other than land that is being used for agricultural purposes and no longer exhibits wetland characteristics, that, (a) is seasonally or permanently covered by shallow water or has the water table close to or at the surface, and (b) has hydric soils and vegetation dominated by hydrophytic or water-tolerant plants.*' Features identified as wetlands within the Study Area boundary are displayed in Figure 2 and further discussed below.

Coastal Wetlands

A coastal wetland is defined in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011) as '*a wetland located, (a) on Lake Ontario, Lake Erie, Lake Huron, Lake Superior or Lake St. Clair, (b) on the St. Mary's, St. Clair, Detroit, Niagara or St. Lawrence River, or (c) on a tributary to any water body mentioned in (a) or (b) and, either in whole or in part, downstream of a line located two kilometres upstream of the 1:100 year floodline of the water body including wave run-up*'.

The project study area is not within 2km of any of the above mentioned coastlines; therefore, this type of wetland was not identified. This feature was not carried over into subsequent stages of the NHA.

Provincially Significant Wetlands

Provincially significant wetlands (PSWs) are designated as such through a provincial protocol developed by the MNR; namely, the Ontario Wetland Evaluation System (OWES). The wetlands reported here as provincially significant are those with existing evaluations completed according to OWES and documented in NRVIS and LIO mapping available through the MNR. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) confirmed the presence of four PSWs within the project Study Area limits: Boothville Swamp; Topcliff Swamp Wetland Complex; Traveston Creek; and, Beaver Meadow (Figure 2). The details provided below for each of the wetlands identified were obtained from MNR Wetland Evaluation Records (MNR District Office in Owen Sound) and NHIC records available online from the Biodiversity Explorer database.

Boothville Swamp is a 152.9ha wetland complex comprised of 4 individual wetlands, the largest of which is 138.6ha. The wetland is a palustrine headwater area dominated by Black Ash and Eastern White Cedar. This PSW is considered to be locally significant for providing winter cover for White-tailed Deer and as waterfowl nesting habitat. Nesting Great Blue Heron are also documented within Boothville Swamp. The location of Boothville Swamp PSW and its proximity to the project location were considered further during Site Investigation.

Traverston Creek wetland is comprised of 4 individual wetlands, composed of 3 wetland types (3% bog, 88% swamp and 9% marsh). Dominant vegetation forms are coniferous (53.1%) and deciduous (21.8%). This PSW is considered to be locally significant for providing winter cover for White-tailed Deer and as nesting habitat for colonial waterbirds. The location of Traverston Creek PSW and its proximity to the project location were considered further during Site Investigation.

Topcliff Swamp is a large 291ha wetland complex comprised of 22 individual wetlands, the largest of which is 60.5ha. The majority of the wetlands are small (<10ha). Most of the wetlands are palustrine having formed in depressions in the local landscape. These areas represent headwaters that collect and feed local surface water directly to the Beatty Saugeen River. The feature is dominated (91%) by swamps containing Black Ash, Red Maple, dead hardwoods, Eastern White Cedar, willow and dogwood. The remaining 9% is classified as marsh with grass and sedge vegetation. This PSW is considered to be locally significant for providing winter cover for White-tailed Deer and as waterfowl nesting habitat. Special features of the wetland complex include the presence of marsh, a rare wetland type for all of Grey County. The location of Topcliff Swamp PSW and its proximity to the project location were considered further during Site Investigation.

Beaver Meadow is a 67ha wetland feature straddling a small shallow creek that is part of the headwaters for a tributary of the Saugeen River. This feature serves as a groundwater recharge and water storage area. The area has been documented as an active feeding area for colonial waterbirds and as winter cover for Deer, Ruffed Grouse, and Snowshoe Hare. The wetland is also noted as a locally significant feature for waterfowl production. The location of Beaver Meadow PSW and its proximity to the project location were considered further during Site Investigation.

Locally Significant Wetlands

Locally significant wetlands were considered to be those documented in the LIO database as evaluated but not provincially significant. No locally significant wetlands were documented in the Study Area (Figure 2).

Unevaluated Wetlands

A large number of unevaluated wetlands were identified within the project Study Area using the MNR data layers available through NRVIS and LIO mapping. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) also indicated 'an abundance of unevaluated wetlands scattered throughout the study area'. The location of all unevaluated wetlands and the proximity of the project location will be considered further during Site Investigation.

2.2.2.3 Woodlands

Using the resources listed in Section 2.0 woodlands were identified within the project Study Area. The definition of woodland used for this purpose was that provided in the Natural Heritage Assessment Guide for Renewable Energy Projects which defines the feature as '*a treed area, woodlot or forested area, other than a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees, that is located south and east of the Canadian Shield'* (OMNR, 2011). To identify woodlands within the project study area MNR data layers as well as county-wide mapping available for woodlands (accessed through the County of Grey's interactive mapping tool) was consulted. These resources documented woodlands of various sizes within the project study area, ranging from small hedgerows to larger contiguous forests associated with the Saugeen River and its tributaries (Figure 3). MNR Midhurst District confirmed that percent woodland cover for the Municipality of West Grey is 33% (K. Reese, pers. comm., 2012).

The location of woodlands and the proximity of the project location will be considered further during Site Investigation.

2.2.2.4 Valleylands

Using the resources listed in Section 2.0 the project Study Area was screened for potentially significant valleylands. The definition of valleyland used for this purpose was that provided in the Natural Heritage Assessment Guide for Renewable Energy Projects which defines the feature as '*a natural area that is south and east of the Canadian Shield ...., and occurs in a valley or other landform depression that has water flowing through or standing for some period of the year'* (OMNR, 2011a). No county-wide mapping is currently available for significant valleylands (County of Grey Official Plan, 2000). Through the use of MNR data layers and the County of Grey's hazard land mapping it was determined that potential valleylands, largely associated with the Saugeen River and its tributaries, are present within the project study area (Figure 4).

The location of valleylands and the proximity of the project location will be considered further during Site Investigation.

2.2.2.5 Wildlife Habitat

Wildlife Habitat is defined in the Natural Heritage Assessment Guide for Renewable Energy Projects as '*an area where plants, animals and other organisms live or have the potential to live and find adequate amounts of food, water, shelter and space to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species*' (OMNR, 2011). The project study area is located within Ecoregion 6E as defined by MNR; therefore, significant wildlife habitat (SWH) within the project area is that which meets the criteria referenced in the Ecoregion 6E Criterion Schedule established by MNR.

The identification of wildlife habitat in the Records Review portion of the NHA was largely completed using the information obtained from the MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b). In addition, data layers obtained from MNR, the County of Grey and others were screened for identified areas of wildlife habitat (e.g. deer wintering areas, environmentally significant areas, etc.). Mapping specific to significant wildlife habitat was not available in the County of Grey Official Plan.

The Significant Wildlife Habitat Technical Guide (OMNR, 2000) and the Draft Significant Wildlife Ecoregion 6E Criterion Schedule (2012) groups wildlife habitat according to the following:

- Seasonal Concentration Areas of Animals
- Rare Vegetation Communities or Specialized Habitat for Wildlife
- Habitat for Species of Conservation Concern
- Animal Movement Corridors

SWH identified within the project study area according to each of these groupings is further described in Table 2 and summarized in the following subsections.

Seasonal Concentration Areas of Animals

Seasonal concentration areas include places where species congregate to breed, feed or survive harsh weather conditions. Examples of seasonal concentration areas would include hibernation sites (reptiles, amphibians, and mammals), deer overwintering areas, and stopover/staging areas for migrating waterfowl (OMNR, 2012). A review of available background information was conducted to determine where known habitat of this type occurs within the project study area; the results of which are summarized in Table 2. Table 2 also indicates which of these types of habitat required further study during the second phase of the NHA (Site Investigation).

MNR confirmed the presence of two Deer Yarding Areas within the project Study Area (Figure 5).

Table 2: Summary of Wildlife Habitat Identified in the Project Study Area during Records Review

Type of Significant Wildlife Habitat		Results from Records Review	Further Investigation Required in Site Investigation
Seasonal Concentration Areas of Animals	***Waterfowl Stopover and Staging Areas (terrestrial)***	The MNR Natural Heritage Information Centre (Biodiversity Explorer) database was searched for the presence of Important Bird Areas and known Waterfowl Concentration Areas; however, no such habitat was documented within the project study area. A review of background information from the Ontario Breeding Bird Atlas Database for an area including the project study, as well as additional area to comprise a total of 10km^2 revealed that Blue-winged Teal and Mallard were documented in the area. These two species are listed in the SWH Ecoregion 6E Criterion Schedule as indicator species. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Open fields (other than those with waste grains from agricultural use) within the project study that hold standing water for a period of time in the spring season are potential habitat for waterfowl stopover and staging. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Waterfowl Stopover and Staging Areas (aquatic)	The MNR Natural Heritage Information Centre (Biodiversity Explorer) database was searched for the presence of Important Bird Areas and known Waterfowl Concentration Areas; however, no such habitat was documented within the project study area. A review of background information from the Ontario Breeding Bird Atlas Database for an area including the project study, as well as additional area to comprise a total of 10km^2 revealed that Blue-winged Teal and Mallard were documented in the area. These two species are listed in the SWH Ecoregion 6E Criterion Schedule as indicator species. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Several marsh and wetland areas have been identified within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes

Type of Significant Wildlife Habitat		Results from Records Review	Further Investigation Required in Site Investigation
	Shorebird Migratory Stopover Areas	The MNR Natural Heritage Information Centre (Biodiversity Explorer) database was searched for the presence of Important Bird Areas and known Shorebird Migratory Areas; however, no such habitat was documented within the project study area. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Rivers, wetlands and large ponds have been identified within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Raptor Wintering Area	The MNR Natural Heritage Information Centre (Biodiversity Explorer) database was searched for the presence of Important Bird Areas and known Raptor Winter Concentration Areas; however, no such habitat was documented within the project study area. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Presence of fields and woodlands in proximity to one another are included in the project study area that may be suitable as roosting, foraging and resting habitats for wintering raptors. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Bat Hibernacula	The MNR Natural Heritage Information Centre (Biodiversity Explorer) database was searched for the presence of known Bat Hibernaculum habitat; however, no such habitat was documented within the project study area. A search of The Renewable Energy Atlas was conducted and no known bat hibernacula habitat was documented within the project study area. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. None of the other sources listed in Section 2.0 and reviewed for habitat of this type revealed any additional information. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Bat Maternity Colonies	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. None of the other sources listed in Section 2.0 and reviewed for habitat of this type revealed any additional information. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes

Type of Significant Wildlife Habitat		Results from Records Review	Further Investigation Required in Site Investigation
	Bat Migratory Stopover Areas	The Bat and Bat Habitats: Guidelines for Wind Power Projects (OMNR, 2011) document indicates that '*Criteria for confirming bat migratory stopover areas are not currently defined in the Significant Wildlife Habitat Technical Guide. In the absence of criteria, bat migratory stopover areas cannot currently be evaluated. MNR will update this Guideline as criteria for confirming bat SWH become available.*' Therefore, this type of habitat was not identified in the MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b), nor was it carried over into the Site Investigation phase of the NHA.	No
	Turtle Wintering Area	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Several ponds, wetlands and other permanent water bodies were identified within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Snake Hibernaculum	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Colonially-Nesting Bird Breeding Habitat (bank and cliff swallows)	The MNR Natural Heritage Information Centre (Biodiversity Explorer) database was searched for the presence of Important Bird Areas; however, no such habitat was documented within the project study area. A review of background information from the Ontario Breeding Bird Atlas Database for an area including the project study, as well as additional area to comprise a total of $10km^2$ revealed that Bank and Cliff Swallow were documented in the area. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes

Type of Significant Wildlife Habitat		Results from Records Review	Further Investigation Required in Site Investigation
	Colonially-Nesting Bird Breeding Habitat (tree/shrub)	The MNR Natural Heritage Information Centre (Biodiversity Explorer) database was searched for the presence of Important Bird Areas; however, no such habitat was documented within the project study area. A review of background information from the Ontario Breeding Bird Atlas Database for an area including the project study, as well as additional area to comprise a total of 10km^2 revealed that Great Blue Heron were documented in the area. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was present within the Boothville Swamp PSW. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Colonially-Nesting Bird Breeding Habitat (ground)	A review of background information from the Ontario Breeding Bird Atlas Database for an area including the project study, as well as additional area to comprise a total of 10km^2 did not document any of the indicator species listed in Ecoregion Schedule 6E for the area. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Migratory Butterfly Stopover Areas	The project location is located greater than 5km from Lake Ontario; therefore, this type of significant wildlife habitat is not relevant to the project study area.	No
	Landbird (songbird) Migratory Stopover Areas	The project location is located greater than 5km from Lake Ontario; therefore, this type of significant wildlife habitat is not relevant to the project study area.	No
	Deer Yarding Areas	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that 2 Deer wintering areas (Stratum II) are located within the project study area, and an additional 4 areas are located within 2 km. Further investigation to identify significant wildlife habitat of this type in or within 120m of project location is required.	Yes
	Deer Winter Congregation Areas	The MNR Renewable Energy Operations Team Records Review Report (OMNR 2012b) indicated that no habitat of this type was identified; however, Deer yarding areas have been documented within the project study area (as outlined above).	No
Rare Vegetation Communities or Specialized Habitat for Wildlife	***Cliffs and Talus Slopes***	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes

Type of Significant Wildlife Habitat		Results from Records Review	Further Investigation Required in Site Investigation
	Sand Barren	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Alvar	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Old Growth Forest	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Savannah	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Tallgrass Prairie	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Other Rare Vegetation Communities	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Forest Area with Abundant Mast	The project area is not located within Ecoregion 6E-14; therefore, this type of significant wildlife habitat is not relevant to the project study area.	No
	Lek – Sharp-tailed Grouse	The project area is not located within Ecoregion 6E-17; therefore, this type of significant wildlife habitat is not relevant to the project study area.	No

Type of Significant Wildlife Habitat		Results from Records Review	Further Investigation Required in Site Investigation
	Waterfowl Nesting Area	Wetland Evaluation records obtained for PSWs within the project study area document nesting areas for waterfowl as locally significant. No waterfowl concentration areas were identified in the area through a search conducted of the MNR Natural Heritage Information Centre (Biodiversity Explorer) database. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Woodland Raptor Nesting Habitat	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Turtle Nesting Areas	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Seeps and Springs	The project study area is comprised of several PSWs and other wetland features as well as headwaters areas that may contain seeps/springs. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Amphibian Breeding Habitat (woodland)	Several woodlands with ponds were identified within the project study area through the records review process that may provide Amphibian Breeding Habitat. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes

Type of Significant Wildlife Habitat		Results from Records Review	Further Investigation Required in Site Investigation
	Amphibian Breeding Habitat (wetlands)	Several wetlands within the project study area were identified through the Records Review process. Wetland evaluation records document Amphibian Breeding Habitat within PSWs; including, Bullfrog within the Boothville Swamp PSW. The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
Habitat for Species of Special Concern	***Marsh Bird Breeding Habitat***	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Several marsh and wetland areas have been identified within the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Woodland Area Sensitive Bird Breeding Habitat	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Several woodlands have been identified within the project study area as identified in the County of Grey GIS mapping. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Open Country Bird Breeding Habitat	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Potential for grassland habitat exists based on aerial photos for area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Shrub/Early Successional Bird Breeding Habitat	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Potential for shrub thicket habitat based on aerial photos for area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
	Terrestrial Crayfish	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Several marsh and wetland areas have been identified within the project study area through the Records Review process that may indicate potential habitat. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes

Type of Significant Wildlife Habitat		Results from Records Review	Further Investigation Required in Site Investigation
	Special Concern and Rare Wildlife Species	Records Review documented several provincially rare species and species of Special Concern (as outlined in Table 3). Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes
Animal Movement Corridors	***Amphibian Movement Corridors***	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that habitat of this type was 'unknown' within the project study area. Screening of potential features to provide Amphibian Breeding Habitat (Wetland) must be conducted during Site Investigation before this type of habitat can be delineated.	Yes
	Deer Movement Corridors	The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) indicated that Deer yarding areas are known within the project study area; therefore, there is potential for deer movement corridors to be present also. Riparian corridors associated with the Saugeen River and its tributaries are extensive throughout the project study area. Further investigation to identify candidate significant wildlife habitat in or within 120m of project location is required.	Yes

Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare vegetation communities include areas where species depend on the habitat for survival and have limited or no ability to move in order to find alternative habitat (e.g. plants, invertebrates). Specialized habitat is also included under this category. The identification of specialized habitat is intended to protect species that require sizeable areas of suitable habitat for some or all stages of their life cycle, and to protect areas that support a diverse group of wildlife. Generally, the largest and least fragmented habitats qualify as specialized habitat within a planning area (OMNR, 2012). A review of available background information was conducted to determine where known habitat of this type occurs within the project Study Area; the results of which are summarized in Table2. Table 2 also indicates which of these types of habitat required further study during the second phase of the NHA (Site Investigation).

Habitat for Species of Conservation Concern

A search of the NHIC Biodiversity Explorer database was completed to identify where habitat for featured species and those species listed as Special Concern or rare were documented within the project Study Area. The results obtained through the MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) and consultation with the Midhurst District MNR was also used as resources to locate where potential exists for this type of wildlife habitat. Wetland evaluation records document Snapping Turtle within the Beaver Meadow PSW. A summary of the findings obtained through the Records Review process is provided in Table 3. Those species listed provincially and/or federally as Endangered or Threatened are addressed under separate cover in the Species at Risk Report submitted for review to the Midhurst District MNR as part of the REA process. Further study to identify potential habitat in or within 120m of the project location was conducted for each of the species listed in Table 3 during the second phase of the NHA (Site Investigation).

Table 3: Results of Records Review for Habitat of Species of Special Concern

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	SARA	SARO
BIRDS						
Canada Warbler	*Wilsonia canadensis*	G5	S4B	THR	THR	SC
Common Nighthawk	*Chordeiles minor*	G5	S4B	THR	THR	SC
Golden-winged Warbler	*Vermivora chrysoptera*	G4	S4B	THR	THR	SC
Red-headed Woodpecker	*Melanerpes erythrocephalus*	G5	S4B	THR	THR	SC
Short-eared Owl	*Asio flammeus*	G5	S2N,S4B	SC	SC	SC
INVERTEBRATES						
Clamp-tipped Emerald	*Somatochlora tenebrosa*	G5	S2S3			
Harlequin Darner	*Gomphaeschna furcillata*	G5	S3			
Monarch	*Danaus plexippus*	G5	S4B, S2N	SC		SC
MAMMALS						
Northern Long-eared Bat	*Myotis septentrionalis*	G4	S3?	END		

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	SARA	SARO
Small-footed (Least) Bat	*Myotis leibii*	G3	S2S3			
PLANTS						
Hart's Tongue Fern	*Asplenium scolopendriam var. americanum*	G4T3	S3	SC		SC
Moss	*Pottia intermedia*	G3G5	S1			
Scarlett Beebalm	*Monarda didyma*	G5	S3			
REPTILES						
Milksnake	*Lampropeltis triangulum*	G5	S3	SC	SC	SC
Eastern Ribbonsnake	*Thamnophis sauritus*	G5	S3	SC	SC	SC
Snapping Turtle	*Chelydra serpentina*	G5	S3	SC	SC	SC

Global Rank (G- Rank): assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts and The Nature Conservancy to designate a rarity rank based on the range-wide status of species, subspecies or variety, according to the following:
G1- extremely rare; usually 5 or fewer occurrences in the overall range or very few remaining individuals or because of some factor (s) making it especially vulnerable
G2-very rare; usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences or because of some factor (s) making it vulnerable to extinction
G3- rare to uncommon; usually between 20 and 100 occurrences; may have fewer occurrences but with a large number of individuals in some populations or may be susceptible to large-scale disturbances
G4-common; usually more than 100 occurrences, usually not susceptible to immediate threats
G5-very common; demonstrably secure under present conditions
?-denotes inexact numeric rank
G- means that a global rank has not been obtained from the Nature Conservancy
G?-unranked; or if following a ranking the rank is tentatively assigned
T-denotes the rank applies to a subspecies or variety

Provincial (or Subnational) ranks (S-Rank) are used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.
S1-critically imperilled; critically imperilled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor (s) such as very steep declines making it especially vulnerable to extirpation from the state/province
S2-imperilled; imperilled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines or other factors making it very vulnerable to extirpation from the nation or state/province
S3-vulnerable; vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines or other factors making it vulnerable to extirpation
S4-apparently secure; uncommon but not rare; some cause for long-term concern due to declines or other factors
S5-secure; common, widespread and abundant in the nation or state/province
S?-not ranked yet- species rank not yet assigned
SAB- breeding accidental
SAN- non-breeding accidental
SZB-breeding migrants/vagrants
SZN-non-breeding migrants/vagrants

COSEWIC – Committee on the Status of Endangered Wildlife in Canada
NAR- not at risk; a wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances
THR-threatened; a wildlife species likely to become endangered if limiting factors are not reversed
END-endangered; a wildlife species facing imminent extirpation or extinction
EXT-extirpated; a species no longer existing in the wild in Canada but occurring elsewhere
SC-special concern; a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats
DD-data deficient; a wildlife species for which there is in adequate information to make a direct, or indirect, assessment of its risk of extinction

SARA – Species at Risk Act
Schedule 1- official list of wildlife species at risk
THR-threatened; a wildlife species likely to become endangered if limiting factors are not reversed
END-endangered; a wildlife species facing imminent extirpation or extinction
EXT-extirpated; a species no longer existing in the wild in Canada but occurring elsewhere
SC-special concern; a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats

SARO –Species at Risk in Ontario
END-Endangered; a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA
EXP-Extirpated; a species that no longer exists in the wild in Ontario but exists elsewhere
THR-Threatened; a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed
SC-Special Concern; a species with characteristics that make it sensitive to human activities or natural events

Animal Movement Corridors

The MNR Renewable Energy Operations Team Records Review Reports (OMNR 2011c and OMNR 2012b) document this type of SWH as 'unknown' for the project Study Area; however, there is high potential for Deer movement corridors to exist within the area as yarding areas have already been identified by MNR. The location of Amphibian Movement Corridors will be considered further along with the effort to identify where Amphibian Breeding Habitat (wetland) may occur. Further study to identify potential habitat of this type within 120m of project location was conducted in Site Investigation.

2.3 SUMMARY OF RECORDS REVIEW

Table 4 summarizes the features that were identified within the project Study Area through the Records Review process; and, subsequently carried over into Site Investigation. At the Records Review stage the Project Location had not yet been fully defined; therefore, any feature type identified to be within the Study Area was carried forward into Site Investigation.

Table 4: Summary of Natural Features to be Carried Forward into Site Investigation.

Type of Feature	Results of Records Review	Carried Forward to Site Investigation (yes/no)
Provincial Parks and Conservation Reserves	None found within the project study area.	No
Area of Natural and Scientific Interest – Life Science	None found within the project study area.	No
Area of Natural and Scientific Interest – Earth Science	None found within the project study area.	No
Coastal Wetland	None found within the project study area.	No
Southern Wetlands	Significant wetlands were confirmed to be in or within 120m of the project location. LIO data layers also confirmed the presence of unevaluated wetland features interspersed throughout the Study Area with potential to be located in or within 120m of the Project Location. Wetlands were carried forward into Site Investigation.	Yes
Woodlands	Woodlands were identified throughout the Study Area using County of Grey mapping, with potential to be located in or within 120m of the Project Location. Woodlands were carried forward into Site Investigation.	Yes
Valleylands	Hazard lands, largely associated with the Saugeen River and its tributaries, were identified using County of Grey and MNR data layers. These hazard lands have potential to exhibit the characteristics of significant valleyland features. Valleylands were carried forward into Site Investigation.	Yes

Type of Feature	Results of Records Review	Carried Forward to Site Investigation (yes/no)
Wildlife Habitat	Wildlife habitat within the project area has been identified through review of background information and consultation with various agencies as documented in Section 2.2.5. Habitat in the form of Deer wintering yards was the only Confirmed Significant Wildlife Habitat documented in Records Review; however, several types of Candidate Significant Wildlife Habitat (see Table 2 for details) have potential to be located in or within 120m of the project location. Candidate and Confirmed Significant Wildlife Habitat were carried forward into Site Investigation.	Yes

3.0 SITE INVESTIGATION

Under the REA process, an applicant is required to confirm the presence and boundaries of natural features in or within 120 metres of the project location (O. Reg. 359/09, Section 26). This process is referred to as Site Investigation, and requires the applicant to:

- verify the accuracy of information obtained through records review;
- identify any additional natural features that exist within 120 metres of the project location, in addition to those already documented through records review;
- determine the boundaries of any natural feature located within 120 metres of the project location; and,
- determine the distance from the project location to the boundary of any natural feature.

For each natural feature identified during records review or site investigation, the applicant must also include information regarding the type, attributes, composition and function of the feature.

The following subsections describe the Site Investigation process in more detail, including: the methodologies employed; the results obtained from field surveys and alternative investigations; corrections made to the information obtained through Records Review (including any new features identified); and, identification of those features carried forward into the Evaluation of Significance phase of the NHA.

3.1 METHODS

The Site Investigation phase of the Project helped to inform the placement of project components such that the Project Location was not fully defined until late in this phase. For this reason, a broader area than that within 120m of the Project Location was initially studied in order to cover off potential areas for inclusion in the project. Site investigations included study of the air, land and water components of all identified natural areas. Project Location refers to the construction disturbance limits around all proposed project components; all setbacks and measurements from natural features were determined from the limits of construction disturbance.

All lands proposed to host infrastructure associated with the wind power project were accessible to field crews during site investigation; however, many non-participatory landowners denied access to their property. A land agent was retained by the proponent to secure land access from landowners where possible. Figure 6 defines the Project Location and indicates which properties were accessible to the field crew conducting the surveys. Where access to a feature was permitted by the landowner, investigations were conducted directly through field surveys; however, when access to properties was denied, an alternative site investigation was completed from the closest accessible property boundary, and further supported with analysis of orthographic images. The natural features identified through records review and site investigation were studied to determine the composition, form and function of each. Table 5 summarizes the names of the qualified individuals that conducted the surveys, as well as the dates, times and methodologies employed in order to characterize and inventory existing conditions in or within 120m of the Project Location. There was considerable overlap in field visits intended as part of Site Investigation and those required for Evaluation of Significance; therefore Table 5 documents the details of all field visits from 2009 to 2012. All field investigations were conducted by qualified biologists and field technicians. Field notes from each site survey, and qualifications of the personnel conducting the surveys are included in Appendix B and C, respectively. Any corrections made to information obtained through records review are summarized in Section 3.2.1.

3.1.1 Vegetation Communities and Vascular Plants

The classification of vegetation communities according to the Ecological Land Classification (ELC) for Southern Ontario (Lee *et.al.*, 1998) was completed for all natural features. Initially ELC was identified to a course community level through interpretation of aerial photographs. Through field investigations the initial classification was refined to ecosite; or, where possible, vegetation type. A unique numerical identity was assigned to each vegetation type and other important features to allow for ELC communities to be easily tracked through Site Investigation and into subsequent phases of the NHA. In some cases non-natural features were included in the unit numbering to cover all areas in or within 120m of the Project Location. For example, residential properties or those occupied by other structures (e.g. a church) were tracked. Although these properties were not included in the boundaries of natural features later identified, they were delineated as part of the effort to determine boundaries of adjacent natural features. Later in the Site Investigation process, the ELC communities found to comprise natural features in the form of woodlands and valleylands were identified using unique codes to specify the particular type of feature (e.g. WO-06 to indicate woodland feature 6). ELC data was used in the early stages to identify potential wetland features which were then further addressed using the Ontario Ministry of Natural Resources' Ontario Wetland Evaluation System (OWES) (OMNR, 2002) protocol. The use of ELC was also an important tool for the identification of candidate significant wildlife habitat according to the Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule (OMNR, 2012a). In many cases the natural feature identified was comprised of more than one ELC community.

Vascular plant inventories were also completed in tandem with ELC surveys to document all species identifiable at the time of survey. In order to document as many herbaceous species as possible, surveys were conducted throughout the growing season of May through September in 2011 and 2012 (Table 5). Plant lists and community structures were listed and described for each unique community through roadside or walking surveys. Plant species status was reviewed for Ontario (Oldham 2009) and South Grey (Oldham 1993) and documented in the vascular plant list that appears as Appendix H. Vascular plant nomenclature follows Newmaster *et al.* 2012. For the purpose of documenting rare species, those designated as SH (possibly extirpated - historical), S1 (extremely rare), S2 (very rare), or S3 (rare to uncommon) using the provincial ranking as obtained through Oldham 2009, were considered.

3.1.2 Wetlands

The Site Investigation phase of the NHA is intended to verify boundaries of wetland features identified in Records Review and Site Investigation that are in or within 120m of the Project Location as per O.Reg. 359/09. Evaluation of features determined to meet the size and complexing criteria described below are then assessed in the Evaluation of Significance phase of the NHA.

Site investigation began with ELC surveys as outlined above in Section 3.1.1. The ELC surveys conducted in site investigation were used to identify potential wetlands in or within 120m of the Project Location. Field visits required to delineate wetland boundaries were completed concurrently with ELC surveys by an OWES certified biologist (full qualifications included in Appendix C) according to OWES protocol, on the dates provided in Table 5. The OWES effort was intended to delineate the boundary of wetlands and provide the data necessary for the Evaluation of Significance (Section 4.0) of wetland features. Corrections to boundaries of wetland features identified by LGL are displayed and compared to wetland features obtained through Records Review (as provided in the LIO data layer) in Figure 10. During the Site Investigation process for wetlands consultation with the MNR was sought in order to refine boundaries of wetlands based on function and composition of the feature as documented in Appendix A. Where an evaluation of significance had been previously conducted by MNR to confirm a wetland as Provincially Significant (PSW), the feature was included as such in the results of Site Investigation (Figures 10 and 12).

Wetland units as described herein refer to multiple or single contiguous wetland vegetation communities. Wetland communities were complexed where they were located within 750m of one another, at least 0.5 ha in size, and functionally linked with biological or hydrological connection. As per OWES protocol wetland units carried forward into the evaluation of significance were those determined to be greater than 2 ha. Exceptions to the minimum size criteria were made where a wetland feature was determined to provide a significant function. Where contiguous wetland units or complexes were identified, a unique wetland feature number was assigned (e.g. WE-01) and used to track the feature through Site Investigation and subsequent phases of the NHA. Figure 12 displays all of the wetland features identified

in or within 120m of the Project Location. Table 2 in Appendix D provides the rationale for the complexing of wetland features as they appear in Figure 12, according to OWES criteria including proximity, hydrological connection (both surface and ground water), biological connection, and interspersion.

3.1.3 Woodlands

Forested areas were first identified for the project area using aerial photographs and County of Grey GIS available for woodlands. Through site investigation the boundaries of wooded areas located in or within 120m of the Project Location were confirmed during surveys of vegetation communities as described in Section 3.1.1. During Records Review and Site Investigation it was determined that large contiguous woodlands span the landscape and extend beyond the limits of the Study Area. For the purpose of defining boundaries of woodland features throughout Site Investigation and in subsequent phases of the NHA, the GIS data layer obtained from the County was used since it was most comprehensive (i.e., extended beyond 120m from the Project Location). Features of this scale were thought to require a more macro view of the landscape as evaluation of significance is largely dependent on form and function of the feature. When distance from the Project Location to woodland features was measured all measurements were done using the ELC data determined by LGL as this was done at a local scale through field survey and provides the detail necessary to further identify impacts and mitigation where necessary in subsequent stages of the NHA.

Woodland units were defined according to the process outlined in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a); as stated therein, a woodland was considered continuous even if intersected by a gap of up to 20 m. Much of the forest identified within the Study Area through records review and site investigation was connected to other wooded areas, such as cedar swamp, which resulted in the identification of large contiguous swaths of woodland that extended well beyond the Study Area boundary. In these cases, the boundary of the woodland was cropped approximately 3km beyond the Study Area boundary for the purposes of defining the woodland features in order to evaluate them in the following stage of the NHA.

3.1.4 Valleylands

A valleyland is defined in the Natural Heritage Assessment Guide for Renewable Energy Projects as '*a landform depression that has water flowing through or standing for some period of the year'* (OMNR, 2011a). Due to the lack of available information that defined location of valleylands within the Study Area, a hazard land data layer was obtained from the County of Grey and initially used to identify areas with potential valleylands. Boundaries of the hazard land data were compared against aerial photographs and contour data obtained for the area. The preliminary delineation of the valley conducted from desktop information was then verified in the field to confirm that it met the definition of valleyland as stated above. Documentation of the form and function of valleyland features was generally conducted during

the site investigation of water body features completed for the East Durham Wind Energy Centre Water Body Report (LGL, 2012). The focus of site investigation was to characterize valleyland features according to the four main criteria outlined in Section 6.2.3 of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) for the purpose of evaluating the significance of the feature: surface water function; degree of naturalness; linkage function; and, the existence of ongoing or planned restoration.

Through site investigation valleylands that occurred in or within 120m of the Project Location were identified and defined for the purpose of further assessment for significance in the subsequent phase of the NHA.

3.1.5 Wildlife Habitat

Significant wildlife habitat in the form of Deer yarding areas was identified within the Study Area through records review. During Site Investigation the proximity of proposed project components to the boundary of that particular type of wildlife habitat (as provided by MNR) was determined. In addition, ELC communities defined according to Section 3.1.1 were screened against the Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule (OMNR, 2012a) to identify Candidate Significant Wildlife Habitat. Where any part of the Project Location was determined to be within the boundary of such a feature, the feature was identified and carried forward into the Evaluation of Significance phase of the NHA. Where any potential habitat was determined to be within 120 m of the Project Location (but not within the Project Location) , Table 16 in Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Project (OMNR, 2011) was applied. Table 16 scopes the types of Candidate Significant Wildlife Habitat that must be identified based on the type of project component proposed within 120m. Habitats identified in Table 16 as Generalized Candidate Significant Wildlife Habitat with potential to be present within 120 m of the Project Location (based on landscape and geography) were assumed to exist; and, carried forward into the Evaluation of Significance phase. A summary of Candidate and Generalized Candidate Significant Wildlife Habitat identified in or within 120m of the Project Location is included in Section 3.2 Results of Site Investigation.

Table 5: Details of Site Investigations conducted for East Durham Wind Energy Centre

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Breeding Birds – 2009 1st visit	Pt LT 21-27 Con 1 N of Durham Rd. GLENELG	Three point counts at: • proposed turbine locations; • 50 metres inside nearest adjacent woodland; and, • 150 metres farther into woodland beyond 50 metre point count as per Environment Canada guidelines for pre- and post-construction comparisons.	June 18, 2009 0515 – 1015 5 hours	Temperature: + 14 to 16°C Wind: N7 to N11	Aerial photography Wind Turbines and Birds – A Guidance Document for Environmental Assessment (EC, 2007)	Pete Read [part of Dave Martin's team]
Breeding Birds – 2009 2nd visit	Pt LT 21-27 Con 1 N of Durham Rd. GLENELG	Three point counts at: • proposed turbine locations; • 50 metres inside nearest adjacent woodland; and, • 150 metres farther into woodland beyond 50 metre point count as per Environment Canada guidelines for pre- and post-construction comparisons.	July 5, 2009 0530 – 0930 8 hours	Temperature: + 7 to 19°C Wind: NNE2 to NNE7	Aerial photography Wind Turbines and Birds – A Guidance Document for Environmental Assessment (EC, 2007)	Ross Snider, James Holdsworth [part of Dave Martin's team]
Preliminary Investigation of Natural Features	General study area bounded by Concession 4 Road, Sideroad 50, Stone Hill Rd. and Camp Oliver Rd.	Comparison of data layers and existing orthoimagery with observed features in the field. Evidence of wildlife use also noted.	Nov.19, 2009 1130-1700 7.5 hours	Mean temperature:5.8°C	Aerial photography NHIC records (2009) LIO/NRVIS data layers (2009)	AHF, JCN
Investigation of Natural Features, Wildlife Habitat and Communities Investigations, Vegetation Communities ELC	Along County Rd. 4 between Camp Oliver Rd. & Baptist Church Rd. LT 28-30 Con 2 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG	Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario.	April 28, 2011 10:30 – 17:00 17 hours	Temperature:: +1.7-4.8°C[i] Wind: 28-44 km/hr[1]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK
Investigation of Natural Features, Wildlife Habitat and Communities Investigations, Vegetation Communities ELC	LT 35 Con 1 S of Durham Rd. GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG	Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Surveys for basking reptiles.	May 12, 2011 10:30 – 17:00 25.5 hours	Temperature: +14.5- 21°C[i] Wind: 9-17 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK, AHF
Frog Monitoring	LT 21-22 Con 2 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG LT 35 Con 1 S of Durham Rd. GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG	Aural survey for 3 minutes at point count stations following the Marsh Monitoring Program (MMP) protocol for amphibian surveys. Calls were classified according to MMP as level 1, 2 or3. This survey was conducted at air temperatures of 10C.	June 2, 2011 21:30 – 24:00 5 hours	Temperature: 10°C Calm, clear, cool Wind:15-20 km/hr[i]	Marsh Monitoring Program protocol as viewed at: http://www.bsc-eoc.org/volunteer/glmmp	MJO, GH
Breeding Birds – 2011 1st visit – day 1	LT 21-22 Con 2 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG LT 35 Con 1 S of Durham Rd. GLENELG	A combination of: • area searches 150 metres either side of proposed transmission routes and around proposed turbine locations; and, • 100 metre radius point counts at each proposed turbine location as suggested by OMNR	June 9, 2011 0645 – 1415 15 hours	Temperature: +16 to 17°C Wind: NW11 to N15	Aerial photography Bird and Bird Habitats: Guidelines for Wind Power Projects – Draft (OMNR, 2010)	DM, LW

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Breeding Birds – 2011 1st visit – day 2	Pt LT 21-27 Con 1 N of Durham Rd. GLENELG	A combination of: • area searches 150 metres either side of proposed transmission routes and around proposed turbine locations; and, • 100 metre radius point counts at each proposed turbine location as suggested by OMNR	June 10, 2011 0640 – 1140 10 hours	Temperature: +11 to 18°C Wind: N13 to NNE13	Aerial photography Bird and Bird Habitats: Guidelines for Wind Power Projects- Draft (OMNR, 2010)	DM, LW
Frog Monitoring Surveys for Crepuscular Birds	LT 21-22 Con 2 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG LT 35 Con 1 S of Durham Rd. GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG	Aural survey for 3 minutes at point count stations following the Marsh Monitoring Program (MMP) protocol for amphibian surveys. Calls were classified according to MMP as level 1, 2 or3. This survey was conducted at air temperatures of 14C to 23C. Survey methodology was conducted following the Whip-poor will Ontario Roadside Survey (Bird Studies Canada,) which included 6 minute point count stations from roadside during the full moon period of June/July 2012 beginning ½ h after sunset with the moon visible. Start and end times as well as data pertaining to weather conditions were also collected during the survey.	June 15, 2011 21:30 – 24:00 5 hours	Temperature: +14 to 23°C Wind: 2-6 km/hr[i] Calm, clear Full moon	Marsh Monitoring Program protocol as viewed at: http://www.bsc-eoc.org/volunteer/glmmp Whip-Poor Will Roadside Survey Participant's Guide (Bird Studies Canada, 2011)	MJO, JV
Investigation of Natural Features, Wildlife Habitat and Communities Investigations, Vegetation Communities ELC	LT 20 Con 1 S of Durham Rd. GLENELG LT 46 Con 1 N of Durham Rd. GLENELG	Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario.	Aug. 31, 2011 10:30 – 18:00 7.5 hours	Temperature: +19 to 24°C[i] Wind: 6-11 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK
Investigation of Natural Features, Wildlife Habitat and Communities Investigations, Vegetation Communities ELC	LT 21-22 Con 2 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG	Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario.	Sept. 1, 2011 08:00 – 17:00 9 hours	Temperature: +18 to 24.5°C[i] Wind: 4-11 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK
Investigation of natural features, vegetation communities (ELC), and preliminary wetland assessment (OWES).	LT 43-45 CON 1 S of Durham Rd GLENELG	Documentation of botanical species for the delineation and assessment of wetlands as per Ontario Wetland Evaluation System (OWES) protocol. Classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario.	Feb. 29, 2012 09:30 – 16:00 6.5 hours	Temperature: -2.5 to 0°C[i] Wind: 11-24 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1	JCN
Investigation of natural features, vegetation communities (ELC), and preliminary wetland assessment (OWES).	LT 41-42 Con 1 N of Durham Rd. GLENELG LT 21-22 Con 2 N of Durham Rd. GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG	Documentation of botanical species for the delineation and assessment of wetlands as per OWES protocol. Classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario.	March 1, 2012 09:00 – 15:00 6 hours	Temperature: -0.5 to +1°C[i] Wind: 9-15 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1	JCN
Investigation of natural features, wildlife habitat, and communities.	LT 28-30 Con 2 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG	Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	March 7, 2012 10:20-15:30 5.2 hours	Temperature: +7 to 11.5°C[i] Wind: 22-26 km/hr[i]	Aerial photography Significant Wildlife Habitat Technical Guide (OMNR, 2000)	AHF

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Investigation of natural features, wildlife habitat, and communities.	LT 46 Con 1 N of Durham Rd. GLENELG LT 20 Con 1 S of Durham Rd. GLENELG LT 47 CON 2 S of Durham Rd. GLENELG	Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	March 8, 2012 10:20- 17:00 6.7 hours	Temperature: +0.5 to 9.5°C[i] Wind: 17-24 km/hr[i]	Aerial photography Significant Wildlife Habitat Technical Guide (OMNR, 2000)	AHF
Investigation of natural features, vegetation communities (ELC) and preliminary wetland assessment (OWES).	LT 43-45 CON 1 S of Durham Rd GLENELG LT 46 Con 1 N of Durham Rd. GLENELG LT 28-30 Con 2 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG PT LT 23-25 Con 4 N of Durham Rd. GLENELG	Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Surveys for basking reptiles.	March 22, 2012 10:00 – 18:00 16 hours	Temperature: +20 to 25°C[i] Wind: 2-15 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1	JCN, VLK
Investigation of natural features and wildlife habitat.	LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG	Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Searches for amphibian egg masses in woodland ponds, frogs in wetlands and water bodies, and basking reptiles.	May 15, 2012 10:00- 15:30 5.5 hours	Temperature: +20.5 to 23.5°C[i] Wind: 15-22 km/hr[i]	Aerial photography Significant Wildlife Habitat Technical Guide (OMNR, 2000)	AHF
Investigation of natural features, wildlife habitat, vegetation communities (ELC), wetland features, and waterbodies.	LT 47 CON 2 S of Durham Rd. GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG PT LT 23-25 Con 4 N of Durham Rd. GLENELG LT 35 Con 1 S of Durham Rd. GLENELG Water bodies along County Rd 4 from Baptist Church Rd to Artemesia/Glenelg Townline	Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Investigations of water bodies to document morphology, substrate, and thermal regime and characterize fish habitat. Surveys for basking reptiles.	May 15, 2012 10:00-17:45 15.5 hours	Temperature: +20.5 to 23.5°C[l] Wind: 15-22 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000 Adapted Ontario Streams Assessment Protocol (Stanfield, 2010) Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1	JCN, LKR
Investigation of natural features, wildlife habitat, vegetation communities (ELC), wetland features, and waterbodies.	LT 35 Con 1 S of Durham Rd. GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG Water bodies along County Rd 4 from Baptist Church Rd to Artemesia/Glenelg Townline	Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Investigations of water bodies to document morphology, substrate, and thermal regime and characterize fish habitat. Surveys for basking reptiles.	May 16, 2012 08:00-14:30 13 hours	Temperature: +5 to 10.5°C[i] Wind: 15-24 km/hr[i] Fog present	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000 Adapted Ontario Streams Assessment Protocol (Stanfield, 2010) Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1	JCN, LKR
Frog Monitoring	LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG	Aural survey for 3 minutes at point count stations following the Marsh Monitoring Program (MMP) protocol for amphibian surveys. Calls were classified according to MMP as level 1, 2 or 3. This survey was conducted at air temperatures above 17°C.	May 24, 2012 20:30 – 24:00 7 hours	Temperature: +20.5 to 23°C[i] Wind: 9-11 km/hr[i]	Marsh Monitoring Program protocol as viewed at: http://www.bsc-eoc.org/volunteer/glmmp	AHF, LKR

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Breeding Birds – 2012 1st visit – day 1	LT 28-30 Con 2 N of Durham Rd. GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG LT 20 Con 1 S of Durham Rd. GLENELG LT 35 Con 1 S of Durham Rd. GLENELG PT LT 23-25 Con 4 N of Durham Rd. GLENELG	A combination of: • area searches 150 metres either side of proposed transmission routes and around proposed turbine locations; and, • 100 metre radius point counts at each proposed turbine location as per Birds and Bird Habitats: Guidelines for Wind Power Projects, OMNR, First Edition, December 2011.	May 30, 2012 06:15 – 13:15 14 hours	Temperature: + 11 to 17°C Wind: 0 to WNW17	Aerial photography Bird and Bird Habitats: Guidelines for Wind Power Projects(OMNR, 2011b)	DM, LW
Breeding Birds – 2012 1st visit – day 2	LT 21-22 Con 2 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG LT 47 CON 2 S of Durham Rd. GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG	A combination of: • area searches 150 metres either side of proposed transmission routes and around proposed turbine locations; and, • 100 metre radius point counts at each proposed turbine location as per Birds and Bird Habitats: Guidelines for Wind Power Projects, OMNR, First Edition, December 2011	May 31, 2012 06:30 – 12:30 12 hours	Temperature: + 7 to 13°C Wind: NW6 to N17	Aerial photography Bird and Bird Habitats: Guidelines for Wind Power Projects(OMNR, 2011b)	DM, LW
Field Surveys for Bat Habitat	BMA-001 (Turbine 1) LT 21-22 Con 2 N of Durham Rd. GLENELG	Qualitative assessment of cavity trees (potential maternity colonies), area search for caves or crevices (potential bat winter hibernacula) within woodlands located within 120m of project area (where access was granted). To determine estimated number of cavity trees (>25cm dbh) per hectare, randomly selected circular plots with a radius of 12.6m within each woodland supporting potential bat maternity habitat (i.e., suitable deciduous or mixed mid-age to mature forests), with a minimum of 10 plots per 10 ha or less. The number of live and dead trees containing cavities were counted.	May 31, 2012 13:30-17:-00 7 hrs	Temperature: 20°C Wind scale 1 (~3-5 km/hr) 75% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Matt Dil,, Michael Ewaschuk [see NRSI report Appendix J]
Field Surveys for Bat Habitat	BMA-001 (Turbine 1) LT 21-22 Con 2 N of Durham Rd. GLENELG	Qualitative assessment of cavity trees (potential maternity colonies), area search for caves or crevices (potential bat winter hibernacula) within woodlands located within 120m of project area (where access was granted). To determine estimated number of cavity trees (>25cm dbh) per hectare, randomly selected circular plots with a radius of 12.6m within each woodland supporting potential bat maternity habitat (i.e., suitable deciduous or mixed mid-age to mature forests), with a minimum of 10 plots per 10 ha or less. The number of live and dead trees containing cavities were counted.	June 1, 2012 9:00-13:00 8 hrs	Temperature: 15°C Wind scale 3 (~12-19 km/hr) 100% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Matt Dil,, Michael Ewaschuk [see NRSI report Appendix J]
Field Surveys for Bat Habitat	BMA-003 (Turbines 6,7) PT LT 31-33 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG	Qualitative assessment of cavity trees (potential maternity colonies), area search for caves or crevices (potential bat winter hibernacula) within woodlands located within 120m of project area (where access was granted). To determine estimated number of cavity trees (>25cm dbh) per hectare, randomly selected circular plots with a radius of 12.6m within each woodland supporting potential bat maternity habitat (i.e., suitable deciduous or mixed mid-age to mature forests), with a minimum of 10 plots per 10 ha or less. The number of live and dead trees containing cavities were counted.	June 7, 2012 10:07-11:22 2.5 hrs	Temperature: 18°C Wind scale 1 (~3-5 km/hr) 20% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Pamela Tucciarone, Sierra Gillies [see NRSI report Appendix J]

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Field Surveys for Bat Habitat	BMA-004 (Turbine 10) LT 20 Con 1 S of Durham Rd. GLENELG	Qualitative assessment of cavity trees (potential maternity colonies), area search for caves or crevices (potential bat winter hibernacula) within woodlands located within 120m of project area (where access was granted). To determine estimated number of cavity trees (>25cm dbh) per hectare, randomly selected circular plots with a radius of 12.6m within each woodland supporting potential bat maternity habitat (i.e., suitable deciduous or mixed mid-age to mature forests), with a minimum of 10 plots per 10 ha or less. The number of live and dead trees containing cavities were counted.	June 7, 2012 14:40-15:55 2.5 hrs	Temperature: 24°C Wind scale 1 (~3-5 km/hr) 0% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Pamela Tucciarone, Sierra Gillies [see NRSI report Appendix J]
Field Surveys for Bat Habitat	BMA-007 (Turbine 16, 17) LT 43-45 CON 1 S of Durham Rd GLENELG	Qualitative assessment of cavity trees (potential maternity colonies), area search for caves or crevices (potential bat winter hibernacula) within woodlands located within 120m of project area (where access was granted). To determine estimated number of cavity trees (>25cm dbh) per hectare, randomly selected circular plots with a radius of 12.6m within each woodland supporting potential bat maternity habitat (i.e., suitable deciduous or mixed mid-age to mature forests), with a minimum of 10 plots per 10 ha or less. The number of live and dead trees containing cavities were counted.	June 7, 2012 8:31-12:16 7.5 hrs	Temperature: 17°C Wind scale 1 (~3-5 km/hr) 5% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Pamela Tucciarone, Sierra Gillies [see NRSI report Appendix J]
Field Surveys for Bat Habitat	BMA-009 (Turbine 17) LT 43-45 CON 1 S of Durham Rd GLENELG	Qualitative assessment of cavity trees (potential maternity colonies), area search for caves or crevices (potential bat winter hibernacula) within woodlands located within 120m of project area (where access was granted). To determine estimated number of cavity trees (>25cm dbh) per hectare, randomly selected circular plots with a radius of 12.6m within each woodland supporting potential bat maternity habitat (i.e., suitable deciduous or mixed mid-age to mature forests), with a minimum of 10 plots per 10 ha or less. The number of live and dead trees containing cavities were counted.	June 8, 2012 14:00-15:75 3.5 hrs	Temperature: 24°C Wind scale 1 (~3-5 km/hr) 5% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Pamela Tucciarone, Sierra Gillies [see NRSI report Appendix J]
Species at Risk (Birds), general wildlife, watercourses and associated valleylands	LT 21-22 Con 2 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG LT 20 Con 1 S of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG Water bodies along Concession 4 Rd from County Rd. 23 to turbine 15 property.	Investigations of water bodies to document morphology, substrate, and thermal regime and characterize fish habitat. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Searches for frogs in wetlands and water bodies, and basking reptiles.	June 14, 2012 06:15-13:00 20.25 hours	Temperature: +11 to 19°C Wind scale 2 (~6-11 km/hr) Clear skies	SAR survey protocols as discussed with MNR Midhurst SAR Biologist. Aerial photography Significant Wildlife Habitat Technical Guide, OMNR 2000 Adapted Ontario Streams Assessment Protocol (Stanfield, 2010)	AHF, EEB, LKR
Species at Risk (Birds), general wildlife, watercourses and associated valleylands	LT 28-30 Con 2 N of Durham Rd. GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG PT LT 23-25 Con 4 N of Durham Rd. GLENELG LT 47 CON 2 S of Durham Rd. GLENELG LT 35 Con 1 S of Durham Rd. GLENELG Water bodies along Concession 4 Rd from County Rd. 23 to turbine 15 property.	Investigations of water bodies to document morphology, substrate, and thermal regime and characterize fish habitat. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Searches for frogs in wetlands and water bodies, and basking reptiles.	June 15, 2012 06:20-13:00 13.3 hours	Temperature: +22 to 26°C[i] Wind: 19-30 km/hr[i]	SAR survey protocols as discussed with MNR Midhurst SAR Biologist. Aerial photography Significant Wildlife Habitat Technical Guide, OMNR 2000 Adapted Ontario Streams Assessment Protocol (Stanfield, 2010)	AHF, LKR

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Field Surveys for Bat Habitat	BMA-010 (Turbines 12, 14, 15) PT LT 23-25 Con 4 N of Durham Rd. GLENELG	Qualitative assessment of cavity trees (potential maternity colonies), area search for caves or crevices (potential bat winter hibernacula) within woodlands located within 120m of project area (where access was granted). To determine estimated number of cavity trees (>25cm dbh) per hectare, randomly selected circular plots with a radius of 12.6m within each woodland supporting potential bat maternity habitat (i.e., suitable deciduous or mixed mid-age to mature forests), with a minimum of 10 plots per 10 ha or less. The number of live and dead trees containing cavities were counted.	June 21, 2012 11:22-14:52 7 hrs	Temperature: 29°C Wind scale 3 (~12-19 km/hr) 5% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Charlotte Moore, Colin Oaks [see NRSI report Appendix J]
Field Surveys for Bat Habitat	BMA-008 (Turbine 8) LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG	Qualitative assessment of cavity trees (potential maternity colonies), area search for caves or crevices (potential bat winter hibernacula) within woodlands located within 120m of project area (where access was granted). To determine estimated number of cavity trees (>25cm dbh) per hectare, randomly selected circular plots with a radius of 12.6m within each woodland supporting potential bat maternity habitat (i.e., suitable deciduous or mixed mid-age to mature forests), with a minimum of 10 plots per 10 ha or less. The number of live and dead trees containing cavities were counted.	June 21, 2012 15:41-16:41 2 hrs	Temperature: 30°C Wind scale 2 (~6-11 km/hr) 100% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Charlotte Moore, Colin Oaks [see NRSI report Appendix J]
Breeding Birds – 2012 2nd visit – day 1	LT 21-22 Con 2 N of Durham Rd. GLENELG LT 28-30 Con 2 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG LT 20 Con 1 S of Durham Rd. GLENELG	A combination of: • area searches 150 metres either side of proposed transmission routes and around proposed turbine locations; and, • 100 metre radius point counts at each proposed turbine location as per Birds and Bird Habitats: Guidelines for Wind Power Projects, OMNR, First Edition, December 2011	June 22, 2012 05:40 - 11:40 12 hours	Temperature: + 16 to 21°C Wind: NW4 to NW15	Aerial photography Bird and Bird Habitats: Guidelines for Wind Power Projects(OMNR, 2011b)	DM, LW
Species at Risk (Birds), general wildlife, watercourses and associated valleylands	LT 28-30 Con 2 N of Durham Rd. GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG PT LT 23-25 Con 4 N of Durham Rd. GLENELG LT 46 Con 1 N of Durham Rd. GLENELG LT 47 CON 2 S of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG Water bodies along Baptist Church Rd. from Southline to Northline.	Investigations of water bodies to document morphology, substrate, and thermal regime and characterize fish habitat. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components. Searches for frogs in wetlands and water bodies, and basking reptiles.	June 22, 2012 06:00-9:30 10.5 hours	Temperature: +16 to 20°C Wind scale 2-3 (~6-13 km/hr) Fog early, then clear	SAR survey protocols as discussed with MNR Midhurst SAR Biologist. Aerial photography Significant Wildlife Habitat Technical Guide, OMNR 2000 Adapted Ontario Streams Assessment Protocol (Stanfield, 2010)	AHF, LKR, EEB
Breeding Birds – 2012 2nd visit – day 2	LT 35 Con 1 S of Durham Rd. GLENELG PT LT 23-25 Con 4 N of Durham Rd. GLENELG LT 47 CON 2 S of Durham Rd. GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG	A combination of: • area searches 150 metres either side of proposed transmission routes and around proposed turbine locations; and, • 100 metre radius point counts at each proposed turbine location as per Birds and Bird Habitats: Guidelines for Wind Power Projects, OMNR, First Edition, December 2011	June 23, 2012 06:15 – 11:15 10 hours	Temperature: + 12 to 21°C Wind: 0 to NW15	Aerial photography Bird and Bird Habitats: Guidelines for Wind Power Projects(OMNR, 2011b)	DM, LW

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Species at Risk (Birds), general wildlife, watercourses and associated valleylands	LT 21-22 Con 2 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG PT LT 23-25 Con 4 N of Durham Rd. GLENELG LT 46 Con 1 N of Durham Rd. GLENELG LT 35 Con 1 S of Durham Rd. GLENELG LT 47 CON 2 S of Durham Rd. GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG	Systematic walking search looking for plant Species at Risk within 25 m of project components. Documentation of wildlife use (area searches) and ELC on accessible properties. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Surveys for basking reptiles.	June 26, 2012 10:30 – 17:00 17 hours	Temperature: +19 to 22°C[i] Wind: 13-22 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, MJO
Investigation of natural features, wildlife habitat, vegetation communities (ELC), plant and bird Species at Risk, water bodies and valleylands.	LT 28-30 Con 2 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG	Systematic walking search looking for plant Species at Risk within 25 m of project components. Documentation of wildlife use (area searches) and ELC on accessible properties. Investigations of water bodies to document morphology, substrate, and thermal regime and characterize fish habitat. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario.	June 27, 2012 07:00 – 16:00 18 hours	Temperature: +15 to 24°C[i] Wind: 6-15 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000 Adapted Ontario Streams Assessment Protocol (Stanfield, 2010)	JCN, MJO
Evening visual and acoustic bat monitoring	BMA-001 (Turbine 1) LT 21-22 Con 2 N of Durham Rd. GLENELG	Each cavity tree was surveyed once, from 30 minutes before dusk until 60 minutes after dusk, in order to best detect bats entering or exiting a cavity tree. Observers set up a viewing station with a clear aspect of the cavity opening or crevice, which consisted of a video camera on a tripod that was equipped with an evening infrared setting and an additional infrared light. A broadband bat detector was used in conjunction with the visual observations in order to determine the bat species observed.	June 27, 2012 18:41-22:56 17 hrs	Temperature: 22°C Wind scale 0 (~0-2 km/hr) 15% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Matt Dil, Jason Kerr, Nelson Zabel, John Wood [see NRSI report Appendix J]
Field Surveys for Bat Habitat	BMA-002 (Turbines 3, 4 and 5) Pt LT 21-27 Con 1 N of Durham Rd. GLENELG	Qualitative assessment of cavity trees (potential maternity colonies), area search for caves or crevices (potential bat winter hibernacula) within woodlands located within 120m of project area (where access was granted). To determine estimated number of cavity trees (>25cm dbh) per hectare, randomly selected circular plots with a radius of 12.6m within each woodland supporting potential bat maternity habitat (i.e., suitable deciduous or mixed mid-age to mature forests), with a minimum of 10 plots per 10 ha or less. The number of live and dead trees containing cavities were counted.	June 28, 2012 12:47-17:32 9.5 hrs	Temperature: 28°C Wind scale 0 (~0-2 km/hr) 20% cloud cover	Aerial photography Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR 2012a. Bats and Bat Habitats: Guidelines for Wind Power Projects, OMNR 2011b.	Matt Dil, Erica Frey [see NRSI report Appendix J]

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Crepuscular Bird Surveys	Turbines 1, 2, 3, 4, 5, 6, 7, 10, substation LT 21-22 Con 2 N of Durham Rd. GLENELG LT 28-30 Con 2 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG PT LT 31-33 Con 1 N of Durham Rd. GLENELG PT LT 34 CON 1 N of Durham Rd GLENELG LT 20 Con 1 S of Durham Rd. GLENELG LT 46 Con 1 N of Durham Rd. GLENELG	Survey methodology was conducted following the Whip-poor will Ontario Roadside Survey (Bird Studies Canada,) which included 6 minute point count stations from roadside during the full moon period of June/July 2012 beginning ½ h after sunset with the moon visible. Start and end times as well as data pertaining to weather conditions were also collected during the survey.	June 28, 2012 21:40-23:30 4.25 hours	Temperature: +25.5- 28°C Wind: 0-6 km/hr Mostly clear, with up to 40% cloud cover (moon visible at 5 of 6 stations)	Whip-Poor Will Roadside Survey Participant's Guide (Bird Studies Canada, 2012)	DTS, EEB
Species at Risk (Birds), General wildlife, watercourses	LT 28-30 Con 2 N of Durham Rd. GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG LT 47 CON 2 S of Durham Rd. GLENELG	Species at Risk surveys were conducted in consultation with Midhurst District MNR SAR Biologist. Investigations of water bodies using an adapted Ontario Streams Assessment Protocol (Stanfield, 2010) to document morphology, substrate, and thermal regime and characterize fish habitat. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	June 29, 2012 6:10-10:50 9.25 hours	Temperature: +16.5 to 20.5°C Wind scale 2-3 (~6-19 km/hr) Clear skies	SAR survey protocols as discussed with MNR Midhurst SAR Biologist. Aerial photography Significant Wildlife Habitat Technical Guide, OMNR 2000 Adapted Ontario Streams Assessment Protocol (Stanfield, 2010)	DTS, EEB
Species at Risk (Birds), General wildlife, watercourses and associated valleylands	PT LT 23-25 Con 4 N of Durham Rd. GLENELG Pt LT 21-27 Con 1 N of Durham Rd. GLENELG	Species at Risk surveys were conducted in consultation with Midhurst District MNR SAR Biologist. Investigations of water bodies using an adapted Ontario Streams Assessment Protocol (Stanfield, 2010) to document morphology, substrate, thermal regime and characterize fish habitat. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	July 5, 2012 06:15 – 09:30 6.5 hours	Temperature: +18 to 28°C[i] Wind: 2-6 km/hr[i]	SAR survey protocols as discussed with MNR Midhurst SAR Biologist. Aerial photography Significant Wildlife Habitat Technical Guide, OMNR 2000 Adapted Ontario Streams Assessment Protocol (Stanfield, 2010)	AHF, LKR
Surveys for plant Species at Risk, Wildlife, ELC	LT 35 Con 1 S of Durham Rd. GLENELG Roadside survey for ELC and plant Species at Risk west along Southline from turbine 13 property, north along Boot Jack Ranch Road to County Rd. 4 Roadside survey for ELC and plant Species at Risk along County Road 23 from County Rd. 4 to Concession 4 Rd.	Systematic walking search looking for plant Species at Risk within 25 m of project components. Documentation of wildlife use (area searches) and ELC on accessible properties. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	July 11, 2012 10:30 – 18:00 15 hours	Temperature: +23 to 27°C[i] Wind: 6-11 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK
Surveys for plant Species at Risk, Wildlife, ELC	PT LT 23-25 Con 4 N of Durham Rd. GLENELG	Systematic walking search looking for plant Species at Risk within 25 m of project components. Documentation of wildlife use (area searches) and ELC on accessible properties. Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Surveys for basking reptiles and wildlife. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	July 12, 2012 08:00 - 15:30 15 hours	Temperature: +21 to 28.5°C[i] Wind: 2-9 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Species at Risk (Birds) General wildlife/watercourse	LT 20 Con 1 S of Durham Rd. GLENELG LT 47 CON 2 S of Durham Rd. GLENELG	Investigations of water bodies using an adapted Ontario Streams Assessment Protocol (Stanfield, 2010) to document morphology, substrate, and thermal regime and characterize fish habitat. Species at Risk surveys were conducted in consultation with Midhurst District MNR SAR Biologist. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	July 13, 2012 06:00 – 11:15 10.5 hours	Temperature: +17- 28.5 °C Wind scale 0 (~ 0-2 km/hr) Clear skies	SAR survey protocols as discussed with MNR Midhurst SAR Biologist. Aerial photography Significant Wildlife Habitat Technical Guide, OMNR 2000 Adapted Ontario Streams Assessment Protocol (Stanfield, 2010)	AHF, EEB
Investigations conducted for ELC, general wildlife and wetland features (OWES).	PT LT 23-25 Con 4 N of Durham Rd. GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG Roadside survey for ELC and plant Species at Risk along County Road 23 from County Road 4 to Concession 4 Road	Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Collection of data pertaining to wetland evaluations as per the Ontario Wetland Evaluation System for Southern Ontario. Surveys for basking reptiles and wildlife. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	July 18, 2012 10:30 – 17:00 17 hours	Temperature: +23.5 to 27.5°C[i] Wind: 6-11 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1 Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK
Investigations conducted for ELC, general wildlife and wetland features (OWES).	PT LT 23-25 Con 4 N of Durham Rd. GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG Roadside survey for ELC and plant Species at Risk along County Road 23 from County Road 4 to Concession 4 Road.	Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Collection of data pertaining to wetland evaluations as per the Ontario Wetland Evaluation System for Southern Ontario. Surveys for basking reptiles and wildlife. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	July 19, 2012 08:00 – 16:00 16 hours	Temperature: +18.5 to 21.5°C[i] Wind: 11-17 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1 Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK
Species at Risk birds, general wildlife and basking turtles.	LT 28-30 Con 2 N of Durham Rd. GLENELG LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG LT 47 CON 2 S of Durham Rd. GLENELG	Species at Risk surveys were conducted in consultation with Midhurst District MNR SAR Biologist. Surveys for basking reptiles and wildlife.	July 24, 2012 07:00–11:35 9 hours	Temperature: +20 to 22.5°C[i] Wind: 9-20 km/hr[i]	SAR survey protocols as discussed with MNR Midhurst SAR Biologist. Aerial photography Significant Wildlife Habitat Technical Guide, OMNR 2000	AHF, LKR
Investigations conducted for ELC, general wildlife and wetland features (OWES).	LT 35 Con 1 S of Durham Rd. GLENELG LT 47 CON 2 S of Durham Rd. GLENELG	Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Collection of data pertaining to wetland evaluations as per the Ontario Wetland Evaluation System for Southern Ontario. Surveys for basking reptiles and wildlife. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	July 24, 2012 10:30 – 15:00 13 hours	Temperature: +21 to 23°C[i] Wind: 15-20 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1 Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK

Purpose	Location	Summary of Methods	If investigation was conducted on site		Sources & Dates of Information Used/Applied	Names & Qualifications of Investigators (see Appendix C for full qualifications)
			Date Time Total Hours	Weather		
Investigations relating to Species at Risk birds, general wildlife, watercourses and associated valleylands	LT 28-30 Con 2 N of Durham Rd. GLENELG Water bodies along Southline, Boot Jack Ranch Rd. and Concession 4 Road.	Species at Risk surveys were conducted in consultation with Midhurst District MNR SAR Biologist. Investigations of water bodies using an adapted Ontario Streams Assessment Protocol (Stanfield, 2010) to document morphology, substrate, and thermal regime and characterize fish habitat. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	August 1, 2012 06:30 – 10:45 8.5 hours	Temperature: +19 to 23.5°C[i] Wind: 6-13 km/hr[i]	SAR survey protocols as discussed with MNR Midhurst SAR Biologist. Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1 Significant Wildlife Habitat Technical Guide, OMNR 2000	LKR, AHF
Alternative Site Investigation of wetland features along Southline, ELC and wetland surveys (OWES) on other accessible properties.	LT 35 Con 1 S of Durham Rd. GLENELG LT 47 CON 2 S of Durham Rd. GLENELG Roadside survey along Southline at T13, north on Boot Jack Ranch Road to County Road 4	Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Collection of data pertaining to wetland evaluations as per the Ontario Wetland Evaluation System for Southern Ontario. Surveys for basking reptiles and wildlife. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	August 8, 2012 10:30 – 18:00 15 hours	Temperature: +22.5 to 26°C[i] Wind: 9-13 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1 Significant Wildlife Habitat Technical Guide, OMNR 2000	JCN, VLK
Species at Risk, ELC, general wildlife and wetland features (OWES).	LT 21-22 Con 2 N of Durham Rd. GLENELG PT LT 23-25 Con 4 N of Durham Rd. GLENELG LT 28-30 Con 2 N of Durham Rd. GLENELG LT 43-45 CON 1 S of Durham Rd GLENELG	Systematic walking search looking for plant Species at Risk within 25 m of project components. Documentation of wildlife use (area searches) and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario. Collection of data pertaining to wetland evaluations as per the Ontario Wetland Evaluation System for Southern Ontario. Surveys for basking reptiles and wildlife. Area searches for evidence of wildlife (scat, dens, nests, tracks, etc.) within 120m of project components.	August 9, 2012 08:00 – 15:30 15 hours	Temperature: +16 to 18.5°C[i] Wind: 2-9 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000. Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1	JCN, VLK
Alternative Site Investigation of wetland features along Concession 4 Road	Roadside survey along Concession 4 Road from County Road 23 to T15 property.	Documentation of botanical species and classification of vegetation communities using Ecological Land Classification (ELC) for Southern Ontario by roadside survey. Collection of data pertaining to wetland evaluations as per the Ontario Wetland Evaluation System for Southern Ontario. Surveys for basking reptiles and wildlife.	August 10, 2012 07:00 – 15:00 16 hours	Temperature: +16 to 20°C[i] Wind: 14-19 km/hr[i]	Aerial photography Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998 Lee at al. Significant Wildlife Habitat Technical Guide, OMNR 2000 Ontario Wetland Evaluation System 3rd Edition. Southern Manual. 1993. OMNR #50254-1	JCN, VLK

Notes:

i) Data obtained from Environment Canada website (www.climate.weatheroffice.gc.ca), Historical Weather Data-Mount Forest Station and field notes (Appendix B).

ii) Personnel codes for LGL Staff (see Appendix C for full list of qualifications):

AFH	Allison Featherstone
DM	Dave Martin
DTS	Dana Summach
EEB	Erin Blenkhorn
GH	Geoff Hughes
JCN	Jennifer Nöel
JV	Judson Venier
LKR	Lynette Renzetti
LW	Linda Wladarski
MJO	Martin O'Halloran
VLK	Victoria Kennedy

Project Component	Lot and Concession Number of Associated Parcels	Project Component	Lot and Concession Number of Associated Parcels
Substation	LT 46 Con 1 N of Durham Rd. GLENELG	Turbine 8 and access road	LT 39-40; PT LT 37-38 CON 1 N of Durham Rd GLENELG
Laydown Construction Area	LT 46 Con 1 N of Durham Rd. GLENELG	Turbine 10 and access road	LT 20 Con 1 S of Durham Rd. GLENELG
Turbine 1 and access road	LT 21-22 Con 2 N of Durham Rd. GLENELG	Turbine 11 and access road	LT 35 Con 1 S of Durham Rd. GLENELG
Turbine 2 and access road	LT 28-30 Con 2 N of Durham Rd. GLENELG	Turbines 12, 14, and 15 and access roads	PT LT 23-25 Con 4 N of Durham Rd. GLENELG
Turbines 3, 4, and 5 and access roads	Pt LT 21-27 Con 1 N of Durham Rd. GLENELG	Turbine 13 and access road	LT 47 CON 2 S of Durham Rd. GLENELG
Turbine 6 and access road	PT LT 31-33 Con 1 N of Durham Rd. GLENELG	Turbines 16 and 17 and access roads	LT 43-45 CON 1 S of Durham Rd GLENELG
Turbine 7 and access road	PT LT 34 CON 1 N of Durham Rd GLENELG		

3.2 RESULTS OF SITE INVESTIGATION

A broader area was initially surveyed in site investigation, such that several of the ELC communities studied were not located within 120m of what was ultimately determined to be the Project Location. A description of all ELC communities surveyed appears in the ELC table within Appendix D. The level of detail included in Appendix D is a reflection of how the ELC was surveyed; where access to the property was granted, ELC was confirmed in field survey, and, where access was not provided a combination of desktop review and investigation from the nearest property boundary was used. The focus of the following paragraphs are those communities determined to be in or within 120m of the Project Location as displayed in Figures 7 through 9 and described in Section 3.2.2 Description of Natural Features.

Through the Site Investigation portion of the NHA boundaries of natural features identified in Records Review and located within 120m of project components were confirmed. As well, the boundaries of any new features found in or within 120m of the Project Location were identified and included in the ELC mapping. The following subsections summarize the changes made to information collected during Records Review (including where new features were identified) and describe each natural feature located in or within 120 metres of the project location.

3.2.1 Summary of Corrections to Records Review

Corrections made to information collected through Records Review were limited to wetland and woodland features. Many of these features were located on private land. The extent of corrections to these natural features located in or within 120m of the project location were considered to be too numerous to enumerate in table format; and, through consultation with the MNR REOT it was determined these changes would be best displayed in map form (Figures 10 and 11) for comparison to information obtained through Records Review and documented in Section 2.0. The following subsections describe how the boundaries of features changed from those documented in the Records Review Report, and the rationale for the corrections.

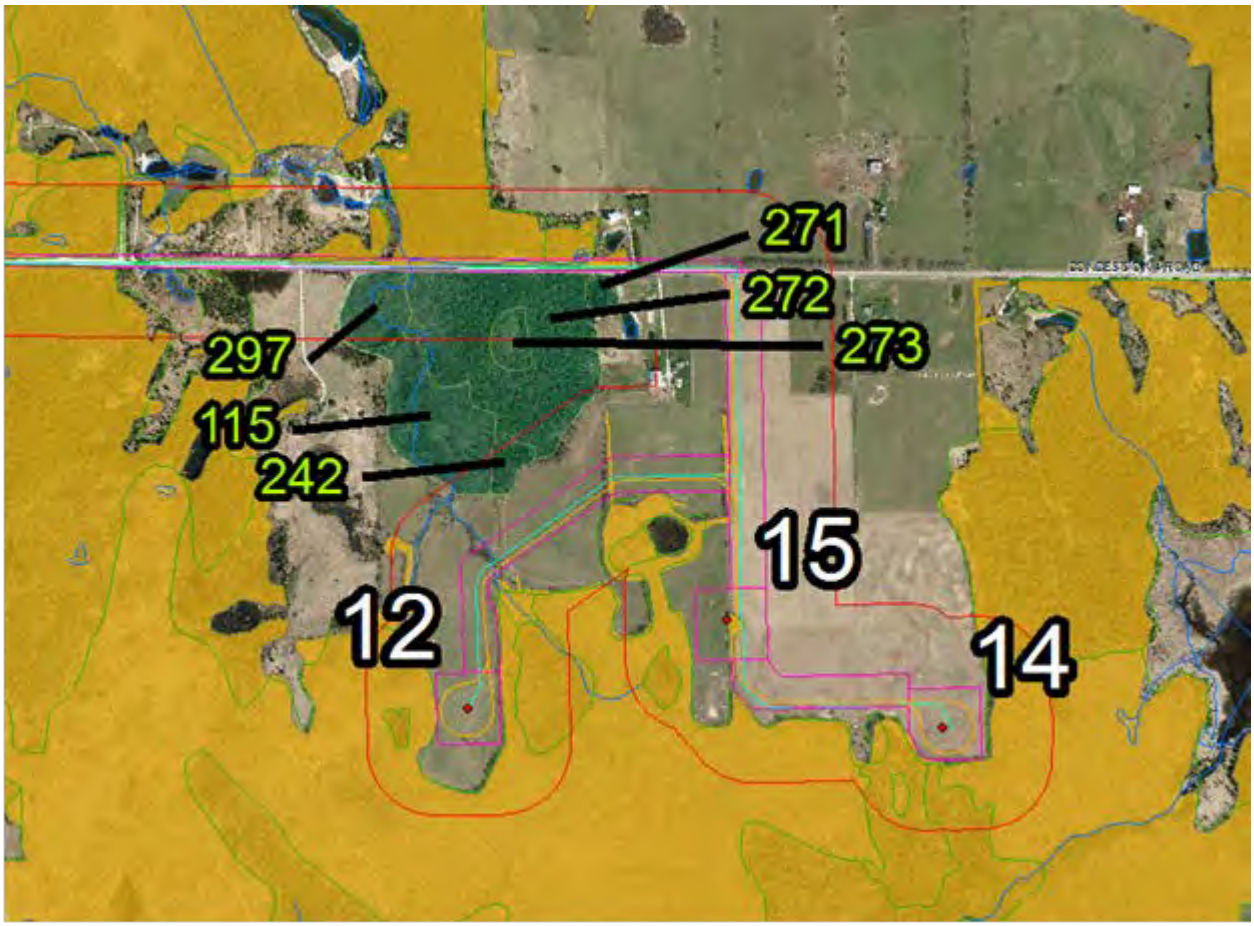
3.2.1.1 Wetlands

In the case of wetlands, LIO data layers were used to identify PSWs, locally significant wetlands and unevaluated wetlands during Records Review. Boundaries of the Beaver Meadow and Topcliff Swamp PSWs, as documented in the Wetland Evaluation records obtained through MNR were last updated 15 to 20 years ago. Through field verification of wetland boundaries performed by an OWES trained evaluator the limits of the Beaver Meadow PSW were refined as presented in Figure 10. In the case of Topcliff Swamp, access to the property was not permitted and the accessible boundary at roadside was similar to that presented in the 1990 wetland evaluation. In this case, no change to the boundary of the PSW was made as a result of site investigation. Boundaries of PSWs are ultimately approved by MNR and are presented here for agency review. All other wetlands identified through Records Review and further studied in Site Investigation were of the 'unevaluated' type and located on private property, zoned for

agricultural use. The boundaries to some of these features were found to require correction during the field surveys conducted. The most common reasons for this were that land use had changed on a local scale to expand or reduce agricultural activities, or the area was determined to be an upland feature. As a result, wetland polygons were either reduced in size where portions were under active agricultural use, or documented as upland; or, boundaries of wetlands were expanded because agricultural activity had been reduced and those areas had regenerated as wetland communities. Portions of vegetation communities delineated using ELC initially were considered as potential wetland features through interpretation of aerial photographs and the ELC data. However, during site investigation, some of these areas were documented to be under agricultural use as cropland and/or heavily grazed pasture; such that the units were no longer functioning as wetland or displaying wetland characteristics. After further consultation with the Owen Sound Area MNR wetland biologist (Appendix A) the aforementioned units were determined to be part of the agricultural fields, and assigned the ELC unit number to reflect that condition. Wetland units located in or within 120m of the Project Location are identified in Figure 10 and overlaid onto the LIO data obtained in Records Review for comparison purpose. Where differences are noted, corrections to records review have been made. Wetland communities identified in Figure 10 largely represent 'unevaluated wetlands'; however, changes to the Beaver Meadow PSW are also noted. Wetland boundaries as they appear in Figure 10 were used in further assessment of wetland features according to OWES protocol as detailed within the Evaluation of Significance section of this report.

3.2.1.2 Woodlands

Boundaries of woodland features were identified in Records Review through the use of County of Grey shapefiles and data layers obtained through LIO (Figure 3). Woodland features as they exist within the Study Area are generally large contiguous features that extend well beyond the project boundary. The woodland data as provided by the County of Grey generally corresponded with the ELC polygon units that were identified by LGL in site investigation as FOD, FOM, FOC, SWD, SWC, SWM and CUW (Figure 11). Wooded areas that were not in accordance with the definition of a woodland as described in the evaluation criteria outlined in Section 6.2.2.1 of the NHAG (OMNR, 2011), such as cultural plantations managed tor tree products with an average rotation of less than 20 years, were not included as part of the woodland features identified in Figure 11. The area displayed below in the vicinity of the access road into turbine 12 (PT LT 23-25 Con 4 N of Durham Rd. GLENELG) is identified here as a corrections to records review whereby areas of wooded swamp were documented:



Woodlot determined to be 12.91ha (including ELC units 115(SWD3-1), 242(SWC1), 271(SWD3-1), 272(SWD4), 273(FEO1-2) and 297(SWT3-2)), located on property PT LT 23-25 Con 4 N of Durham Rd. GLENELG

This feature was included as part of Woodland 2 (WO-02) and in all distance calculations determined between that feature and the Project Location in subsequent sections of this report.

3.2.1.3 Valleylands

No mapping of valleylands was available for the Study Area through Records Review; therefore, areas designated as hazard lands by the County of Grey, along with watercourses shown in the LIO data layer, were used to indicate possible valleylands. Through Site Investigation it was determined that hazard lands associated with stream corridors, in particular the Saugeen River valley, agreed with the definition of valleyland as stated in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) and summarized in Section 2.2.2.4. Hazard lands associated with depressions that did not contain flowing or standing water were not considered to be valleylands as defined in the REA process; and, therefore not carried forward into subsequent stages of the NHA. No change was made to the hazard land mapping and all boundaries of the 7 valleyland features identified to be in or within 120m of the Project Location were used as provided by the County of Grey (Figure 4).

3.2.1.4 Significant Wildlife Habitat

Limited information was available for confirmed Significant Wildlife Habitat within the project study area during the Records Review phase of the NHA. Significant Wildlife Habitat in the form of Deer yarding areas was identified by MNR during Records Review and confirmed to be within 120m of the Project Location during site investigation. Boundaries for this type of significant wildlife habitat are determined by MNR; therefore, no changes to the boundaries identified in the Records Review Report were made. No other significant wildlife habitat was confirmed through Records Review or Site Investigation. No changes to Figure 5 were made as a result of Site Investigation.

3.2.2 Site Investigation - Description of Natural Features

Delineation of ELC communities in or within 120m of the Project Location was completed in Site Investigation. Table 1 in Appendix D describes the communities displayed in Figures 7 to 9 and summarizes the information collected for each unit including the type, attributes, composition and function of the community. The table also indicates the size of the unit and the distance between it and the closest project component.

Natural features were identified as Candidate Significant Wetlands, Woodlands or Valleylands, using data obtained through site investigation using a combination of ELC and OWES protocols . The features are identified in Table 7 according to feature type, and a description of the feature size, significance (if known), attributes, composition and function are also provided. The 13 wetland features identified as either provincially significant or candidates for significance are displayed in Figure 12. Figure 12 includes all wetland units as described in Section 3.1.2, including both contiguous wetland vegetation communities and wetland complexes. Figure 13 displays the 5 woodland features delineated during Site Investigation and Figure 14 defines the valleyland features in or within 120m of the project location.

Table 6 describes the types of Candidate Significant Wildlife Habitat (Candidate SWH) and confirmed Significant Wildlife Habitat (SWH) identified in or within 120m of the Project Location. The types of Generalized Candidate SWH identified according to Table 16 in Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011) as described in Section 3.1.5 are also listed in Table 7. Figures 15, 16 and 18 through 22 display each of the Candidate Significant Wildlife Habitats determined to be in or within 120m of the Project Location according to the details provided in the Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule (OMNR, 2012a). Figure 17 identifies Deer yarding areas as the only type of Significant Wildlife Habitat (SWH) identified through Records Review and Site Investigation. Further details are provided in Table 6.

3.3 SUMMARY OF NATURAL FEATURES CARRIED FORWARD TO EVALUATION OF SIGNIFICANCE

Natural features identified to be carried forward into the Evaluation of Significance phase of the NHA are described below and summarized in Table 7.

3.3.1 Wetlands

A total of 13 wetlands were identified to be in or within 120m of the Project Location in Site Investigation. The wetland features identified include 2 provincially significant wetlands (PSWs): Beaver Meadow PSW and Topcliff Swamp PSW. Site investigation of the Beaver Meadow PSW was conducted by staff trained in OWES and included verification of the PSW boundaries which resulted in several revisions, including the complexing of additional wetland communities as described in Table 2, Appendix D, and displayed in Figure 12. As PSWs, these two features did not require any further evaluation for significance; and, for that reason, they were carried directly into the Environmental Impact Study (Section 5.0). The wetlands brought forward for an evaluation of significance represent contiguous single or multiple wetland communities complexed according to the methods described in Section 3.1.2 and presented in Figure 12, that have not been previously evaluated..

Of the 13 wetlands identified to be in or within 120m of the Project Location in Site Investigation, 11 were carried forward into the Evaluation of Significance, and 2 (PSWs) were carried directly into the Environmental Impact Study.

3.3.2 Woodlands

The process of defining boundaries where woodlands were identified in or within 120m of the project location, determined that large contiguous woodland features are present that extend well beyond the boundary of the Study Area. As described in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) the woodlands were divided where a gap greater than 20m was identified. A total of 5 woodland features were identified in or within 120m of the Project Location, as displayed in Figure 13. None of the woodlands identified in Figure 13 is wholly comprised of plantations or orchards, as these units do not conform to the definition of 'woodland' as stated in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) and summarized in Section 2.2.2.3. Neither are plantations or orchards that occurred along woodland edges included in the features defined in Figure 13; however, the larger contiguous woodlands identified may have such features imbedded within them as areas more than 120m from the project location, and areas beyond the Study Area were not field verified. In these cases the County's data layer was accepted as provided. In most cases the woodland features identified incorporate several different ELC units as determined by LGL to be in or within 120m of the Project Location (Table 7). Each of the woodland features carried over into Evaluation of Significance is displayed in Figure 13 and described in Table 7 below.

3.3.3 Valleylands

A total of 7 valleyland features were identified through Site Investigation to be located in or within 120m of the Project Location. Valleyland features are generally associated with the Saugeen River and its tributaries as displayed in Figure 14. Each of the valleyland features carried over into Evaluation of Significance is described in Table 7 below.

3.3.4 Wildlife Habitat

Table 6 summarizes where confirmed Significant Wildlife Habitat (SWH), Candidate SWH and Generalized Candidate SWH was identified in or within 120m of the Project Location. A description of the ELC communities identified as such and the rationale for carrying them forward into Evaluation of Significance is provided in Table 6. The location of these features is provided according to ELC units further described in Appendix D and displayed in Figures 15 to 22. The types of wildlife habitat to be carried forward into Evaluation of Significance are summarized in Table 7 along with all other natural features carried into the subsequent phase of the NHA.

Table 6: Confirmed, Candidate and Generalized Significant Wildlife Habitat (SWH) Identified in Site Investigation

Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
Seasonal Concentration Areas of Animals	**Waterfowl Stopover and Staging Areas (terrestrial)**	• ELC ecosites CUM1 and CUT1 • Evidence of annual spring flooding from melt water or run-off within these Ecosites. • Agricultural fields with waste grains are not considered to be SWH.	• Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location. • Analysis of air photos to locate areas where saturated soils were evident to suggest areas where melt water may pool. • Documentation of evidence of spring flooding during site investigation of suitable ecosites. • Determine if extent of flooding forms large areas of sheetwater of sufficient size to support large numbers of staging waterfowl.	The topography of the area in or within 120m of the project location is such that the majority of melt water drains into adjacent wetland and pond features. Where meltwater collects in fields, it does so in areas under agricultural use and in areas where topography is hilly such that pools are very small. No sheet water was observed in CUM or CUT sites during the Spring 2011 or March 2012 field visits. The only area identified as an area with evidence of sheetwater on aerial photography was LT 43-45 CON 1 S of Durham Rd GLENELG; however, the area was determined during spring visits to be small and under active agricultural use.	None identified.	No	No
	Waterfowl Stopover and Staging Areas (aquatic)	• ELC ecosites MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7 • Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. • Significant sites are generally larger wetlands, especially those adjacent to large bodies of water, and relatively undisturbed shorelines with vegetation.	• Reference to Appendix K of SWHTG to ensure no known areas are identified in or within 120m of the project location. • Analysis of air photos to locate areas where marsh or swamp communities large enough to host large numbers of waterfowl were evident. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location. • Documentation of potential sites large enough to act as waterfowl staging areas during site investigation of suitable ecosites. • Screening of ELC communities within 120m of turbine components as per Appendix D, Table 16 of the NHAG.	Wetlands are generally not located adjacent to large bodies of open water. This type of habitat was screened by searching for open water features within 120m of proposed turbine locations; the following were considered to further to determine if they were candidates. Rationale is provided for each ELC unit identified as follows: 51 – OAO ecosite type, although the largest OAO within 120m of the project location, it is still considered small for supporting large numbers of waterfowl. LGL has contacted Ducks Unlimited, as the landowner has indicated the they have assisted in managing this property for several years, through installation of next boxes. but no data has been collected to date; 55 – OAO ecosite type, too small to support large number of waterfowl; 56 – OAO ecosite type, too small to support large number of waterfowl; 103 SWD ecosite type; too small to support large number of waterfowl, also not close to large body of open water, surrounded by agricultural fields; 105- SWD ecosite type, too small to support large number of waterfowl, also not close to large body of open water; 117 SWD ecosite type, too small to support large number of waterfowl, also not close to large body of open water; 123- MAM ecosite type, too small to support large number of waterfowl, also not close to large body of open water;	None identified.	No	Yes potential for habitat within 120m of overhead/ underground collection lines.

Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
				124 SWD ecosite type, too small to support large number of waterfowl, also not close to large body of open water; 269 SWD ecosite type, too small to support large number of waterfowl, also not close to large body of open water; 414- OAO dug pond, too small to support large number of waterfowl; 415 - OAO dug pond, too small to support large number of waterfowl; 416 - OAO dug pond, too small to support large number of waterfowl.			
	Shorebird Migratory Stopover Areas	• ELC ecosites MAM1, MAM2, MAM3, MAM4, MAM5, BBO1, BBO2, BBS1, BBS2, BBT1, BBT2, SDO1, SDS2, SDT1 • 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.	• Analysis of air photos to locate areas of undisturbed shoreline along lakes, rivers and wetlands. • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of the project location. • Survey for presence of mudflats or un-vegetated shorelines along large lakes, rivers and wetlands during site investigation for delineation of boundaries of water bodies completed for the NHA and the East Durham Wind Energy Centre Water Body Report (LGL, 2012).	Site investigation included the delineation of water body boundaries throughout the low flow period when shorelines are most exposed. No muddy un-vegetated shoreline habitats were identified in or within 120m of the project location; instead shorelines of water bodies were densely vegetated and of limited size, considered to be too small to support large numbers of shorebirds.	None identified.	No	No suitable habitat identified within 120m of the project location.
	Raptor Wintering Area	• 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. • The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Raptor wintering sites need to be > 20 ha with a combination of forest and upland. • Sites with abundant prey and low snow accumulation (including windswept fields) are generally better candidates	• Analysis of air photos to locate areas where upland communities of >15 ha were evident. • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of the project location.	Site investigations for raptors were completed in 2009 from roadside for a smaller study area and data collected at that time indicated that very low densities of hawk were observed (D. Martin, pers. comm. 2012). A desktop screening for all candidate upland communities of 15ha in size identified 2 potential areas greater than 15ha (Unit 381 and Units 264/265 combined); however, these were not contiguous to the candidate forest community types identified in the criteria. Therefore no candidate SWH was identified in or within 120m of the project location.	None identified.	No	No suitable habitat identified within 120m of the project location.

Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
	Bat Hibernacula*	Indicator Species: Big Brown Bat Little Brown Myotis Eastern Pipistrelle/Tri-coloured Bat Northern Myotis Eastern Small-footed Myotis Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH) Also found in caves, mine shafts, underground foundations, and Karsts.	• Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of the project location. • Qualitative assessment of cavity trees, area search for caves or crevices during initial site investigation (NRSI, 2012).	According to the Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule (OMNR, 2012), caves, mine shafts, underground formations and karsts are considered examples of locations where bat hibernacula may be found. No candidate bat hibernacula were identified by NRSI biologists within the East Durham Wind Energy Centre project area (NRSI, 2012).	None identified.	No	No suitable habitat identified within 120m of the project location.
	Bat Maternity Colonies*	Big Brown Bat Little Brown Myotis Silver-haired Bat Northern Myotis Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM	• Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location. • Screening of ELC communities within 120m of turbine components as per Appendix D, Table 16 of the NHAG. • Identification of suitable deciduous or mixed mid-age to mature forests with the canopy stand description (top 4 species) containing one or more of the following species: white pine (*Pinus strobus*), maple (*Acer* spp.), aspen (*Populus* spp.), ash (*Fraxinus* sp.), oak (*Quercus* sp.). These tree species are identified as providing good cavity habitat in the 2011 *Bats and Bat Habitats: Guidelines for Wind Power Projects* document (OMNR 2011b). • Identification of woodlands with a sufficient quantity of trees and snags >25cm dbh (NRSI, 2012).	10 potential bat maternity habitats were initially identified , the results of Site Investigation of features identified in or within 120m of proposed turbine locations are summarized as follows (NRSI, 2012): **WH –BMA-001**: Several cavities found on multiple sugar maples, all between 29-38cm dbh. Cavities were found between 6m and 10m from the ground. Results of quantitative assessment indicates 10 cavity trees/ha (18 sample plots) – carried forward to EOS. WH –BMA-002: Very few trees have cavities and many trees are at the lower end of dbh requirement. Results of quantitative assessment indicates 5.1 cavity trees/ha (35 sample plots) WH –BMA-003: Only two cavities found within the site. Results of quantitative assessment indicates 7 cavity trees/ha (22 sample plots-site access wouldn't allow for 29 plots) WH –BMA-004: Only a single cavity found on the site. Results of quantitative assessment indicates 2.5 cavity trees/ha (8 sample plots-site access wouldn't allow for 10 plots). **WH –BMA-005**: No access to determine attributes – this habitat was carried forward to EOS. **WH –BMA-006**: No access to determine attributes – this habitat was carried forward to EOS.	A total of 4 Candidate SWHs of this type were identified within 120m of turbine locations (Figure 2, Appendix I, NRSI 2012): WH –BMA-001 WH –BMA-005 WH –BMA-006 WH –BMA-007	Yes	Yes, potential for suitable habitat within 120m of project components other than turbines.

Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
				WH –BMA-007: No access to determine attributes – this habitat was carried forward to EOS. WH –BMA-008: Only two cavities found in the site. Results of quantitative assessment indicates 4.0 cavity trees/ha (10 sample plots-site access wouldn't allow for 26 plots) WH –BMA-009: Only one cavity found in the site. Inclusions of conifers reduced site potential. Results of quantitative assessment indicates 1.2 cavity trees/ha (17 sample plots). WH –BMA-010: Several cavities found, however many were low or in ill-suited tree species. Results of quantitative assessment indicates 4.6 cavity trees/ha (35 sample plots).			
	Turtle Wintering Area	• Snapping and Midland Painted turtles: ELC communities SW, MA, OA and SA; ELC Community Series FEO, BOO • For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates.	• Analysis of air photos to locate areas of open water. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location. • Survey areas of open water during site investigation completed for the East Durham Wind Energy Centre Water Body Report (LGL, 2012) to determine if water bodies are deep enough to be used as overwintering habitat.	Most water bodies investigated were too shallow to function as overwinter areas for turtles. In a review of habitat available in or within120m of the project location, 2 natural ponds and 3 dugout ponds surveyed during ELC field work and site investigation efforts for the delineation of water body boundaries completed for the East Durham Wind Energy Centre Water Body Report (LGL, 2012) were determined to be deep enough to serve as potential turtle overwintering habitat. Units	A total of 5 Candidate SWHs of this type were identified (Figure 15): 51 (WH –TW-01) 105 (WH –TW-02) 414 (WH –TW-03) 415 (WH –TW-04) 416 (WH-TW-05)	Yes	Yes, potential for habitat within 120m of overhead/ underground collection line.
	Reptile Hibernaculum	• For all snakes, habitat may be found in any ecosite in central Ontario other than very wet ones. • Areas including rock crevices, crumbling foundations, rock piles, stone fences and old wells may indicate this type of habitat. • For Five-lined Skink, ELC community series of FOD and FOM and ecosites FOC1 and FOC3 • Five-lined Skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.	• Analysis of air photos to locate rockpiles, old foundations, and areas of exposed rock where fissures may occur. •Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location. • Investigate areas that contain rock piles, crumbling foundations, or rock fissures that may extend below the frost line and document any basking snakes during warm spring days.	Due to the nature of the soils in the project area, numerous rock piles are located along hedgerows, as piles in fields, and along edges of natural features largely as a result of rocks removed from agricultural fields. Rock piles within 120m of project location were surveyed for evidence of access below the frost line and use by early emerging or basking snakes. All rock piles identified appear to be rock piles at or above surface. No rock outcrops, bedrock with fissures or old foundations were identified. No habitat that would provide access to hibernacula below the frost line was identified in or within 120m of the Project Location. Five-lined Skink is not documented within the study area in Ontario's Reptile and Amphibian Atlas, nor was this species identified in records of species of Special Concern included for the study area (MNR, 2012) No habitat specific to Five-lined Skink (rocky fissured outcrops) was identified in forest communities in or within 120m of the project location.	None identified.	No	No suitable habitat identified within 120m of the project location.
	Colonial-Nesting Bird	• Ecosites CUM1, CUT1, CUS1, BLO1, BLS1, BLT1, CLO1 CLS1, CLT1.	• Analysis of air photos to locate areas with large eroding banks, sandy hills and steep slopes. • Field investigation to confirm boundaries and	No large eroding banks, sandy hills or steep slopes of the appropriate ecotypes were noted in or within 120m of the project location.	None identified.	No	No suitable habitat identified

Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
	Breeding Habitat (bank and cliff swallows)	• Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles (Bank Swallow and N. Rough-winged Swallow). Cliff faces, bridge abutments, silos, barns (Cliff Swallows). • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, and soil or aggregate stockpiles.	type of vegetation communities (ELC) within 120m of the project location. • Search for suitable habitat during site investigation (earthen banks, sandy slopes).				within 120m of the project location.
	Colonial-Nesting Bird Breeding Habitat (tree/shrub)	• Ecosites: 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.	• Analysis of air photos to locate areas with treed wetlands such as deciduous swamp. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of turbine components and access roads as per Appendix D, Table 16 of the NHAG.	Treed swamps of the criteria ecosite types are present within 120m of proposed turbines and access roads. Each of these features was carried forward into the EOS.	A total of 12 Candidate SWHs of this type were identified (Figure 16): 81/ 269 (WH-CNTS-01); 103 (WH-CNTS-02); 105 (WH-CNTS-03); 111/113 (WH-CNTS-04); 115 (WH-CNTS-05); 117 (WH-CNTS-06); 118/119 (WH-CNTS-07); 120 (WH-CBTS-08); 124 (WH-CNTS-09); 134 (WH-CNTS-10); 234 (WH-CNTS-11); 248/250 (WH-CNTS-12).	Yes	Yes, potential for habitat within 120m of overhead/ underground collection line.
	Colonial-Nesting Bird Breeding Habitat (ground)	MAM1 – 6, MAS 1 – 3; CUM, CUT, CUS; Rock island or peninsula within a lake or large river; Brewer's Blackbird- In close proximity to watercourses in open fields or pastures with scattered trees or shrubs (CUM, CUT and CUS).	• Analysis of air photos to locate areas with treed wetlands such as deciduous swamp. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of turbine components and access roads as per Appendix D, Table 16 of the NHAG. . • Review of Breeding Bird Atlas of Ontario (First and Second Editions).	No rock island or peninsula type habitat was found during site investigation. No evidence of congregation of gulls or terns identified. Two features were identified in or within 120m of the project location as CUM eco-sites in close proximity to water: ELC unit 261 and 264. These units were not within 120m of turbine components or access roads and were therefore treated as Generalized Candidate Significant Wildlife Habitat as per Appendix D, Table 16. Potential for habitat within 120m of other project components also exists.	None identified.	No	Yes, potential for habitat within 120m of overhead/ underground collection line.
	Deer Yarding Areas	Deer yarding areas identified by MNR.	• MNR is to define this habitat type. Records for Deer yarding areas were included in the records review. Proposed project components (underground collection) are located 16m from this feature.	Habitat within 120m of underground collection was identified to include: WH-DYA-01: ELC units 226(FOD5-8), 230(FOD5), 277(FOC2-2), 278(MAM2-10), 279(CUP3-3), 281(SWD4), 287(SWT3-2), 359/424/448 (residential/manicured), 405(FOC2-2), 408(FOC2-2), 438(FOC2-2), 441(SWT2); WH-DYA-02: 424(R), 438(FOC2-2)	The significant wildlife habitat identified by MNR and in or within 120m of the project location was identified as WH-DYA-01 and WH-DYA-02 (Figure 17).	Yes – as Confirmed SWH	No

Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
Rare Vegetation Communities or Specialized Habitat for Wildlife	**Cliffs and Talus Slopes**	ELC types TAO, TAS, TAT, CLO, CLS, CLT; Near vertical cliff, and talus slope is rubble at base of cliff.	• Analysis of air photos to locate areas of cliffs or steep slopes. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location.	None of the criteria ecosite codes were found in or within 120m of the project location.	None identified.	No	No suitable habitat identified within 120m of the project location.
	Sand Barren	ELC types SBO1, SBS1, SBT1	• Analysis of air photos to locate areas for sand barren. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location.	None of the criteria ecosite codes were found in or within 120m of the project location.	None identified.	No	No suitable habitat identified within 120m of the project location.
	Alvar	ELC types ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2	• Analysis of air photos to locate areas of alvars. • Look for any of significant features or indicator species as outlined in Appendix N of the SWHTG (MNR 2000) during site investigations. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location.	Only Ecosite type FOC2 documented in or within 120m of the project location. However, none of the FOC2 communities contained any of the indicator species listed in the MNR Significant Wildlife Habitat Technical Guide (2000) – see Appendix H.	None identified.	No	No suitable habitat identified within 120m of the project location.
	Old Growth Forest	FOD, FOC, FOM Stands 30ha or larger, abundance of snags and downed woody debris; No recognizable forest activities; Dominant tree species >140 years old.	• Analysis of air photos prior to site investigation to identify areas of potential old growth. • Look for presence of old growth indicators during site investigation. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location.	No evidence of trees greater than 140 years old was documented, and all forest units have evidence of logging activity.	None identified.	No	No suitable habitat identified within 120m of the project location.
	Savannah	TPS1, TPS2, TPW1, TPW2, CUS2; Tallgrass prairie habitat with tree cover between 25 and 60%; No minimum size, with savannah indicator species.	• Analysis of air photos prior to site investigation to identify areas of potential ecosite code. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location. • Look for presence of savannah vegetation composition during site investigation.	None of the criteria ecosite codes were found in or within 120m of the project location and none of the criteria species listed in the MNR Significant Wildlife Habitat Technical Guide (2000) – see Appendix H.	None identified.	No	No suitable habitat identified within 120m of the project location.
	Tallgrass Prairie	TPO1, TPO2; Tallgrass prairie with no minimum size, one or more prairie indicator species.	• Analysis of air photos prior to site investigation to identify areas of potential ecosite code. • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location. • Look for presence of tallgrass prairies during site investigation.	None of the criteria ecosite codes were found in or within 120m of the project location.	None identified.	No	No suitable habitat identified within 120m of the project location.
	Other Rare Vegetation Communities	Rare vegetation communities may include beaches, fens, forest, marsh, barrens, dunes and swamps; Provincially rare community type S1, S2 or S3 and SH.	• Analysis of air photos prior to site investigation to identify areas of potential rare communities • Field investigation to confirm boundaries and type of vegetation communities (ELC) within 120m of the project location. • Review of ELC ecosite codes against current S1 to S3 communities list.	No ELC units of S1, S2, S3 or SH were identified; see Appendix D.	None identified.	No	No suitable habitat identified within 120m of the project location.

Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
	Waterfowl Nesting Areas	All upland habitat located adjacent to ELC ecosites: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3, SWD4; Upland area needs to be at least 120m wide.	• Review of orthoimagery to identify potential habitat • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of turbine components as per Appendix D, Table 16 of the NHAG Review information obtained through records review.	Numerous wetland areas within 120m of proposed turbines or roads were identified, but not carried forward for the following reasons: 38 – SWT2-5 is surrounded by 120m of upland forest; however, less than 0.5 ha and therefore excluded; 40 –SWT2-2 is surrounded by 120m of upland forest; however, less than 0.5 ha and therefore excluded; 60 – MAM2-9 is surrounded by 120m of upland forest; however, less than 0.5 ha and therefore excluded; 110 – MAS2-1 was considered too isolated and less than 0.5ha, therefore excluded; 117 – SWD3-1 is surrounded by 120m of upland forest; however, less than 0.5 ha and therefore excluded; 123 – MAM2-10 is surrounded by 120m of upland forest; however, less than 0.5 ha and therefore excluded;	A total of 8 Candidate SWHs of this type were identified (Figure 18): 47/52/50/53/54/61/62/63/64/65/85/86/189/190/191/299/397/398 (WH-WN-01); 18/19/20/21/22/23/26/27/28 (WH-WN-02); 70/71/73/74/75/76/77/78/79/80/81/135/136/137/197/268/269/270/388/392(WH-WN-03); 115/242,/272, 273, 297 (WH-WN-04); 118/119/120/121/122/134(WH-WN-05); 102/103/222/223/243/395(WH-WN-06); 104/105106/107/108/128/130/213/214/218/234/241/248/249/250/252/253/254/255/256/347/349/351/353/400/401/402/435(WH-WN-07); and, 453(WH-WN-08).	Yes	Yes potential for habitat within 120m of overhead/ underground collection lines.
	Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	ELC Ecosite codes of FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	• Analysis of air photos prior to site investigation to identify areas of potential ecosite code. • Search for presence of forest communities next to water on airphoto. • Search for presence of nests, suitable nest trees, suitable perches, suitable foraging habitat during site investigations • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of turbine components as per Appendix D, Table 16 of the NHAG.	Areas where aquatic habitat was noted next to forest communities (FOD) occurred in proximity to Turbines 1, 3, 7 and 8, identified as: 31 (WH -BEO-01), 36 (WH -BEO-02), 47(WH -BEO-03)	A total of 3 Candidate SWHs of this type were identified (Figure 19): WH -BEO-01, WH -BEO-02, WH -BEO-03	Yes	Yes potential for habitat within 120m of overhead/ underground collection lines.

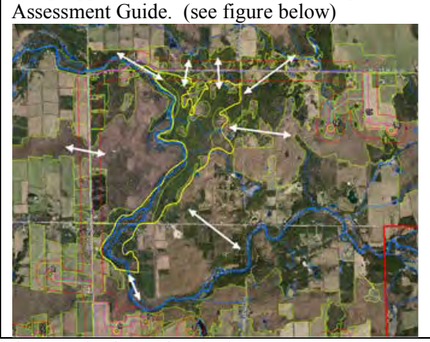
Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
	Woodland Raptor Nesting Habitat	May be found in all forested ELC ecosites, may also be found in SWC, SWM, SWD and CUP3. Natural and conifer woodland/forest stands greater than 30ha, with greater than 10ha of interior habitat (defined as 200m buffer from edge) .	• Review of orthophotography for potential habitat defined as 'all natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. Interior habitat determined with a 200m buffer (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012). • Field investigation to confirm boundaries and type of vegetation communities (ELC).	No interior habitat >10ha in size is present within 120m of the project location (interior habitat analysis included in Appendix D of this report).	None identified.	No	No habitat identified within 120m of the project location.
	Turtle Nesting Areas	Exposed mineral soil (sand or gravel) less than 100m from the follow ECL Ecosite types: MAM2, MAM3, MAM4, MAM5, MAM6, MAM1, MAM2, SAS1, SAM1, SAF1, BOO1, FEO1,	• Review of orthophotography for potential habitat including lakes, ponds, aquatic habitat and any areas of open sand/gravel areas. • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of access roads (Appendix D Table 16 of the NHAG. • Where suitable aquatic habitat or ecosites were noted, search for areas of gravel or sand, or areas of soils in sunny locations.	Two areas of exposed sand/gravel were noted in proximity to wetland ecosites ELC 214 (exposed gravel ridge area within agricultural field); and, ELC 415 and 416 (dugout ponds that are open aquatic communities with exposed rocky soils around pond margins. Ponds 415 and 416 are reported to contain Snapping turtle by landowner. Candidate SWH is identified as: ELC 214 (WH-TN-01) (photo below)  ELC 415 (WH-TN-02) and 416 (WH-TN-03) (representative photo below showing pond and exposed sand/gravel edge) 	A total of 3 Candidate SWHs of this type were identified (Figure 20): WH-TN-01 WH-TN-02 WH-TN-03	Yes	Yes potential for habitat within 120m of overhead/ underground collection lines.

Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
	Seeps and Springs	Areas where groundwater comes to the surface. Any forested ecosite within the headwater areas of a stream could have seeps/springs	Candidate Significant Wildlife Habitat of this type was scoped according to Appendix D Table 16 of the NHAG (OMNR 2011a).	Based on landscape and geographic conditions, potential habitat of this type was determined to be within 120m of the Project Location and was therefore carried forward as Generalized Candidate SWH.	In or within 120m of the Project Location.	No	Yes, potential for habitat within 120m of project location.
	Amphibian Breeding Habitat (woodland)	Species including Eastern newt, Blue-spotted salamander, Spotted salamander, Gray treefrog, Spring peeper, Western chorus frog, Wood frog; Ecosites include FOC, FOM, FOD, SWC, SWM, SWD. Breeding pools within woodland or shortest distance from forest habitat are more significant as they are more likely to be used.	• Review of orthophotography for potential habitat in suitable ecosites. • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of access roads (Appendix D Table 16 of the NHAG. • Search for presence of permanent or temporary pools that hold water until July.	Various woodland pools or wetland pools were noted in or within 120m of the project location that may provide suitable amphibian breeding habitat.	A total of 22 Candidate SWHs of this type were identified (Figure 21): Wet area within 36(WH-ABWO-01), 38(WH-ABWO-02), 40(WH-ABWO-03), 51(WH-ABWO-04), 55(WH-ABWO-05), 56(WH-ABWO-06), 54/61/62/63(WH-ABWO-07), 397(WH-ABWO-08), 392(WH-ABWO-09), 136/269/81 (WH-ABWO-10), 415/416(WH-ABWO-11), 121/134(WH-ABWO-12), 118/119(WH-ABWO-13), 120(WH-ABWO-14), Part of ELC 124(WH-ABWO-15), 117(WH-ABWO-16), 115(WH-ABWO-17), 234/241/248/106/250 (WH-ABWO-18), 414(WH-ABWO-19), 111(WH-ABWO-20), 222/103/243(WH-ABWO-21), 105(WH-ABWO-22)	Yes	Yes potential for habitat within 120m of overhead/ underground collection lines.
	Amphibian Breeding Habitat (wetlands)	Species including: 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 Ecosites SW, MA, FE, BO, OA, and SA.	• Review of orthophotography for potential habitat in suitable ecosites. • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of access roads (Appendix D Table 16 of the NHAG. • Search for presence of permanent or temporary pools greater than 500m^2 during site investigation.	No isolated wetlands or pools are identified as greater than 120m from woodlands, and as a result, all amphibian breeding habitat will be assessed under the Amphibian Breeding Habitat (woodlands) criteria above.	None identified.	No	Yes potential for habitat within 120m of overhead/ underground collection lines.

Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
Habitat for Species of Special Concern	**Marsh Bird Breeding Habitat**	Species including: American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Sedge Wren, Common Loon, Sandhill Crane, Green Heron, Trumpeter Swan **Special Concern:** Black Tern, Yellow Rail ELC Ecosites including: MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, FEO1, BOO1 For Green Heron: All SW, MA and CUM1 sites. Threshold numbers of species identified in criteria.	• Search for areas of marsh or open water habitat on orthophotography • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of turbine locations (Appendix D Table 16 of the NHAG. • Look for wetland habitat with suitable characteristics during site investigation.	Numerous ELC ecosites were identified within 120m of project components. An additional OAO ecosite type was identified although not of the ELC ecosite type listed in the criteria, but was flagged for consideration due to characteristics of the site (presence of Green Heron) (ELC unit 51).	A total of 14 Candidate SWHs of this type were identified (Figure 22): Green heron ecosite types: 136, 137, 268, 269, 392 (WH-MBB-01), 33(WH-MBB-02), 117(WH-MBB-03), 234(WH-MBB-04), 103(WH-MBB-05), 120(WH-MBB-06), 124 (WH-MBB-07), 119(WH-MBB-08), 40(WH-MBB-09), 121(WH-MBB-10), 38(WH-MBB-11), 51(WH-MBB-12), 132(WH-MBB-13), All other ecosite types: 397(WH-MBB-14).	Yes	Yes potential for habitat within 120m of overhead/ underground collection lines.
	Woodland Area Sensitive Bird Breeding Habitat	Species include: 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 Community ecosite types: FOC, FOM, FOD, SWC, SWM, SWD Woodlots>30h; typically 60 years old or older, deep interior habitat >200m from edge.	• Review orthophotography and woodlands data layers from County of Grey to review woodland habitat size; • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of the project location. • Review woodland habitat characteristics while completing ELC during site investigation.	Based on a review of deep interior habitat (>200m interior from forest edge), there is no deep interior habitat in or within 120m of project location. Deep interior habitat assessment site investigation analysis Figure is shown in Appendix F.	None identified.	No	No suitable habitat identified within 120m of the project location.

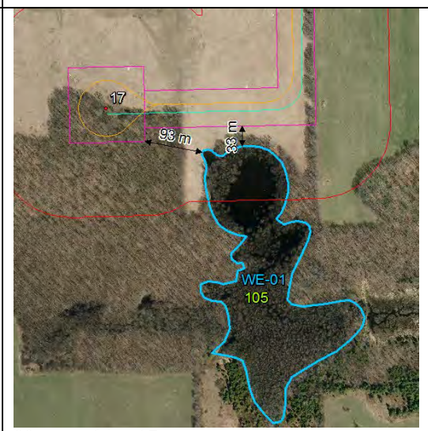
Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
	Open Country Bird Breeding Habitat	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl CUM1 and CUM2 Ecosites, of size >30ha, not under active agricultural use in the last 5 years.	• Review of orthophotography for suitable habitat types; • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of the project location.	No CUM communities of 30ha or larger are identified in or within 120m of project location.	None identified.	No	No suitable habitat within 120m of the project location.
	Shrub/Early Successional Bird Breeding Habitat/ Declining Guild Shrubland Birds	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species Areas >10ha in size.	• Candidate Significant Wildlife Habitat of this type was scoped according to Appendix D Table 16 of the NHAG (OMNR 2011a) which requires habitat to be identified where it occurs within 120m of turbine locations. • Review of orthophotography for suitable habitat types; • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of turbine components.	None of the criteria ecosites identified within 120m of proposed turbine location were larger than 10ha in size when assessed as stand-alone ELC units; and, none of the criteria ecosites were situated in proximity to each other such that they would be considered candidates for complexing for evaluation of this type of SWH. Areas within 120m of other project components were carried forward as Generalized Candidate SWH.	None identified	No, all suitable ecosites within 120m of turbine locations do not meet size criteria.	Yes potential for habitat within 120m of overhead/ underground collection lines.

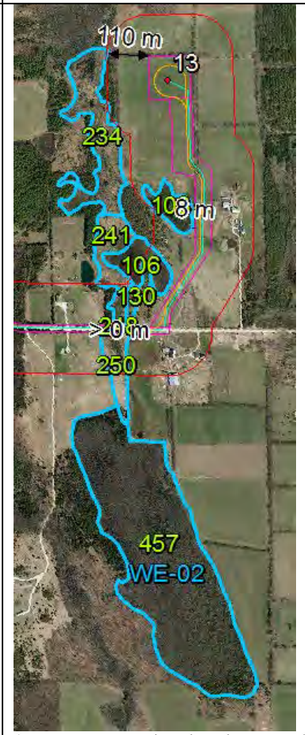
Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
	Terrestrial Crayfish	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish; (*Cambarus Diogenes*) MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3	Candidate Significant Wildlife Habitat of this type was scoped according to Appendix D Table 16 of the NHAG (OMNR 2011a).	Habitat of this type was determined to be within 120m of the Project Location and was therefore carried forward as Generalized Candidate SWH.	In or within 120m of the Project Location.	No	Yes, potential for habitat within 120m of project location.
	Special Concern and Rare Wildlife Species	Based on information obtain in records review, S1- S3, SH and SC or rare wildlife species for the project area include: Canada Warbler Common Nighthawk Golden-winged Warbler Red-headed Woodpecker Short-eared Owl Clamp-tipped Emerald Harlequin Darner Monarch Northern Long-eared Bat Small-footed (Least) Bat Hart's Tongue Fern Moss (Pottia intermedia) Scarlett Beebalm Milksnake Eastern Ribbonsnake Snapping Turtle	• Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of the project location. • Documentation of vascular plants and wildlife during ELC surveys. • Consideration of potential habitat for SC species lists.	Several SC and S1 to S3 species were identified during records review as potentially occurring within the study area. Short-eared owl- This species requires large contiguous (75-100ha) tracts of good quality grassland or marsh habitat (OMNR 2000) that is not present in or within 120m of the project location. Ruled out at SI. Based on the SI ELC results and consideration of potential habitat, all other species were carried forward to the EOS.	All areas in or within 120m of the project location will be screened for the species listed through compilation of a vascular plant and wildlife database.	Yes	Yes potential for habitat within 120m of overhead/ underground collection lines.
Animal Movement Corridors	**Amphibian Movement Corridors**	Indicator Species: Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (**Amphibian Breeding Habitat –Wetland)** in the Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	• Review of orthophotography for potential habitat in suitable ecosites; • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of the project location. • Search for presence of permanent or temporary pools that hold water until July to identify potential habitat for Amphibian Breeding Habitat –Wetland.	No Amphibian Breeding Habitat –Wetland identified (see above description under Rare Vegetation Communities or Specialized Habitat for Wildlife: Amphibian Breeding Habitat (Wetland).	None identified.	No	No suitable habitat identified within 120m of the project location.

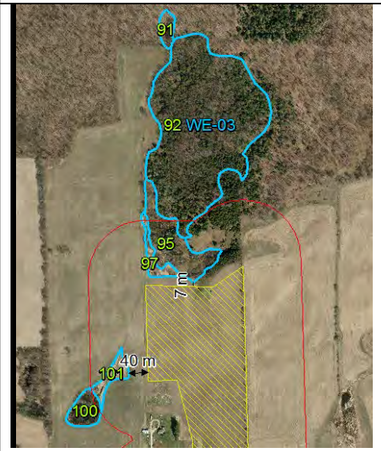
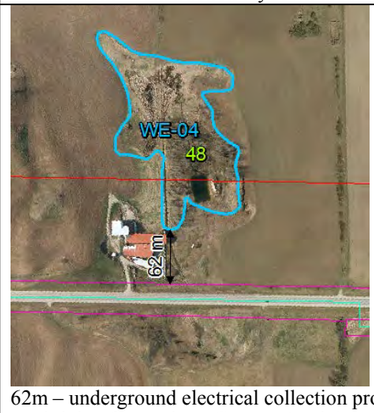
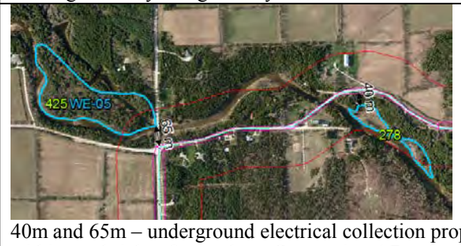
Type of Candidate Significant Wildlife Habitat		Summary of Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted	Results of Investigation and Rationale for Carrying Forward	ELC/Feature ID of Candidate SWH	Carried Forward to Evaluation of Significance? (yes/no)	
						Candidate SWH	Generalized Candidate SWH
	Deer Movement Corridors	Indicator Species: White-tailed Deer corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	• Review of orthophotography for potential habitat in suitable ecosites and identification of potential wildlife corridors associated with watercourses; • Field investigation to confirm boundaries and type of vegetation communities (ELC) in or within 120m of the project location.	Forested ecosites were documented in or within 120m of the project location adjacent to confirmed Deer Yarding Areas and associated with the riparian corridor of the Saugeen River. All areas identified were within 120m of proposed underground collection; therefore this type of habitat was carried forward to the EIS as Generalized Candidate SWH using Appendix D of the Natural Heritage Assessment Guide. (see figure below) 	None identified.	No	Yes potential for habitat within 120m of overhead/ underground collection lines.

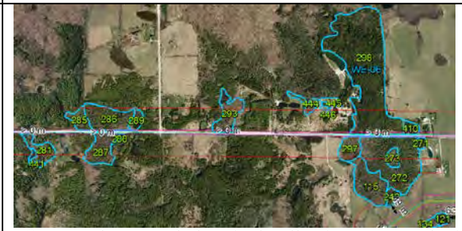
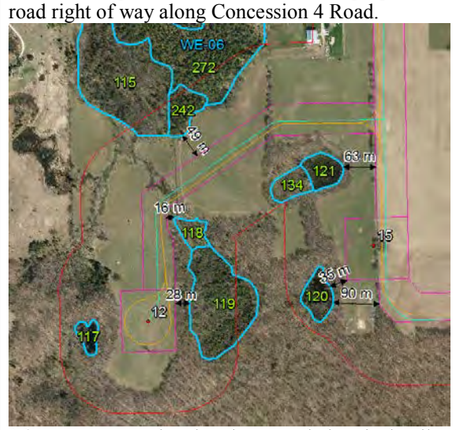
NOTE: *work done by Natural Resource Solutions Inc. and reported on in the East Durham Wind Energy Centre Bat Monitoring Report and Environmental Impact Study (NRSI, 2012).

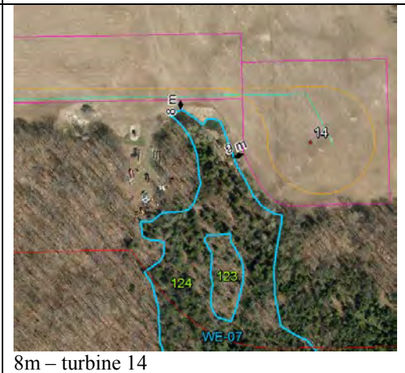
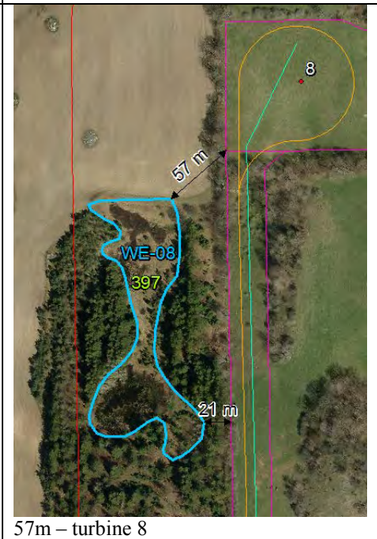
Table 7: Summary of Results of Site Investigation.
Note: larger mapping for Candidate Significant Wetlands (Figure 12), Candidate Significant Woodlands (Figure 13, and Figures 24-24k), Candidate Significant Valleylands (Figure 14), and Candidate Significant Wildlife Habitat (Figures 15 to 22) are presented at the end of the report text.

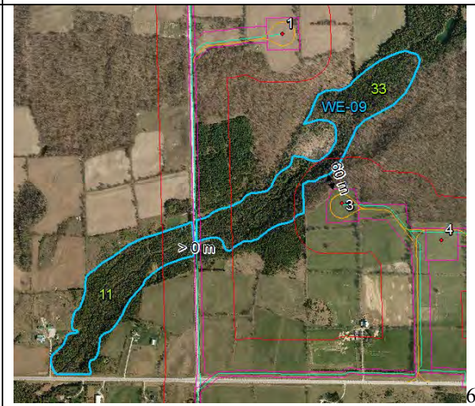
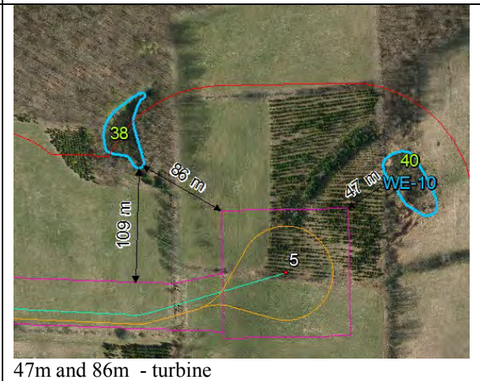
Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/ No)
Wetland 1 WE-01	5.41	Unknown	105 – (hS1) Red maple deciduous swamp-ephemeral pond	Pond surrounded by red maples and occasional white elm. In open water- sedges, manna grass, water parsnip, reed-canary grass, and sensitive fern.	Potential groundwater recharge Potential habitat for rare wetland fauna and flora. Potential marsh breeding bird habitat. Adjacent to amphibian woodland breeding habitat. Potential flood attenuation. Potential water quality improvement. Potential for social and recreational activities. Potential habitat for turtles. Potential for waterfowl breeding habitat.	 93m – turbine 17 33m - access road/ underground collection to turbine 17	33m	Yes

Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/ No)
Wetland 2 WE-02	29.79	Unknown	106(tsS1)/108(tsS2)-Willow swamp thicket 130(cS3)-Tamarack Coniferous Swamp 234(hS4)/248(hS5)-Balsam Poplar Deciduous swamp/meadow marsh 241(neM1)-Narrow leaved sedge meadow marsh 250 (hS6)-White Elm Deciduous swamp 457(cS7) coniferous swamp	Swamps: 108(tsS2)- Dominated by willow sp. with a few maple sp., red-osier dogwood, boneset, narrow-leaved meadowsweet, bulrush sp. mud sedge, marsh horsetail 106 (tsS1)contains small dug pond dominated by watercress, spike rush. 130(cS3)-Tamarack dominant swamp with white cedar, balsam poplar, willows. 234(hS4)/248(hS5)-White elm, balsam poplar, trembling aspen dominant with some tamarack, white cedar. Lanced-leaved aster, sedges, reed canary grass. 250(hS6)- Dominated by white elm, with red maple, willows. 457(cS7) coniferous swamp Meadow marsh: 241(neM1)-Dominated by sedges, rice cut grass, reed-canary grass, timothy grass.	Potential groundwater recharge Potential habitat for rare wetland fauna and flora. Functions to improve water quality. Potential habitat for colonial nesting birds. Potential waterfowl breeding habitat. Potential water quality improvements. Potential flood attenuation. Potential ground water recharge.	 8m – access road and underground electrical collection to turbine 13 110m – turbine 13 >0m - – underground electrical collection proposed for installation within road right of way along Southline Rd.	>0m	Yes

Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/ No)
Wetland 3 WE-03	8.98	Unknown	91(hS1)- deciduous swamp 92(cS2)- balsam fir white cedar coniferous swamp 95(hS3)- Balsam poplar deciduous swamp, willow swamp thicket 97(neM1)- Meadow marsh 100(hS4)- Deciduous swamp (depression) 101(neM2)- meadow marsh	Swamps 95(hS3)/100(hS4)-Balsam poplar, willow sp., Red Maple 92(cS2)- Dominated by Balsam fir with eastern white cedar, red maple, and black ash. Mixture of wetland species in depressions and upland species on the knolls. ***91(hS1)-subunit beyond 120m (no composition details available)*** Meadow Marshes (97(neM1), 101(neM2)): Both dominated by reed canary grass	Potential habitat for rare wetland fauna and flora. Potential flood attenuation. Potential water quality/quantity improvements. Potential for social and recreation activities. Potential ground water recharge.	 7m and 40m - construction laydown area	7m	Yes
Wetland 4 WE-04	1.937	Unknown	48(reM1) - Cattail shallow marsh	Dominated with Broad leaved cattail with Balsam polar , reed canary grass, lance leaved goldenrod.	Potential habitat for rare wetland fauna and flora. Potential for flood attenuation. Potential ground water recharge. Potential water quality/quantity improvements.	 62m – underground electrical collection proposed within road right of way along County Road 4.	62m	Yes
Wetland 5 WE-05	6.2761	Unknown	278(neM1) - Forb meadow marsh- within the floodplain of the Saugeen Creek. 425(hS1) – balsam poplar willow deciduous swamp	Swamp 425(hS1) – balsam poplar swamp associated with Saugeen River Marsh 278(neM1) -Dominated by a mix of milkweed, purple angelica, marsh marigold , spotted water hemlock. And a few hybrid willow trees, apple and hawthorns.	Potential groundwater recharge Potential habitat for rare wetland fauna and flora. Functions to improve water quality and quantity. Potential fish habitat. Potential flood attenuation. Potential wildlife corridor and linkage too the natural features. Potential habitat for deer.	 40m and 65m – underground electrical collection proposed within road right of way along Concession 4 Road and County Road 23.	40m	Yes

Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/ No)
Wetland 6 WE-06	44	Unknown	115(hS13)/117(hS20)/118(hS17)/134(hS15)-Red Maple deciduous Swamp 119(cS18)-Red Maple balsam fir coniferous Mixed Swamp 242(cS14)- Balsam fir white cedar coniferous swamp 271(cS21)/298(cS8)- White cedar coniferous swamp 272(cS11)/286(cS4)-Tamarack balsam fir coniferous swamp 281(hS1)- Balsam poplar and black ash deciduous swamp 285(hS3)- Black ash, balsam fir, tamarack mixed swamp 293(hS6)-Balsam poplar and black ash deciduous swamp 410(cS9)- white cedar coniferous swamp 121(tsS16)/287(tsS5)/297(tsS10)/444(tsS7)- willow swamp thicket 120(tsS19)- willow thicket swamp/red maple swamp (ephemeral) 288(neM1)- forb shallow marsh 289(reM1) cattail shallow marsh 273(neF1)-Slender sedge open fen 441(tsS1)/444tsS7)-mineral swamp thicket 445(suM3)-reed-canary grass mineral meadow marsh 446 (neM4) – forb meadow marsh	<u>Swamps:</u> 115(hS13)/117(hS20)/118(hS17)/134(hS15)-all dominated by red maple, with other species including yellow birch, red ash and white elm (117 hS20), black ash (115 hS13), sugar maple, with some balsam fir and black ash (118 hS17), and ashes, trembling aspen, yellow birch and sugar maple (134hS15-disturbed by cattle). 119(cS18)-dominated by Red maple, black ash and balsam fir, yellow birch and white cedar. 242(cS14)- balsam fir, with occasional white cedar, mountain ash red-osier dogwood, willow 271(cS21)/298(cS8)- dominated by white cedar with occasional tamarack 272(cS11)/286(cS4)- dominated by tamarack and balsam fir with occasional black ash 281(hS1)-dominated by black ash, red maple and white elm. 285(hS3)- dominated by a mixture of black ash, white cedar, and balsam fir with a few trembling aspen. Young black ash and white cedar are also present. 293(hS6)- Dominated by a mixture of black ash, red maple and white elm. 410(cS9)- Dominated by white cedar with occasional tamarack <u>Thicket Swamps</u> 121(tss16)/287(tsS5)/297(tsS10)- dominated by willows with only a few scattered black ashes or Red maple. Occasional hybrid willow and black ash trees (297(tsS10)). 441(tsS1)/444(tsS7)- Dominated by shrubs-willow and dogwood. At 444(tsS7), trees form a minor component-composed of red maple, tamarack, and white elm. Turtlehead, spotted joe-pye weed, reed-canary grass, sensitive fern, and narrow-leaved cattail also present. 120(tsS19)- Slender willow, and red-osier dogwood with red maple <u>Fen</u> 273(neF1)- Few scattered cedar and tamarack. Dominated by sedges, marsh cinquefoil, small cranberry, pitcher plant, orchids.	Potential groundwater recharge Potential habitat for rare wetland fauna and flora. Functions to improve water quality and quantity. Potential habitat for turtles. Potential amphibian woodland habitat. Potential waterfowl breeding habitat. Potential colonial nesting habitat. Potential habitat for marsh breeding birds. Potential for social and recreation activities.	 >0m – underground electrical collection proposed within road right of way along Concession 4 Road.  16m – access road and underground electrical collection to turbine 12. 28m – turbine 12	>0m – underground collection along Concession 4 Road.	Yes

Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/ No)
				Marshes 2889neM1)-Dominated by bull-head pond lily with occasional broad-leaved cattails, pussy willow, Lance-leaved aster, spotted joe-pye weed. 289(reM1)/ - cattail dominant with a few tamarack, white cedar, and balsam poplar , and Bullhead pond-lily at 289(reM1). 445(suM3) – shallow marsh 446(neM4)-forb meadow marsh.				
Wetland 7 WE-07	3.086	Unknown	123(gcM1)- forb mineral deciduous swamp 124 (hS1)- black ash deciduous swamp	Deciduous swamps 124(hS1)- Dominated by Black ash with occasional red maple and balsam fir with red-osier dogwood, willows and narrow leaf meadowsweet. Marsh: 123(gcM1)- Dominated by forbs such as spotted joe-pye weed, buttercup, lance-leaved goldenrod, ferns and sedges. Occasional red ash and balsam fir.	Potential groundwater recharge. Potential habitat for rare wetland fauna and flora. Potential habitat for colonial nesting birds. Potential flood attenuation. Potential for water quality and quantity improvements. Potential for social and recreational activities.	 8m – turbine 14	8m	Yes
Wetland 08 WE-08	0.866	Unknown	397(neM1) - Mineral Meadow Marsh	No species composition information	Potential habitat for rare wetland fauna and flora. Potential for amphibian woodland breeding habitat. Potential for flood attenuation. Potential for water quality/quantity improvements. Potential ground water recharge.	 57m – turbine 8 21m –access road and underground collection to turbine 8	21m	No <2ha in size

Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/ No)
Wetland09 WE-09	24.790	Unknown	11(cS1)/33(cS2) - Tamarack balsam fir coniferous swamps	Dominated by tamarack, balsam fir with occasional black ash and red maple.	Potential groundwater recharge Potential habitat for rare wetland fauna and flora. Functions to improve water quality and quantity. Potential fish habitat. Potential flood attenuation. Potential wildlife corridor.	 60m – turbine 3 >0m – underground electrical collection proposed for installation within road right of way along Southline Rd.	>0m – underground collection along Baptist Church Rd.	Yes
Wetland 10 WE-10	0.341	Unknown	38(tsS1)-Red osier dogwood swamp thicket 40(tsS2)- Willow swamp thicket Both ponds ephemeral	38(tsS1)- Red-osier dogwood with balsam poplar 40(tsS2)- Dominated by willows and contains meadow species such as spotted joe-pye weed, lance leaved aster and lance leaved goldenrod.	Potential habitat for wetland fauna and flora. Potential turtle habitat. Potential amphibian habitat. Potential flood attenuation. Potential water quality/quantity improvements.	 47m and 86m - turbine 109m -road/ underground collection to turbine 5	47m	No <2ha in size and no specialized function.