Environment

Jericho Wind, Inc.

Final Project Description Report – Jericho Wind Energy Centre

Prepared by:

AECOM
300 – 300 Town Centre Boulevard 905 477 8400 tel
Markham, ON, Canada L3R 5Z6 905 477 1456 fax
www.aecom.com

Project Number:

60155032

Date:

February, 2013

Table of Contents

List of Figures

List of Tables

Appendices

Glossary of Terms

ABCA..... Ausable Bayfield Conservation Authority
ANSI ..... Area of Natural and Scientific Interest
DFO ..... Federal Department of Fisheries and Oceans
EIS..... Environmental Impact Study
mbgs..... metres below ground surface
MOE ..... Ontario Ministry of the Environment
MNR ..... Ontario Ministry of Natural Resources
MTCS ..... Ontario Ministry of Tourism, Culture and Sport
MTO..... Ontario Ministry of Transportation
MW ..... Megawatt
O.Reg. 359/09..... Ontario Regulation 359/09
PDR ..... Project Description Report
PCC ..... Point of Common Coupling
The Project ..... Jericho Wind Energy Centre
REA ..... Renewable Energy Approval
SCADA ..... Supervisory Control and Data Acquisition
SCRCA ..... St. Clair Region Conservation Authority
TC ..... Transport Canada

1. General Information

This Project Description Report (PDR) was prepared in accordance with the requirements of the Renewable Energy Approval Process outlined in *Ontario Regulation 359/09* (*O.Reg. 359/09*) and the Technical Guide to Renewable Energy Approvals (Ministry of the Environment (MOE), 2011).

1.1 Name of Project and Applicant

Jericho Wind, Inc., a wholly owned subsidiary of NextEra Energy Canada, ULC, (NextEra) is proposing to construct a wind energy project in the Municipality of Lambton Shores and the Township of Warwick, in Lambton County, Ontario and in the Municipality of North Middlesex, in Middlesex County, Ontario (**Figure 1-1**). The Project is referred to as the Jericho Wind Energy Centre (the "Project"). All turbines will be located on private lands.

Figure 1-1 shows the Project Study Area.

The Project will be owned and operated by Jericho Wind, Inc., a subsidiary of NextEra. NextEra Energy Canada's indirect parent company is NextEra Energy Resources, LLC, a global leader in wind energy generation with a current operating portfolio of over 100 wind energy projects in North America. Wind farms currently owned and operated by NextEra Energy Canada include: Mount Copper and Mount Miller (both 54 megawatt (MW)), located in Murdochville, Quebec; Pubnico Point, (31 MW) located near Yarmouth, Nova Scotia; Ghost Pine (82 MW), located in Kneehill County, Alberta; and Conestogo (23 MW) located in Wellington County, Ontario.

1.2 Project Study Area

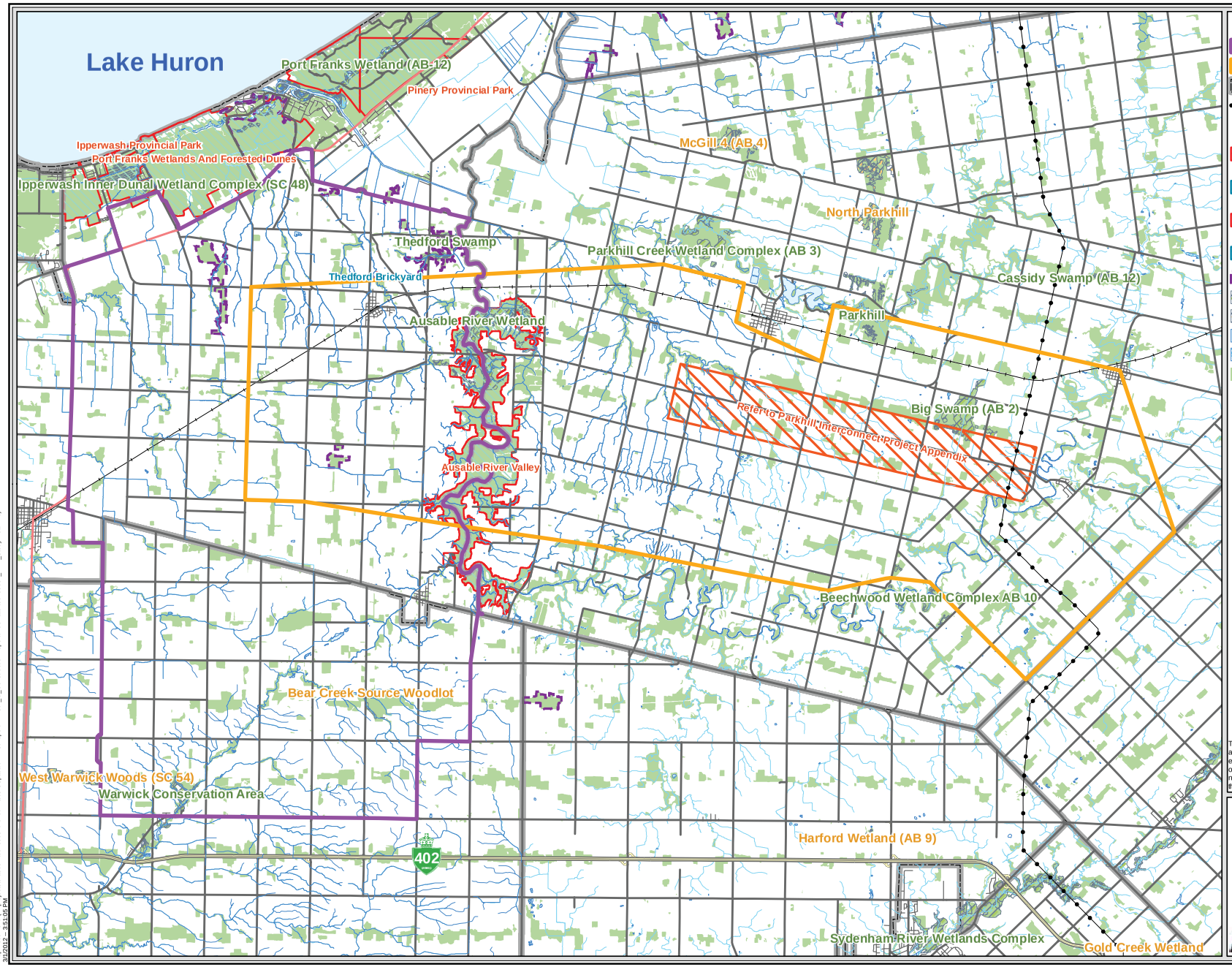
The proposed Project is located in the Municipality of Lambton Shores and the Township of Warwick, in Lambton County, Ontario and in the Municipality of North Middlesex, in Middlesex County, Ontario. The Project Study Area consists of the areas being studied for the wind energy component (Wind Energy Centre Study Area), as well as for the interconnection route (i.e., the area being studied for transmission lines to connect the Project to the electrical grid) (Transmission Line Study Area). The Wind Energy Centre Study Area is generally bounded by Lakeshore Road/Bog Line to the north, Egremont Road to the south, the Lambton Shores/North Middlesex municipal boundary to the east and Rawlings Road/Elarton Road to the west, in Lambton County. The Transmission Line Study Area is generally bounded by Kennedy Line, Parkhill Drive and Elginfield Road to the north, Jura Line, Elm Tree Drive and Poplar Hill Road to the south, Fernhill Drive to the east, and the Jericho Road to the west, in Lambton and Middlesex Counties.

The location of the Project Study Area was defined early in the planning process for the proposed wind energy facility, based on the availability of wind resources, approximate area required for the proposed project, and availability of existing infrastructure for connection to the electrical grid. The Project Study Area was used to facilitate information collection.

The following UTM co-ordinates define the external boundaries of the Project Study Area.

UTM Coordinates

Easting	Northing
420938	4761752
419681	4780912
456597	4777307
453312	4766484



Legend

- Wind Energy Centre Study Area
- Transmission Line Study Area
- Municipal Division
- Existing 500kV Transmission Line

Natural Features

- Provincially Significant Life Science ANSI
- Regionally Significant Life Science ANSI
- Provincially Significant Earth Science ANSI
- Regionally Significant Earth Science ANSI
- ESA (ABCA)
- Provincial Significant Wetland
- Locally Significant Wetland
- Waterbody
- Cartographic Wetland
- Wooded Area

N
W E
S

Kilometers

0 1.5 3 6

1:125,000

UTM Zone 17N, NAD 83

Jericho Wind Energy Centre
Project Description Report

Project Study Area

February 2013
Project 60155032

AECOM

Figure 1-1

1.3 Land Ownership

Appendix A provides a legal description of the properties on which project infrastructure will be sited. All privately owned properties are under agreement with Jericho Wind, Inc.

1.4 Description of Energy Source, Nameplate Capacity and Class of the Facility

The wind turbine technology proposed for this Project is the GE 1.6-100 Wind Turbine. With a total nameplate capacity of up to 150 MW, the Project is categorized as a Class 4 facility. The technical specifications for this model of turbine are detailed in Section 2.1.1 of this PDR.

1.5 Key Contacts

Project Proponent	Project Consultant
Ross D. Groffman Project Director NextEra Energy Canada, ULC 390 Bay Street, Suite 1720 Toronto, Ontario, M5H 2Y2 *Phone:*.....416.364.9714 *Email:* .....Jericho.Wind@NextEraEnergy.com *Website:* ..www.NextEraEnergyCanada.com	Marc Rose Senior Environmental Planner AECOM 300-300 Town Centre Blvd. Markham, Ontario, L3R 5Z6 *Phone:* ....905.477.8400 x388 *Email:*.....marc.rose@aecom.com

1.6 Other Approvals Required

It is anticipated that in addition to the REA, permits and certificates of approval may be required from approval agencies before construction can begin. These may include: an Oversize/Overweight Permit from the Ontario Ministry of Transportation (MTO); Archaeological Clearance from the Ontario Ministry of Tourism, Culture and Sport (MTCS); Fisheries Act Authorizations from the Federal Department of Fisheries and Oceans (DFO); Aeronautical Obstruction Clearance from Transport Canada; a Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Permit from the Ausable Bayfield Conservation Authority (ABCA) and the St. Clair Region Conservation Authority (SCRCA); and lastly, other permits or authorizations from the Ontario Ministry of Natural Resources (MNR) or Lambton/Middlesex County.

1.7 Federal Involvement

A Federal environmental assessment is not anticipated for the Project, as it is not considered a designated project under the *Canadian Environmental Assessment Act, 2012*.

1.8 Commitments for Future Studies

Jericho Wind, Inc. has identified future studies that will need to be carried out before and during the construction, operation, and decommissioning of the Project based on the results of the effects assessment. These studies are listed in Table 1-1 below.

Table 1-1 Commitments for Future Studies

No.	Timing of Commitment	Location within the Project	REA Commitment	REA Report Reference
1	Pre-Construction	Disturbance Areas	Undertake surveys to locate all project infrastructure.	Construction Plan; Section 2.2 (Surveying and Geotechnical Study Activities)
2	Pre-Construction	Turbine Foundation	Conduct geotechnical sampling for all turbine foundation locations.	Construction Plan; Section 2.2 (Surveying and Geotechnical Study Activities)
3	Pre-Construction	Culvert	Determine specific culvert details and erosion control measures in conjunction with the Ausable Bayfield Conservation Authority (ABCA) and St. Clair Region Conservation Authority (SCRCA).	Construction Plan; Section 2.2 (Land Clearing and Construction of Access Roads)
4	Pre-Construction	Project Study Area	Develop a Road Use Agreement and Traffic Management Plan and provide to Municipalities.	Construction Plan; Section 2.2 (Delivery of Equipment) / 3.6
5	Pre-Construction	Project Study Area	Conduct a Stormwater Pollution Prevention Study to address potential effects of stormwater runoff during construction, operations and decommissioning.	Design & Operations; Section 3.7
6	Pre-Construction	Disturbance Areas	Complete Stage 3 Archaeological Assessment and potentially Stage 4 Archaeological Assessment to avoid displacement or disturbance of any archaeological resources identified in Stage 2 Archaeological Assessment by the construction of Project infrastructure.	Construction Plan; Section 3.1
7	Pre-Construction	Candidate Significant Wildlife Habitats	Complete Evaluation of Significance studies for: • Waterfowl (Tundra Swan) stopover and staging areas (terrestrial); • Waterfowl stopover and staging areas (terrestrial); • Waterfowl stopover and staging areas (aquatic); • Raptor wintering area; • Bat maternity colonies; • Turtle wintering areas; • Reptile hibernacula; • Bald Eagle and Osprey nesting, foraging and perching habitat; • Turtle nesting habitat; • Seeps and springs; • Amphibian woodland breeding habitat; • Amphibian wetland breeding habitat; and • Amphibian movement corridor.	Natural Heritage Assessment; Section 4.3.4
8	Pre-Construction	Disturbance Areas	Develop an erosion and sediment control plan.	Construction Plan; Section 3.2
9	Pre-Construction	Disturbance Areas	Develop a Spill Response Plan.	Construction Plan; Section 3.2 Design & Operations; Section 6.2.1/6.3.2.1
10	Pre-Construction	Disturbance Areas	Undertake active nest surveys if clearing of vegetation cannot be avoided during breeding season for migratory birds.	Construction Plan; Section 3.2
11	Pre-Construction	Disturbance Areas	Prepare a Compensation Plan in consultation with MNR and Conservation Authorities.	Construction Plan; 3.2 Design and Operations; 6.2.1
12	Pre- and Post-Construction	Project Study Area	Undertake roads condition survey pre- and post-construction.	Construction Plan; Section 3.6
13	Post-Construction	Disturbance Areas	Conduct post-construction monitoring to assess potential negative effects to significant wildlife habitats: • Waterfowl (Tundra Swan) stopover and staging areas (terrestrial); • Raptor wintering area; • Bat maternity colonies; • Reptile hibernacula; • Bald Eagle and Osprey nesting, foraging and perching habitat; • Turtle nesting habitat; • Amphibian woodland breeding habitat; • Amphibian wetland breeding habitat; • Amphibian movement corridor.	Design and Operations; Section 6.2.1
14	Post-Construction	Disturbance Areas	Conduct post construction bird and bat mortality monitoring at specific turbine locations.	Design and Operations; Section 6.2.1

2. Project Information

2.1 Facility Components

As shown in **Figure 2-1**, the major components of the Project are proposed to be:

- 97 GE 1.6-100 Wind Turbine generator locations and pad mounted step-up transformers (however, only approximately 92 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 for the purposes of providing temporary storage of construction materials and temporary construction offices and ancillary equipment such as electrical service from the local electrical distribution line;
- A transformer substation and ancillary equipment;
- 34.5 kV electrical collection lines to connect the turbines to the proposed transformer substation and other ancillary equipment such as above-ground junction boxes;
- A 115 kV transmission line to run from the proposed Project transformer substation to the proposed Bornish switchyard. A common 115 kV transmission line will carry electricity from the proposed Adelaide, Bornish and Jericho Wind Energy Centres to a Point of Common Coupling (PCC) on Hydro One's 500 kV transmission line;
- Turbine access roads;
- Permanent meteorological towers; and
- An operations and maintenance building and ancillary equipment such as an electrical service line connected to the local distribution service.

The above mentioned Project components, with the exception of the common 115 kV transmission line from the Bornish switchyard to the PCC, are depicted in **Figure 2-1**. Please refer to **Appendix B** for the Parkhill Interconnect Renewable Energy Approval Project Description Report (GLGH, 2012).

2.1.1 Turbine Specifications

With a total nameplate capacity of up to 150 MW, the Project is categorized as a Class 4 wind facility under *O. Reg. 359/09*. Although Jericho Wind, Inc. is seeking an REA for up to 97 turbine locations, approximately 92 turbines are proposed to be constructed for the Project.

The wind turbine technology proposed for this Project is the GE 1.6-100 Wind Turbine. The turbines are 3-bladed, upwind, horizontal-axis wind turbines that are state of the art technology. The turbines have a 100 m rotor diameter with a swept area of 7,854 m^2; each blade is connected to the main shaft via the hub. The turbine is mounted on an 80 m tubular steel tower which contains an internal ladder provided for maintenance access. The turbine will be constructed on a foundation that is approximately 400 m^2. The foundation consists of poured concrete and steel rebar to provide added strength.

The nacelle houses the main components of the wind turbine such as the rotor shaft, gear box, couplings, control panel, bearing brackets and the generator. The nacelle is equipped with sound-proofing, is ventilated and the interior is illuminated with electric lights. Some of the wind turbines will have external lighting in accordance with the requirements of Transport Canada (TC).

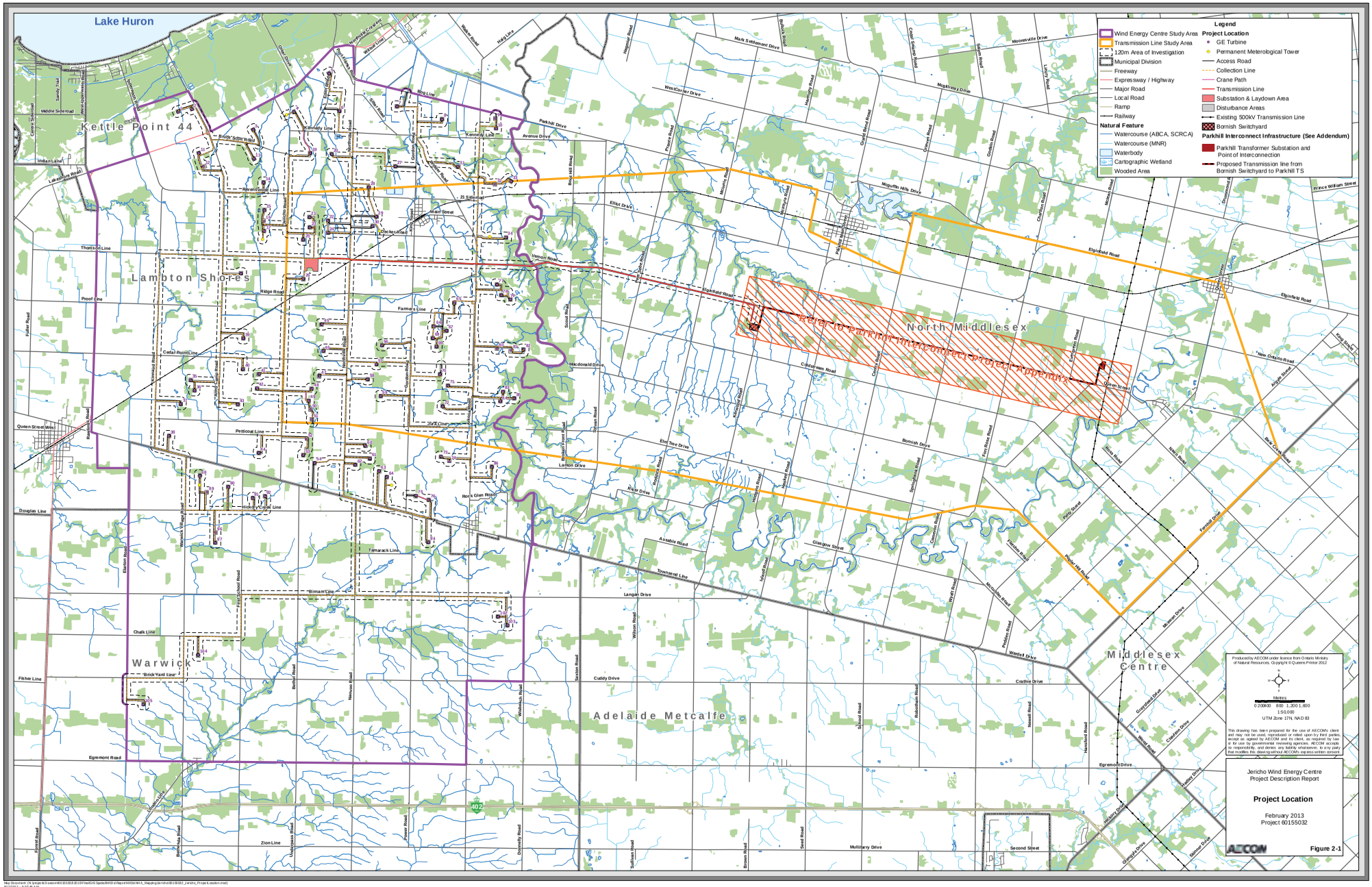

Lake Huron
Kettle Point 44
Lambton Shores
North Middlesex
Warwick
Adelaide Metcalfe
Middlesex Centre
Refer to Parkhill Interconnect Project Appendix
Legend
Project Location
Wind Energy Centre Study Area
Transmission Line Study Area
120m Area of Investigation
Municipal Division
Freeway
Expressway / Highway
Major Road
Local Road
Ramp
Railway
Natural Feature
Watercourse (ABCA, SCRCA)
Watercourse (MNR)
Waterbody
Cartographic Wetland
Wooded Area
GE Turbine
Permanent Meterological Tower
Access Road
Collection Line
Crane Path
Transmission Line
Substation & Laydown Area
Disturbance Areas
Existing 500kV Transmission Line
Bornish Switchyard
Parkhill Interconnect Infrastructure (See Addendum)
Parkhill Transformer Substation and Point of Interconnection
Proposed Transmission line from Bornish Switchyard to Parkhill TS
Produced by AECOM under licence from Ontario Ministry of Natural Resources. Copyright © Queens Printer 2012
Metres
0 200 400 800 1,200 1,600
1:50,000
UTM Zone 17N, NAD 83
This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.
Jericho Wind Energy Centre
Project Description Report
Project Location
February 2013
Project 60155032
AECOM
Figure 2-1

Table 2-1 below provides a summary of the turbine specifications. Please refer to the Wind Turbine Specifications Report (AECOM, 2013) for more detailed information on the wind turbines proposed for the Project.

Table 2-1 Summary of Technical Specifications

Specification	GE 1.6-100 Wind Turbine
Make	General Electric
Model	1.6-100
Name Plate Capacity	1.62 MW
Hub Height	80 m
Rotor Diameter	100 m
Minimum Rotational Speed	9.75 rpm
Maximum Rotational Speed	15.33 rpm

2.1.2 Construction Laydown and Storage Areas

A temporary laydown and storage area will be constructed on privately owned land for the purpose of staging and storing equipment during the construction phase. A temporary electrical service line will be connected to the local distribution line for the purpose of providing electrical power to the construction offices. Activities on this site will include materials storage, equipment refuelling, and construction offices. The area will be approximately 4 hectares (10 acres) in area.

2.1.3 Turbine Laydown and Storage Areas

An approximately 122 m by 122 m square around each wind turbine will be established for the laydown and assembly of the wind turbine components. The construction offices will receive electrical power through a temporary electrical service line connected to the local distribution line.

2.1.4 Collection Lines

The system that connects each turbine to the transformer substation will consist of 34.5 kV electrical collection lines that will be buried approximately 1 m below grade on private property or within the municipal road right-of-way. There may be occasional locations where the collection lines are placed above ground on wood, concrete or steel poles for technical reasons. Above-ground electrical junction boxes will be used to connect sections of collection lines.

2.1.5 Transformer Substation

Approximately two to three hectares in size, the Jericho transformer substation will be located on privately held lands through a lease agreement or on land purchased by Jericho Wind, Inc. The electricity collected via the 34.5 kV collection lines will converge at the transformer substation where the electricity will be “stepped-up” to 115 kV for transmission. The substation equipment is expected to include an isolation switch, a circuit breaker, a step-up transformer, transmission switch gear, control housing, instrument transformers, grounding and metering equipment. All substation grounding equipment will meet the Ontario Electrical Safety Code. The substation will be connected to the existing electrical distribution line to supply power for the control housing lighting and equipment.

2.1.6 Electrical Transmission

A 115 kV transmission line from the Project's transformer substation to the Point of Common Coupling (PCC) on Hydro One's 500 kV transmission line is proposed to be located on private property and within existing road rights-of-way. The proposed transmission line will pass through the Bornish switchyard located in the Transmission Line Study Area where the electricity from the proposed Adelaide and Bornish Wind Energy Centres will converge. From this point, the proposed 115 kV line will carry electricity generated by all three projects to the PCC on the existing Hydro One 500 kV transmission line. A separate report has been prepared to describe the section of the transmission line between the Bornish switchyard and the PCC and is appended to this report (refer to **Appendix B**).

It is anticipated that the transmission line will be overhead and mounted on new transmission line poles. There may be occasional places where the line is placed underground for technical reasons. The poles are proposed to be constructed of wood, concrete or steel and typically will be between 18 m and 30 m tall.

The interconnection plan for a wind energy centre is subject to study, design and engineering by: (a) the Independent Electricity System Operator which manages the province's electricity grid; (b) Hydro One; and (c) the Ontario Energy Board, which regulates the industry through the Transmission System Code and the Distribution System Code.

2.1.7 Access Roads

On-site access roads to each turbine will be constructed to provide an access point to the properties for equipment transport during the construction phase and for maintenance activities during operation. Typically the access roads will be between 10 m and 20 m wide during the construction phase to accommodate the large cranes (with an additional clearance on each side for travel).

2.1.8 Operations and Maintenance Building

An operations and maintenance building, approximately 30 m by 15 m in size, is scheduled to be constructed on privately held lands (on or near the same parcel as the substation for the Project) for the purpose of monitoring the day-to-day operations of the wind energy centre and supporting maintenance efforts. A small parking lot will be constructed to accommodate vehicles. Prior to the construction phase, a Stormwater Pollution Prevention Study will be conducted to address any potential effects associated with stormwater runoff.

Potable water will be supplied by a well or through the municipal water system and a septic bed will be constructed for the disposal of sewage. The septic bed will be constructed to the minimum size required for the size of the operation and maintenance building. It is the Project owner's responsibility to ensure proper maintenance of the septic system. The operations and maintenance building, septic system and water supply will be constructed in accordance with applicable municipal and provincial standards.

2.1.9 Permanent Meteorological Tower

Permanent meteorological towers are an operational requirement of the Independent Electricity System Operator (IESO) as an electricity market participant (this includes all generators of electricity) and allow the IESO to operate the system reliably and safely.

Permanent meteorological towers will be installed at the Project. These are typically up to 80 m in height. No significant soil or vegetation disturbance is anticipated. The use of meteorological data is key to the safe and efficient operation of a wind energy centre. Some operational decisions made using meteorological data include:

- Cut-in wind speed;
- Cut-out wind speed;
- Turbine shut down during potential icing conditions; and,
- Turbine shut down during extreme weather events.

2.1.10 Water Crossings

To the extent possible, Project infrastructure has been sited to minimize the number of water crossings. The Water Assessment and Water Body Report (AECOM, 2013), which has been developed as part of the REA, describes all water crossings and associated mitigation measures.

2.2 Project Activities

The following sections outline the anticipated activities for the Construction, Operation and Decommissioning Phases of the Project.

2.2.1 Project Timing

Subject to the receipt of the necessary permits and approvals, site work for the Jericho Wind Energy Centre is expected to begin in 2013 and last for approximately 6 to 12 months. **Table 2-2** presents the anticipated construction schedule and approximate order of construction activities for the proposed Project.

Table 2-2 Construction Schedule

Activity		Probable Timing of Activity	Probable Duration
Surveying		Prior to construction – preference is winter months	< 1 day per turbine location
Geotechnical Sampling		Prior to construction – preference is winter months	One to two hours per turbine location
Land Clearing and Construction of Access Roads		Summer up to spring – preference is to conduct during drier months	One to three days per access road to each turbine
Installation of Culverts		Summer up to spring – preference is to conduct during drier months	One to two days per culvert
Construction Laydown Area		Summer up to spring – preference is to conduct during drier months	One week
Turbine Site and Crane Pad Construction		Summer up to spring – preference is to conduct during drier months	Two to four days per turbine location
Delivery of Equipment		Throughout construction phase as needed, and in compliance with Traffic Management Plan	As needed throughout construction phase
Turbine Foundations		Summer up to spring – preference is to conduct during drier months	Three to four days (excluding curing)
Wind Turbine Assembly and Installation		Following turbine foundations	Four to five days per turbine location
Electrical Collector System	**Pad Mount Transformers**	Summer up to spring – preference is to conduct during drier months	Four to six days
	Collection Lines	Summer up to spring – preference is to conduct during drier months	Dependent upon the required length of the lines; however, between 4 and 8 km of collector lines can be installed in a week.
Transformer Substation		Summer up to spring – preference is to conduct during drier months	15 – 20 weeks
Operations Building		Summer up to spring – preference is to conduct during drier months	Eight weeks
Clean-up and Reclamation		Following turbine construction	Will be conducted as site is constructed
Turbine Commissioning		Following turbine assembly and installation	One to three days per turbine

2.2.2 Construction

2.2.2.1 Surveying and Geotechnical Study Activities

Existing buried infrastructure located on public property will be identified using the Ontario One Call service and buried infrastructure located on private property will be identified by private contractors prior to construction and updated throughout construction, as required.

Geotechnical sampling will be required for turbine foundation locations. Typically, a truck-mounted drill rig visits the sampling locations, drills the borehole and collects geotechnical information. This operation typically uses two operators and requires one to two hours per turbine location.

Equipment will include, at a minimum, trucks, a truck mounted drill rig, and possibly a track-mounted drill rig. The trucks will be driven to the site via existing municipal roads. No materials will be brought on site for these activities and any waste generated would be comprised of drill cuttings which will be scattered in the vicinity of the boreholes. The chemicals required for this phase will include oils, gasoline, and grease used to operate construction equipment.

Fuel-handling for all construction activities will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.2 Land Clearing and Construction of Access Roads

Access roads will be constructed to transport equipment to the construction sites and for maintenance activities during operation. There will be an approximately 60 m wide area of potential disturbance associated with the construction of the access roads. The access road will be sited within this area of disturbance in consultation with the landowner and taking into consideration potential environmental effects. Typically the access roads will be between 10 m and 20 m wide during the construction phase to accommodate the large cranes (with an additional clearance on each side for travel).

The construction of the access road will typically require clearing and grubbing of any vegetation, excavation of the topsoil layer and adding a layer of compacted material to a typical thickness of 300 mm to 600 mm, depending upon site specific geotechnical conditions. Clean granular material (typically “A” or “B” gravel) will be brought to the site as needed and will not be stockpiled onsite. The topsoil will be kept and re-used on site. The access road to each turbine will typically require one to three days of construction time. Depending on the length of the access roads, construction may require approximately 25 trucks of gravel.

New culverts may be required to maintain drainage in ditches at junctions with roadways and these will be constructed to support the construction equipment and delivery trucks. The exact details of culverts and their installation in addition to erosion control measures will be determined in conjunction with the Ausable Bayfield Conservation Authority (ABCA) and the St. Clair Region Conservation Authority (SCRCA) as part of their permitting process. The culverts are proposed to be open bottom and left in place following the operation phase.

Equipment will include, at a minimum, trucks, graders, and bulldozers. Municipal and provincial roads will also be used for transporting equipment. Any road damages associated with the Project will be repaired prior to the completion of the construction phase. A Road Use Agreement will be developed in consultation with the municipalities. The trucks and graders will be driven to the site and the bulldozers will be transported via trailers. The chemicals required for this phase will include oils, gasoline, and grease used to operate construction equipment.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.3 Construction of Laydown Areas

An approximately 4 hectare (10 acre) site will be constructed for the temporary storage of construction material and as a site for the construction office trailers. Following clearing and grubbing of any vegetation, the topsoil at the temporary laydown area will be removed and approximately 600 mm of clean compacted crushed gravel will be imported as needed. The excavated topsoil will be re-used on site as feasible. A temporary electrical service line will be connected to the existing distribution line for the purpose of providing power to the construction office trailers. Construction activities are expected to last approximately one week and will require approximately 100 loads of gravel, and a crew of six people. Following the construction phase, the gravel will be removed from the site or re-used, to be determined in consultation with the landowner. The temporary electrical service line and poles will be removed. The stockpiled topsoil will then be redistributed throughout the temporary laydown area.

Equipment will include, at a minimum, trucks, graders, and bulldozers. The trucks and graders will be driven to the site and the bulldozers will be transported via trailers. The chemicals required for this phase will include oils, gasoline, and grease used to operate construction equipment.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.4 Turbine Site and Crane Pad Construction

Prior to construction, the construction area will be cleared and grubbed. In order to provide sufficient area for the laydown of the wind turbine components and its assembly, an approximately 122 m by 122 m square around the wind turbine must be cleared, levelled, and be accessible during the construction phase. The topsoil is typically removed and some soil stabilizing material (i.e. crushed gravel or clean back fill) may need to be added depending upon site specific geotechnical conditions. Where the site laydown areas are close to watercourses, erosion control measures will be implemented.

Crane pads will be constructed at the same time as the road and will be located adjacent to the turbine locations. The crane pads will typically be 15 m by 35 m in area. The topsoil at the crane pad will be removed and approximately 600 mm of clean compacted crushed gravel will be imported as needed. The excavated topsoil will be re-used on site as feasible. The construction crew is anticipated to require four to six people and construction activities are expected to last for approximately one to two days per turbine site.

Equipment will include, at a minimum, trucks, graders, and bulldozers. The trucks and graders will be driven to the site and the bulldozers will be transported via trailers. The chemicals required for this phase will include oils, gasoline, and grease used to operate construction equipment.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.5 Delivery of Equipment

Equipment will be delivered by truck and trailer throughout the construction phase and stored at the temporary lay-down sites surrounding each turbine. A Road Use Agreement and Traffic Management Plan will be developed in consultation with the municipalities. Alternative traffic routes will be prepared to address traffic congestion, as needed. To the extent necessary, modifications to public roads will be addressed in the Road Use Agreement.

2.2.2.6 Construction of Turbine Foundations

A backhoe will be used to excavate an area approximately 3 m deep x 20 m x 20 m with the material being stockpiled for future backfilling. Stockpiled material will have topsoil and subsoil separated out and surplus excavated material will be removed from the site for disposal in an approved manner. The foundation, with an approximate footprint of 400 m^2, will be constructed of poured concrete and reinforced with steel rebar to provide strength. The construction timeframe for turbine foundations is approximately three to four days, excluding curing time. After construction the foundation will be backfilled and the surface will be landscaped for drainage. The only surface evidence of the foundation will be a small protrusion of concrete to which the tower is attached; as such, land can be cultivated to within a few metres of the turbine. Any wood-waste generated will be removed from the site and recycled unless the landowner otherwise directs. Spent welding roads will be disposed of as hazardous waste by a licensed contractor.

Typical construction equipment, on a per turbine basis, will include:

- Excavator for removing material;
- Flatbed trucks (four to six) for delivery of rebar, turbine mounting assembly and forms;
- Truck mounted crane or rough terrain forklift for unloading and placement of rebar and forms;
- Concrete trucks for delivery of concrete (30-40 loads);
- Construction trucks (three to four vehicles with multiple visits); and,
- Dozer, loader and trucks to backfill and compact foundation and remove surplus excavated materials.

The trucks and graders will be driven to the site and the bulldozers will be transported via trailers. The chemicals required for this phase will include oils, gasoline, and grease used to operate construction equipment.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.7 Wind Turbine Assembly and Installation

Turbine components will arrive on-site using flat bed and other trucks and will be temporarily stored on-site in the immediate vicinity of the base prior to assembly. Typically two cranes will be used to install the turbines. The larger crane is usually a crawler type with a capacity of 400 tonnes or larger, and is used for the higher lifts.

Clearing and grubbing will be required for the erection area. The erection cranes and crew will follow the foundation crew and erect the wind turbines once the foundations are completed and the concrete has set. This will typically be in five lifts (three for the towers, one for the nacelle and one for the rotor) over a period of two to three days. The lower tower sections may be installed several days before the upper tower sections and the turbine to optimize installation sequence. The lower tower section will also include electrical and communications equipment. Total turbine assembly and installation will typically require four to five days for each turbine. Fifteen to twenty people may be required at the site during the turbine installation; they will be transported using light duty vehicles.

Packing frames for the turbine components are returned to the turbine vendor. Following commissioning, the surrounding area will be returned to its original use.

Equipment will include, at a minimum, trucks, two cranes, graders, and bulldozers. The trucks and graders will be driven to the site and the bulldozers will be transported via trailers. The larger track mounted crane can move from turbine site to turbine site; however, it will need to be disassembled to move it along roadways and from the Project site. Alternatively, cranes may be moved between turbine sites without disassembly along crane paths. In such instances, no additional infrastructure is required to support the crane movement. The chemicals required for this phase will include oils, gasoline, and grease used to operate construction equipment.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.8 Construction of Electrical Collector System

The electrical collector system will consist of pad mounted transformers and underground collection lines. These components are described below.

- **Pad Mount Transformers:** A concrete transformer pad, approximately 2.2 m by 2.5 m in size, will be installed adjacent to each turbine at the same time as the turbine base installation. The construction will consist of excavation, soil storage, installation of the buried electrical grounding grid, installation of the concrete pad, installation of the transformer, and electrical connections. Transformer installation and cabling between the turbine and transformer is expected to take three days per turbine. Equipment will include flatbed trucks to transport the equipment to site, and a truck-mounted crane for the installation. These activities will likely require four to six trucks, a work force of approximately two people per vehicle per day, and is expected to last between four to six days per turbine use.
- **Collection Lines:** Cables and fibre optics lines (for communications) from each turbine to the transformer substation will be buried and will be located on private property or within municipal road right-of-ways. There may be occasional locations where the collection lines are placed above ground on wood, concrete or steel poles. Above ground junction boxes will be installed to connect sections of underground cabling. There will be an approximately 20 m wide area for construction of the collection lines. The collection lines will be sited within this area of disturbance in consultation with the landowner and taking into consideration potential environmental effects. The excavated soil will be stored temporarily and then reused as backfill. Power conductors will be approximately 0.9 m below grade and the location will be marked. Equipment will include trenchers or diggers (depending on soil type) and construction will require a crew of six people. The construction timeframe is dependent upon the required length of the lines.
- **Horizontal Directional Drilling:** Electrical cables may need to be installed using horizontal directional drilling to minimize effects to woodlots or watercourses. Erosion control devices will be installed at the drill location and drill cuttings will be collected and removed from the site for disposal in an approved and appropriate manner. An entrance and exit pit will be excavated on either side of the feature to be bored under. The directional drilling equipment will be set up at the entrance pit and a drill bit attached to rod segments is advanced until it reaches the exit pit. A slurry of bentonite and/or polymer mixed with water will be injected into the hole while drilling to help stabilize the bore hole and reduce friction. Once the drill bit has reached the exit pit the drill bit will be removed and a “reamer” attached and pulled back through the hole to enlarge the bore. The electrical cable will then be installed through the hole. Equipment will include a directional drilling rig and two to three support trucks to carry drilling rods, drilling supplies and cable.

The chemicals required for this phase will include oils, gasoline, and grease used to operate construction equipment, and the polymer used for directional drilling.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.9 Construction of Electrical Transmission Line

Holes for new transmission line poles are typically augured in the ground using a truck mounted auger device. The poles will then be inserted using special cranes to a typical depth of 2 m to 3 m below grade. The poles are typically "dressed" (made ready to accept conductors) on the ground prior to installation. In locations where the transmission line makes a turn, guy wires may be used to anchor the corner pole in place. At times, when guy wires cannot be used at corner poles, the steel poles may be mounted on concrete pier foundations. Typically, one crew will install the poles and one crew will dress them. Approximately six construction vehicles (including trucks and a pole loader) and a crew of approximately 12 to 15 people are anticipated for construction of the transmission lines. Typically, twelve to sixteen poles can be installed and dressed in one day. Once the poles are in place and dressed, cables will be strung in place using boom trucks and special cable reel trucks. Finally, any pre-existing poles that are no longer in use will be removed.

Some packing-material waste may be generated from construction. All recyclable materials will be separated from non-recyclable materials and both streams will be removed from the site and disposed of at an approved and licenced facility.

Equipment will include, at a minimum, a truck mounted crane, a drill rig, flatbed trailers and a truck mounted auger. The only chemicals required for this phase are oils, gasoline, and grease used to operate construction equipment. A lubricant is likely to be used when the cables are pulled in through the conduit.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.10 Construction of Transformer Substation

During construction of the substation, topsoil and subsoils will be stripped and stockpiled separately. Stripped topsoil and subsoil will be placed in the temporary storage facility area and topsoil stripped from the substation area will be distributed on other Project properties. An electrical service line will connect to the existing distribution line adjacent to the substation for the purpose of providing house service power to the substation control building. The construction crew will consist of approximately 25 to 40 people and construction is expected to last for about four months. Some packing-material waste may be generated. All recyclable materials will be separated from non-recyclable materials and both streams will be removed from the site and disposed of at an approved and licensed facility.

Construction equipment will include small trenchers, a small crane, a backhoe, forklifts, concrete trucks, an auger truck and a bulldozer. The trucks and graders will be driven to the site and the bulldozers will be transported via trailers. The chemicals required for this phase will include oils, gasoline, and grease used to operate construction equipment and transformer oil.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.11 Construction of Operations and Maintenance Building

Construction of an operations and maintenance building may take up to three months to complete and will require a crew of approximately 10 to 15 people. Equipment will include, at a minimum, forklifts, concrete trucks and smaller crew trucks. The chemicals required for this phase will include oils, gasoline, and grease used to operate construction equipment.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.2.12 Construction of Permanent Meteorological Towers

The towers will be erected using winches and secured with guy wires tied off to anchors or a monopole foundation. No significant soil or vegetation disturbance is anticipated. Construction of each meteorological tower will take approximately two days and require a crew of six people.

2.2.2.13 Clean-up and Reclamation

Site clean-up will occur throughout the construction phase and site reclamation will occur after construction has been completed. Waste and debris generated during the construction activities will be collected by a licensed operator and disposed of at an approved facility. All reasonable efforts will be made to minimize waste generated and to recycle materials including returning packaging material to suppliers for reuse/recycling.

Stripped soil will be replaced and re-contoured in the construction areas and disturbed areas will be re-seeded, as appropriate. Erosion control equipment will be removed once inspections have determined that the threat of erosion has diminished to the original land use level or lower. High voltage warning signs will be installed at the transformer substation and elsewhere, as appropriate. At the conclusion of construction, vehicles and construction equipment will be removed from the site.

2.2.2.14 Turbine Commissioning

Turbine commissioning will occur once the wind turbines and substation are fully installed and Hydro One is ready to accept grid interconnection. The commissioning activities will consist of testing and inspection of electrical, mechanical and communications systems. Some packing-material waste may be generated. All recyclable materials will be separated from non-recyclable materials and both streams will be removed from the site and disposed of at an approved and licenced facility.

Temporary portable generator sets may be used to electrically commission the turbines prior to connection to the grid. The generators will be required for approximately one day per turbine. Following the commissioning phase, the portable generators will be removed from the site and returned to the owners.

Equipment will include support trucks which will be driven to the construction site. The only chemicals required for this phase are oils, gasoline, and grease used to operate construction equipment and portable generators, gearbox oil, and lubricants.

Fuel-handling will be conducted in compliance with the mitigation measures outlined in the Construction Plan Report (AECOM, 2013).

2.2.3 Operation

2.2.3.1 General Operation

The wind energy centre will require full time technical and administrative staff to maintain and operate the facility. The primary workers will be wind technicians (i.e., technicians who carry out maintenance on the turbines) along with a site supervisor. The Project will be operated by a staff of five to eight people who will work out of the operations and maintenance building.

The wind turbines will be operating (i.e., in "Run" mode and generating electricity) when the wind speed is within the operating range for the turbine and there are no component malfunctions. Each turbine has a comprehensive control system that monitors the subsystems within the turbine and the local wind conditions to determine whether the conditions are suitable for operation. If an event occurs which is considered to be outside the normal operating range of the turbine (such as low hydraulic pressures, unusual vibrations or high generator temperatures), the wind turbine will immediately take itself out of service and report the condition to the Operations Centre, located in the operations and maintenance building. A communication line connects each turbine to the Operations Centre, which closely monitors and, as required, controls the operation of each turbine. The wind turbine system will be integrated with the electric interconnection Supervisory Control and Data Acquisition (SCADA) to ensure that the Project critical controls, alarms and functions are properly co-ordinated for safe, secure and reliable operation. The wind turbine will also report to NextEra's Central Operations Facility during non-working hours.

2.2.3.2 Routine Turbine Maintenance

Routine preventative maintenance activities will be scheduled at approximately six month intervals with specific maintenance tasks scheduled for each interval. Maintenance will typically be done by removing the turbine from service and having two to three technicians climb the tower to spend a full day carrying out maintenance activities.

Consumables such as the various greases used to keep the mechanical components operating and oil filters for gearboxes and hydraulic systems will be used for routine maintenance tasks. Following all maintenance work on the turbine, the area will be cleaned up. All surplus lubricants and grease-soaked rags will be removed and disposed of as required by applicable regulations. All maintenance activities will adhere to the same spill prevention protocols undertaken during the construction phase.

2.2.3.3 Unplanned Turbine Maintenance

Modern wind turbines are very reliable and the major components are designed to operate for at least 30 years. However, there is a possibility that component failure may occur despite the high reliability of the turbines fleet-wide. Most commonly, the failure of small components such as switches, fans, or sensors will take the turbine out of service until the faulty component is replaced. These repairs can usually be carried out by a single crew visiting the turbine for several hours.

Events involving the replacement of a major component such as a gearbox or rotor are rare. If they do occur, the use of large equipment, sometimes as large as that used to install the turbines, may be required.

It is possible that an access road, built for construction and returned to farmland when the construction phase is completed, would need to be rebuilt to carry out repairs to a damaged turbine. Typically only a small percentage of turbines would need to be accessed with large equipment during their operating life.

2.2.3.4 Electrical System Maintenance

The collection lines and substation will require periodic preventative maintenance activities. Routine maintenance will include condition assessment for above-ground infrastructure and protective relay maintenance of the substation, in addition to monitoring of the secondary containment system for traces of oil. Finally, vegetation control will be required around the transmission line to prevent any damage to the line and ensure safe operation. Any vegetation that has the potential to grow to more than 4.3 m above grade will be cleared. The vegetation is typically cleared by mechanized equipment (e.g., chainsaw / hydro axe).

2.2.3.5 Waste Management

Waste generated during the operations phase will be removed from the operations and maintenance building by a licensed operator and disposed of at an approved facility. Any lubricants or oils resulting from turbine maintenance will be drummed on site and disposed of in accordance with applicable Provincial regulations. All reasonable efforts will be made to minimize waste generated and to recycle materials including returning packaging material to suppliers for reuse/recycling. The spill prevention protocols followed during construction will continue to be observed throughout the facility's operations and maintenance activities.

2.2.4 Decommissioning

2.2.4.1 Procedures for Decommissioning

This section provides an overview of the decommissioning procedures. For further information on decommissioning please refer to the Decommissioning Plan Report (AECOM, 2013).

Decommissioning procedures will be similar to the construction phase. The procedures, which will be finalized prior to decommissioning in accordance with REA requirements, are anticipated to include:

1. The creation of temporary work areas. In order to provide sufficient area for the lay-down of the disassembled wind turbine components and loading onto trucks, an approximately 122 m by 122 m square must be cleared, levelled and made accessible to trucks. The topsoil will be removed and some material may need to be added.
2. The creation of crane pads. The crane pads will typically be 15 m x 35 m in size and will be located within the temporary work area around each wind turbine. The topsoil at the crane pad will be removed and approximately 600 mm of compacted crushed gravel will be added. Once the turbine disassembly is complete, the gravel area around each turbine will be removed and the area will be restored to prior use using stockpiled topsoil.
3. The use of cranes to remove the blades, hub and tower segments.
4. The use of trucks for the removal of turbines, towers and associated equipment.
5. The removal of approximately the top 1 m of the turbine foundations and replacement with clean fill and stockpiled topsoil. The fill and topsoil will be contoured to allow cultivation in the case of agricultural lands.
6. Road bedding material will be removed and replaced with clean subsoil and topsoil for reuse by the landowner for agricultural purposes. It is proposed to leave culverts in place following the operations phase.
7. Cutting underground electrical lines, burying the ends to approximately 1 m below grade, and leaving the lines in place with the consent of the landowner. Above-ground lines and poles that are not shared with another Transmission/Distribution Operator will be removed and the holes will be filled with clean fill.
8. The demolition of the substation and operations and maintenance building. These will be decommissioned in a manner appropriate to and in accordance with the standards of the day. All materials will be recycled, where possible, or disposed off-site at an approved and appropriate facility.

2.2.4.2 Land Restoration Activities

Once all of the turbines and ancillary facilities are removed, the remaining decommissioning work will consist of shaping and grading the areas to, as near as practicable, the original contours prior to construction of the wind turbines and access roads. Existing agricultural capacity will be restored and the land graded to maintain proper drainage. All areas, including the access roads, transformer pads and crane pads will be restored to, as near as practical, their original condition with native soils and seeding. If there is insufficient material onsite, topsoil and/or subsoil will be imported from a source acceptable to the landowner.

Although strict spill prevention procedures will be in place, there is the potential through the decommissioning process for small spills of solvents or fuels. The soil conditions of the turbine areas will be surveyed to determine if any effects have occurred. Should soil effects be noted, the affected soils will be identified, excavated, and removed to the applicable standards from the site for disposal at an approved and appropriate facility. The removed soils will be replaced with stockpiled subsoil and topsoil, if available. If none are available, clean fill and topsoil will be imported.

Decommissioning may temporarily affect the agricultural practices directly around the access roads, substation and turbine locations, but only during their removal. Similar to the construction phase, decommissioning will follow a stormwater protection plan that will ensure proper steps are followed to mitigate erosion and silt/sediment runoff.

As with the Project's construction, noise levels around the decommissioning work may be higher than average. Proper steps will be followed to minimize this disturbance, such as avoiding work outside of daylight hours where possible. All decommissioning project activities will conform to applicable local municipal noise by-laws. Also, as with the Project's construction, road traffic in the area will increase temporarily due to crews and heavy equipment movements. If required, a traffic management plan will be prepared to mitigate the effects of increased road traffic, in consultation with the local municipality.

2.2.4.3 Procedures for Managing Waste Generated

As discussed above, the waste generated by the decommissioning of the Project is minimal, and there are anticipated to be no toxic residues. Any waste generated will be disposed of according to the applicable standards with the emphasis on recycling materials whenever possible.

The major components of the wind turbines (tower, nacelle, blades) are modular items that allow for ease of construction and disassembly of the wind turbines during replacement or decommissioning. Dismantled wind turbines have a high salvage value due to the steel and copper components. These components are easily recyclable and there is a ready market for scrap metals. Transformers and transmission lines are typically designed for a 50 year lifespan so these items could be refurbished and sold for reuse.

Based on the construction details for the GE wind turbines and associated tower and components, it is assumed that both the tower and nacelle will yield approximately 80% salvageable materials. Since the hub assembly and bedplate is manufactured steel, it is anticipated that the hub will yield 100% salvageable metallic materials. Copper salvage estimates were derived by assuming 5% of the total tower and nacelle weight consists of salvageable copper bearing materials. Since the rotor/blades are constructed of predominantly non-metallic materials (fiberglass reinforced epoxy and carbon fibres), no salvage for the rotor or blades is currently assumed.

It is assumed that 75% of the aggregate material from the decommissioning of the crane pads can be salvaged for future use as aggregate base course. The remaining materials would be viable for general fill on non-structural fill areas. The geotextile fabric cannot be salvaged.

3. Potential Environmental Effects

An effects assessment for the construction, operation and decommissioning phases of the Project has been completed in accordance with the requirements of *O. Reg. 359/09*. This section provides a summary of the potential effects and any residual effects of each phase as they relate to specific environmental conditions. For further detail on specific mitigation measures and monitoring plans, reference should be made to the Construction Plan Report (AECOM, 2013) and Design and Operations Report (AECOM, 2013).

As outlined previously, the procedures for decommissioning will be similar to the construction phase. As such, the potential effects for each of these phases are also deemed to be similar.

3.1 Cultural Heritage (Protected Properties, Archaeological and Heritage Resources)

Construction and Decommissioning

Table 3-1 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to cultural heritage resulting from construction and decommissioning.

Table 3-1 Mitigation Measures, Residual Effects and Monitoring Plan associated with Potential Effects to Cultural Heritage during Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Disturbance or displacement of 74 archaeological resources identified through Stage 2 Assessment due to construction of project infrastructure.	• Avoid disturbance/ loss of archaeological sites	• Avoid site or conduct Stage 3 archaeological assessment if recommended based on the outcome of the Stage 2 assessment: ▪ To avoid, install a protective fence around all or part of the site if construction activities are close enough to potentially affect the archaeological resource; or ▪ Conduct Stage 3 archaeological assessment, document findings in Stage 3 assessment report, and submit report to MTCS for approval. Any potentially interested Aboriginal communities will be contacted, as appropriate, from at least this point onward. • Avoid site or conduct Stage 4 archaeological assessment if recommended based on the outcome of the Stage 3 assessment: ▪ To avoid, install a protective fence around all or part of the site if construction activities are close enough to potentially affect the archaeological resource; or ▪ Conduct Stage 4 archaeological assessment, document findings in Stage 4 assessment report, and submit report to MTCS for approval. Construction can then proceed without any further documentation or monitoring.	• Disturbance or displacement of archaeological resources avoided or minimized through application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Retain a licensed archaeologist to monitor any construction activities within a 50 m monitoring zone for an archaeological resource surrounded by a 20 m buffer where a Stage 3 archaeological assessment has been recommended. Submit a report to MTCS detailing the results of any monitoring activities. • Retain a licensed archaeologist to monitor any construction activities for Stage 4 avoidance that may affect archaeological resources. **Contingency Measures:** • Cease work immediately should previously unidentified archaeological resources be discovered during the construction phase. The area will be secured and a licensed archaeologist contacted to conduct further archaeological work. Construction will only resume in the location when any archaeological assessment has been completed. Any potentially interested Aboriginal communities will be contacted, as appropriate.

Table 3-1 Mitigation Measures, Residual Effects and Monitoring Plan associated with Potential Effects to Cultural Heritage during Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
				• Cease work immediately should human remains be found during construction, and contact the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services. Construction will only resume in the location when any archaeological assessment has been completed. Any potentially interested Aboriginal communities will be contacted, as appropriate.

Operation

No effects to archaeological resources are anticipated as a result of the operational phase of the Project, as all resources will either be avoided or removed as part of a Stage 4 archaeological assessment prior to construction. No effects to 89 structures with cultural heritage value or interest are anticipated, as the Project Location was selected to avoid these features.

3.2 Natural Heritage Resources

3.2.1 Potential Effects to Generalized Candidate Significant Wildlife Habitat

Construction and Decommissioning

Table 3-2 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to Generalized Candidate Significant Wildlife Habitat resulting from construction and decommissioning.

Operation

There are no potential effects to Generalized Candidate Significant Wildlife Habitat as a result of operation activities.

3.2.2 Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat

Construction and Decommissioning

Table 3-3 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to Significant Wetlands, Woodlands, and Wildlife Habitat resulting from construction and decommissioning.

Operation

Table 3-4 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to Significant Wetlands, Woodlands, and Wildlife Habitat resulting from operations.

Table 3-2 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Generalized Candidate Significant Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Increased erosion and sedimentation resulting from clearing and grubbing, excavation, backfilling and stockpiling.	• Minimize erosion and sedimentation from clearing, grubbing, excavation, backfilling and stockpiling.	• Develop and implement an erosion and sediment control plan before commencement of construction as per Ontario Provincial Standard Specifications (OPSD 219.130). • Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland, Generalized Candidate Significant Wildlife Habitat or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials will be kept on hand, (*i.e.*, heavy duty silt fencing, straw bales). • Check that erosion control tools are in good repair and properly functioning prior to conducting daily work and re-install or repair as required prior to commencing daily construction activities. • Keep sediment and erosion control measures in place until disturbed areas have been stabilized (*i.e.*, re-vegetated). • Schedule grading within 30 m of a watercourse, Generalized Candidate Significant Wildlife Habitat or wetland to avoid times of high runoff volumes, wherever possible. Temporarily suspend work if high runoff volume is noted or excessive flows of sediment discharges occur until mitigation measures are in place. • Re-vegetate temporary roads to pre-construction conditions as soon as possible after construction activities are complete using species native to Ontario in naturally vegetated areas.	• Increased erosion and sedimentation avoided or minimized through application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Monitor on-site conditions (i.e., erosion and sediment control, spills, flooding, etc.) by an Environmental Monitor where construction occurs within 30 m of a feature on the following basis: ▪ Weekly during active construction periods; ▪ Prior to, during and post forecasted large rainfall events (>20 millimetres in 24 hours) or significant snowmelt events (*i.e.*, spring freshet); ▪ Daily during extended rain or snowmelt periods; ▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer. • **Contingency Measures:** ▪ Suspend work if excessive flows of sediment discharges occur until additional mitigation measures are in place (e.g. install the extra erosion and sediment control materials kept on site, such as heavy duty silt fencing, straw bales, etc.). ▪ Report the details of a flooding event to MOE, including a description of any assessment and remediation undertaken.
Removal/ disturbance of topsoil and increased soil compaction from manoeuvring of heavy machinery, excavation and backfilling.	• Minimize removal/ disturbance of topsoil and increased soil compaction.	• Minimize vehicle traffic on exposed soils, avoid compacting or other hardening of natural ground surface, and avoid the movement of heavy machinery on areas with sensitive slopes.	• Increased erosion and sedimentation avoided or minimized through application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• See erosion and sedimentation above.
Increased erosion and sedimentation resulting from directional drilling.	• Minimize erosion and sedimentation.	• Conduct all drilling by licensed drillers in accordance with Regulation 903 under Ontario Water Resources Act, R.S.O. 1990. • Set back drill entry and exit pits at least 30 m from natural features (*i.e.*, woodlands, wetlands, Generalized Candidate Significant Wildlife	• Increased erosion and sedimentation avoided or minimized through application of mitigation measures. • Moderate likelihood; if accidental damage occurred, negative effects may be measurable but would likely	• See erosion and sedimentation above. • Monitor directional drilling for the duration of such activities by an Environmental Monitor to ensure that “frac-out” or accidental intrusion does not occur, and if it does, to ensure that there are no effects on surface or groundwater.

Table 3-2 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Generalized Candidate Significant Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
		Habitat) or water bodies. • Monitor natural features for signs of surface disturbance. • Develop "Frac-Out" Contingency Plan outlining steps to contain any chemicals or to avoid contamination of adjacent features. • Ensure drill depth is at an appropriate depth below feature to reduce the risk of a "frac-out".	represent a small change relative to existing conditions.	• **Contingency Measures:** ▪ In the event of a "frac-out", implement the "Frac-Out" Contingency Plan, which will include but is not limited to the following: ▪ Immediately stop all work, including the recycling of drilling mud / lubricant. ▪ Isolate affected watercourse or area using a temporary dam and install by-pass pump system (if required) to maintain continuous flow downstream of the site; ▪ Insert rigid in-water/soil containment unit or underwater boom into the "frac-out" source area in order to contain any sediments and/or deleterious materials originating from the "frac-out". ▪ No captured material will be left on-site. The captured material should be extracted by vacuum truck, if available, or pumped into a containment unit or area for off-site disposal; ▪ Monitor "frac-out" for four hours to determine if the drilling mud congeals. If drilling mud congeals, take no other action that would potentially suspend sediments in the water column. If drilling mud does not congeal, maintain isolation/containment unit in place and continue pumping captured material to a containment unit or area until drilling mud congeals or stops flowing. ▪ Notify the Ministry of the Environment's (MOE) Spills Action Centre (1-800-268-6060) of the "frac-out" event and the response taken to contain the spill. This step should be completed during the 4 hour "frac-out" monitoring period. ▪ Engage a spill response team to contain and clean up excess drilling mud in the water. ▪ Monitor clean-up procedures to ensure they do not result in greater damage than leaving the mud in-place. ▪ If the spill affects an area that is vegetated, the area will be seeded and/or replanted using the same species to those in the adjacent area, or allowed to re-grow from existing vegetation. Re-vegetated areas will

Table 3-2 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Generalized Candidate Significant Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
				be monitored once per growing season for two years subsequent to "frac-out" to confirm re-vegetation is successful. ▪ Document post-cleanup conditions with photographs and prepare "frac-out" incident report describing time, place, actions taken to remediate "frac-out" and measures implemented to prevent recurrence. Provide incident report to MNR and MOE within 30 days of the incident.
Disturbance and/or mortality to terrestrial wildlife, including barriers to wildlife movement.	• Minimize disturbance and/or mortality to terrestrial wildlife.	• Time vegetation removal to avoid periods of habitat use to the extent possible, particularly to avoid sensitive life stages (e.g., breeding season for migratory birds, May 1 to July 30). Undertake active nest surveys by a qualified Biologist if clearing of vegetation must take place during this period. Avoid intersecting potential wildlife migration routes wherever possible.	• Disturbance and/or mortality to terrestrial wildlife, including barriers to wildlife movement avoided or minimized through application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Undertake monthly site inspections by an Environmental Monitor to ensure that only specified trees are removed, protective fencing is intact and that there is no damage caused to the remaining trees during construction. • **Contingency Measures:** ▪ Prune any damaged trees through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. ▪ Consult with MNR to determine additional contingency measures if necessary.
Damage to vegetation while operating equipment.	• Minimize disturbance to/loss of wildlife habitat and vegetation.	• Keep vegetation removal to a minimum and limited to non-significant habitats (e.g., hedgerows). • For roadside collection line and transmission line routes, vegetation removal (if any) will be kept to a minimum and will be limited to the road right-of-way. • Where construction is to occur within 10 m of natural features, install and maintain protective fencing to clearly define the construction area and prevent accidental damage to vegetation. • Where excavation for construction of access roads or collection lines is conducted within the rooting zone of trees (e.g., within 5 m of the dripline), implement proper root pruning measures to protect tree roots.	• Disturbance to or loss of wildlife habitat and damage to vegetation while operating equipment avoided or minimized through application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Undertake monthly site inspections by an Environmental Monitor to ensure that only specified trees are removed, protective fencing is intact and that there is no damage caused to the remaining trees during construction. • **Contingency Measures:** ▪ Repair protective fencing if damaged. ▪ Prune any damaged trees through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. ▪ Consult with MNR to determine additional contingency measures if necessary.
Disturbance to or loss of wildlife habitat, including active bird nests.	• Minimize vegetation removal and destruction of bird nests.	• Schedule vegetation removal outside of breeding season (May 1 to July 30) where possible. Undertake active nest surveys if clearing of vegetation must take place during this period.	• Vegetation removal minimized and destruction of active bird nests avoided through application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Undertake monthly site inspections by an Environmental Monitor to ensure that only specified trees are removed, protective fencing is intact and that there is no damage caused to the remaining trees during construction. • **Contingency Measures:** ▪ Prune any damaged trees through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. ▪ Consult with MNR to determine additional contingency measures if necessary.

Table 3-2 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Generalized Candidate Significant Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Soil / water contamination by oils, gasoline, grease and other materials from construction equipment, materials storage and handling.	• Minimize soil/water contamination.	• Ensure machinery is maintained free of fluid leaks. • Site maintenance, vehicle washing and refuelling stations where contaminants are handled at least 30 m away from natural features or water bodies. • Store any stockpiled materials at least 30 m away from a wetland, woodland, Generalized Candidate Significant Wildlife Habitat or water body. • Develop a spill response plan and train staff on associated procedures. • Control soil / water contamination through best management practices. • Dispose of any waste material from construction activities by authorized and approved off-site vendors.	• Soil and water contamination avoided or minimized through application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Contractor to conduct routine inspections of construction equipment for leaks / spills • Develop an emergency spills plan. • **Contingency Measures:** ▪ Immediately stop all work until the spill is cleaned up. ▪ Notify MOE's Spills Action Centre of any leaks or spills. ▪ If a spill enters a water body, collect and analyze water samples for appropriate parameters. ▪ Monitor daily until cleanup is completed.
Soil / water contamination by release of pressurized drilling fluids into natural features from fractures in substrate (also known as a 'frac-out').	• Minimize soil or water contamination.	• Conduct all drilling by licensed drillers in accordance with Regulation 903 under Ontario Water Resources Act, R.S.O. 1990. • Develop "Frac-Out" Contingency Plan outlining steps to contain any chemicals or to avoid contamination of adjacent features. • Collect drill cuttings as they are generated and place in a soil bin or bag for off-site disposal. • Ensure drill depth is at an appropriate depth below feature to reduce the risk of a "frac-out". Drilling depth will be determined based on site-specific geotechnical conditions and would take into account soil type, soil variances, porosity, etc. as derived from exploratory borehole information. • Install protective fencing around vegetation to prevent accidental damage. • Monitor natural features for signs of surface disturbance (e.g., escape of drilling mud, evidence of tunnel collapse).	• Risk of soil or water contamination avoided or minimized through application of mitigation measures. • Moderate likelihood; if accidental damage occurred, negative effects may be measurable but would likely represent a small change relative to existing conditions.	• Monitor directional drilling for the duration of such activities by an Environmental Monitor to ensure that "frac-out" or accidental intrusion does not occur, and if it does, to ensure that there are no effects on surface or groundwater. • **Contingency Measures:** ▪ Implement a "Frac-Out" Contingency Plan in the event of a "frac-out", which will include but is not limited to the following: ▪ Immediately stop all work, including the recycling of drilling mud / lubricant. ▪ Isolate affected watercourse or area using a temporary dam and install by-pass pump system (if required) to maintain continuous flow downstream of the site; ▪ Insert rigid in-water/soil containment unit or underwater boom into the "frac-out" source area in order to contain any sediments and/or deleterious materials originating from the "frac-out". ▪ No captured material will be left on-site. The captured material should be extracted by vacuum truck, if available, or pumped into a containment unit or area for off-site disposal; ▪ Monitor "frac-out" for four hours to determine if the drilling mud congeals. If drilling mud congeals, take no other action that would potentially suspend sediments in the water column. If drilling mud does not congeal,

Table 3-2 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Generalized Candidate Significant Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
				maintain isolation/containment unit in place and continue pumping captured material to a containment unit or area until drilling mud congeals or stops flowing. ▪ Notify the Ministry of the Environment's (MOE) Spills Action Centre (1-800-268- 6060) of the "frac-out" event and the response taken to contain the spill. This step should be completed during the 4 hour "frac-out" monitoring period. ▪ Engage a spill response team to contain and clean up excess drilling mud in the water. ▪ Monitor clean-up procedures to ensure they do not result in greater damage than leaving the mud in-place. ▪ If the spill affects an area that is vegetated, the area will be seeded and/or replanted using the same species to those in the adjacent area, or allowed to re-grow from existing vegetation. Re-vegetated areas will be monitored once per growing season for two years subsequent to "frac-out" to confirm re-vegetation is successful. ▪ Document post-cleanup conditions with photographs and prepare "frac-out" incident report describing time, place, actions taken to remediate "frac-out" and measures implemented to prevent recurrence. Provide incident report to MNR and MOE within 30 days of the incident.
Changes in surface water drainage patterns. Obstruction of lateral flows in surface water to wetlands.	• Minimize changes in surface water drainage patterns and obstruction of lateral flows in surface water to wetlands.	• Ensure Best Management Practices are used to maintain current drainage patterns, including: ▪ Implement infiltration techniques to the maximum extent possible. ▪ Minimize paved surfaces and design roads to promote infiltration. ▪ Limit changes in land contours.	• Changes in surface water drainage patterns and obstruction of lateral flows avoided through mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Inspect locations within 30 m of wetlands following completion of access roads by an Environmental Monitor to ensure no changes in drainage patterns. • **Contingency Measures:** ▪ If surface water drainage alterations are detected, undertake corrective measures to restore drainage pattern.
Changes in water levels resulting from short-term construction dewatering.	• Minimize effects on significant wildlife habitat due to dewatering activities.	• Confirm the zone of influence of required dewatering activities prior to construction. • For turbines within the sand and/or gravel deposits, schedule dewatering activities to avoid the sensitive timing window for the Significant Wildlife Habitat(s) present (if determined to be	• Dewatering effects minimized through the application of mitigation measures. • Negligible residual effects.	• For significant natural features within the zone of influence and potentially affected by dewatering activities, the following Monitoring Plan will be implemented: ▪ Prior to construction, undertake monthly monitoring for a minimum of six months of

Table 3-2 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Generalized Candidate Significant Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
		significant) and Generalized Candidate Significant Wildlife Habitat. If this is not possible, MNR will be consulted regarding mitigation measures that may be required. ▪ Amphibian woodland breeding habitat: no dewatering from April 1 to July 31; ▪ Turtle wintering habitat: no dewatering from October 1 to April 30; ▪ Seeps and springs: avoid dewatering from December 1 to March 31, where possible; ▪ Amphibian wetland breeding habitat: no dewatering from April 1 to July 31; ▪ Habitat for insect Species of Conservation Concern: no dewatering from April 1 to July 31; ▪ Marsh bird breeding habitat: no dewatering from April 1 to July 31; and ▪ Rare vegetation community (SWD1-2): no dewatering from April 1 to June 30. • Limit duration of dewatering to as short a time frame as possible. • Implement groundwater cut-offs as required to limit water taking quantities. • Limit dewatering where turbines are constructed within the sand and/or gravel deposits to less than 400,000 L/day. • Set back groundwater discharge locations at least 30 m from Generalized Candidate Significant Wildlife Habitat. All groundwater discharge will undergo appropriate water quality and temperature controls, as required, and will be directed through a sediment filter (i.e., filter bag), sediment basin or other appropriate device capable of handling the anticipated volumes of water, before being discharged to the environment. The specific locations for directing treated groundwater discharge will be selected in the field at the time of construction, but will generally be limited to grassed areas, existing drainage ditching or agricultural fields.		surface water levels (staff gauge), stream flow (if applicable), vertical hydraulic gradients (mini-piezometers), surface water temperature and vegetation health of the feature within the identified dewatering zone of influence. ▪ During construction dewatering activities, undertake daily monitoring of surface water levels (staff gauge), stream flow (if applicable), vertical hydraulic gradients (mini-piezometers), surface water temperature and vegetation health of the feature within the identified dewatering zone of influence. ▪ Following construction, undertake monthly monitoring for up to one year of surface water levels (staff gauge), stream flow (if applicable), vertical hydraulic gradients (mini-piezometers), surface water temperature, and vegetation health of the feature within the identified dewatering zone of influence. Monitoring may be terminated prior to one year post-construction if there is no evidence of residual effects and levels have returned to norms established through pre-construction monitoring. • **Contingency Measures:** ▪ In the event of a decrease in surface water levels which can be attributed to the dewatering activities, stop dewatering until appropriate site-specific mitigation has been implemented. Implement contingency measures (to be determined in consultation with MNR), if required, including but not limited to rescue of stranded wildlife.

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Accidental intrusion into Significant Wetlands and Significant Woodlands resulting in damage to vegetation or habitat form or function.	• Avoid accidental intrusion into significant natural features.	• Align project components such that vegetation removal is kept to a minimum and limited to non-significant habitats (e.g., hedgerows), where possible. • For roadside collection line and transmission line routes, vegetation removal will be kept to a minimum and will be limited to the road right-of-way, where possible. • Prune any trees damaged during construction through the implementation of proper arboricultural techniques. • Where excavation for construction of collection lines is conducted adjacent to the dripline of woodlands (or within the dripline for collection line installation within road right-of-ways), implement proper root pruning measures to protect tree roots. • Where construction occurs within 30 m, install and maintain protective fencing to clearly define the construction area and prevent accidental damage to vegetation.	• Accidental intrusion will be avoided through clear delineation of boundaries and protective fencing. • Negligible residual effects.	• Undertake monthly site inspection by an Environmental Monitor to ensure that protective fencing is intact and that there is no damage caused during construction. • **Contingency Measures:** ▪ Repair protective fencing if damaged. ▪ Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. ▪ If accidental damage to vegetation or habitat occurs, habitat restoration will occur within the disturbed area utilizing suitable native species.
Accidental intrusion resulting in habitat damage in Raptor Wintering Area, and Bat Maternity Colonies.	• Avoid accidental intrusion into habitat.	• Clearly delineate habitat boundaries where construction will occur within 10 m using protective fencing to ensure that construction activities occur outside the habitat boundaries (defined by the drip-line of trees or the edge of the cultural meadow as defined by ELC, where applicable). • Construction activities will be limited to the disturbance areas as detailed on Figure 2-1.	• Habitat damage will be avoided through clear delineation of boundaries and protective fencing. • Negligible residual effects.	• Undertake on-site inspections by an Environmental Monitor to ensure that protective fencing is intact and that there is no damage caused during construction on the following basis: ▪ Weekly during active construction periods; ▪ Inspection not required during inactive construction periods, where the site is left alone for 30 days or longer. • **Contingency Measures:** ▪ Repair protective fencing if damaged. ▪ Any damaged trees will be pruned through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. ▪ If accidental damage to habitat occurs, habitat restoration will occur within the disturbed area using suitable native species. ▪ Consultation with MNR to determine additional contingency measures if necessary.

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Accidental intrusion resulting in habitat damage in Rare Vegetation Communities, Amphibian Woodland Breeding Habitats, Amphibian Wetland Breeding Habitats.	• Avoid accidental intrusion into significant wildlife habitat.	• Clearly delineate habitat boundaries where construction will occur within 30 m using protective fencing to ensure that construction activities occur outside the habitat boundaries. • Construction activities will be limited to the disturbance areas as detailed on Figure 2-1.	• Habitat damage will be avoided through clear delineation of boundaries and protective fencing. • Negligible residual effects.	• Undertake on-site inspections by an Environmental Monitor to ensure that protective fencing is intact and that there is no damage caused during construction on the following basis: ▪ Weekly during active construction periods; ▪ Inspection not required during inactive construction periods, where the site is left alone for 30 days or longer. • **Contingency Measures:** ▪ Repair protective fencing if damaged. ▪ Any damaged trees will be pruned through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. ▪ If accidental damage to habitat occurs, habitat restoration will occur within the disturbed area using suitable native species. ▪ Consultation with MNR to determine additional contingency measures if necessary.
Accidental intrusion resulting in habitat damage in Turtle Wintering Areas.	• Avoid accidental intrusion into significant wildlife habitat.	• Clearly delineate habitat boundaries where construction will occur within 30 m using protective fencing (sediment and erosion control fence) to ensure that construction activities occur outside the habitat boundaries. • Construction activities will be limited to the disturbance areas as detailed on Figure 2-1.	• Disruption to turtle wintering habitats avoided through habitat delineation and fencing. • Negligible residual effects.	• Undertake on-site inspections by an Environmental Monitor to ensure that protective fencing is intact and that there is no damage caused during construction on the following basis: ▪ Weekly during active construction periods; ▪ Prior to, during and post forecasted large rainfall events (>20 millimetres in 24 hours) or significant snowmelt events (*i.e.*, spring freshet); and ▪ Daily during extended rain or snowmelt periods. ▪ Inspection not required during inactive construction periods, where the site is left alone for 30 days or longer. • **Contingency Measures:** ▪ Repair protective fencing if damaged. ▪ Consultation with MNR to determine additional contingency measures if necessary.
Accidental intrusion resulting in habitat damage in Reptile Hibernacula and Turtle Nesting Habitats.	• Avoid accidental intrusion into significant wildlife habitat.	• Clearly delineate habitat boundaries where construction will occur within 30 m using protective fencing to ensure that construction activities occur outside the natural feature / habitat boundaries. • Construction activities will be limited to the disturbance areas as detailed on Figure 2-1.	• Habitat damage will be avoided and mortality minimized through clear habitat delineation. • Negligible residual effects.	• Undertake on-site inspections by an Environmental Monitor to ensure that protective fencing is intact and that there is no damage caused during construction on the following basis: ▪ Weekly during active construction periods; ▪ Inspection not required during inactive construction periods, where the site is left alone for 30 days or longer. • **Contingency Measures:** ▪ Repair protective fencing if damaged. ▪ Consultation with MNR to determine additional contingency measures if necessary.

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Accidental intrusion resulting in habitat damage in Habitat for Plant Species of Conservation Concern.	• Avoid accidental intrusion into significant wildlife habitat.	• Clearly delineate habitat boundaries where construction will occur within 30 m using protective fencing to ensure that construction activities occur outside the natural feature / habitat boundaries. • Construction activities will be limited to the disturbance areas as detailed on Figure 2-1.	• Habitat damage will be avoided and mortality minimized through clear habitat delineation. • Negligible residual effects.	• Undertake monthly site inspections by an Environmental Monitor to ensure that protective fencing is intact and that there is no damage caused during construction. • **Contingency Measures:** ▪ Repair protective fencing if damaged. ▪ Any damaged trees will be pruned through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. ▪ If accidental damage to habitat occurs, habitat restoration will occur within the disturbed area using suitable native species.
Potential introduction of invasive species into Significant Wetland.	• Minimize species invasion into wetland communities.	• Set back permanent access road 5 m from the wetland boundary (WET-027). Develop and implement a restoration plan to re-vegetate the 5 m buffer between the access road and the wetland (WET-027). This will include the 1 year application of an approved herbicide (as per Ausable Bayfield Conservation Authority or St. Clair Region Conservation Authority) to eradicate invasive species followed by seeding with a native seed mix and the planting of native shrubs along the edge consistent with existing vegetation composition.	• Introduction of invasive species avoided or minimized through the application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Monitor re-vegetated areas once per growing season for two years to confirm survival of plantings and/or seed mix. • **Contingency Measures:** ▪ Should seed mix and/or plantings not survive, additional seeding and/or plantings will be undertaken.
Risk of soil or water contamination resulting from accidental spills near Significant Wetlands and Significant Woodlands.	• Minimize soil or water contamination.	• Develop and implement emergency spills plan outlining steps to contain any chemicals or to avoid contamination of adjacent significant natural features. • Control soil or water contamination through best management practices, including: ▪ Store any stockpiled materials at least 30 m away from a wetland, woodland or water body. ▪ Develop a spill response plan and train staff on associated procedures. ▪ Maintain emergency spill kits on site. ▪ Dispose of any waste material from construction activities by authorized and approved off-site vendors.	• Soil and water contamination avoided or minimized through the application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Contractor to conduct routine inspections of construction equipment for leaks / spills. • Develop an emergency spills plan. • **Contingency Measures:** • In the event of a spill: ▪ Immediately stop all work until the spill is cleaned up. ▪ Notify MOE's Spills Action Centre of any leaks or spills. ▪ If a spill enters a wetland, collect and analyze water samples for appropriate parameters. ▪ Monitor daily until cleanup is completed.
Increased dust accumulation on peripheral vegetation, causing damage to plants in Significant Wetlands.	• Minimize dust accumulation on peripheral vegetation.	• Use of water as a dust suppressant along areas where construction is located within 5 m of a significant wetland or woodland.	• Accumulation of dust on peripheral vegetation avoided or minimized. • Some residual effects of limited magnitude likely.	• Daily monitoring of areas where active construction is occurring within 5 m of a significant wetland by an Environmental Monitor. • **Contingency Measures:** ▪ If dust accumulation on wetland plants occurs, spray down plants with water.

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Changes in surface water drainage patterns resulting in effects to soil moisture and species composition of vegetation in Significant Wetlands and Significant Woodlands.	• Minimize effects to soil moisture and species composition of vegetation.	• Ensure Best Management Practices are used to maintain current drainage patterns, including: ▪ Implement infiltration techniques to the maximum extent possible. ▪ Minimize paved surfaces and design roads to promote infiltration. ▪ Limit changes in land contours.	• Effects to soil moisture and species composition of vegetation minimized. • Low likelihood and limited magnitude of effect as a result.	• Site inspection by Environmental Monitor following grading activities within 30 m of significant wetlands and significant woodlands. • **Contingency Measures:** ▪ If surface water drainage alterations are detected, undertake corrective measures to restore drainage patterns.
Increased erosion and sedimentation resulting from clearing and grubbing, excavation, backfilling and stockpiling where construction occurs within 5 m of Significant Wetlands.	• Minimize erosion and sedimentation from clearing, grubbing, excavation, backfilling and stockpiling.	• Install sediment and erosion control fencing along edge of construction area if within 30 m of a significant wetland as per Ontario Provincial Standards Specifications (OPSD 219.130). • Develop and implement an erosion and sediment control plan before commencement of construction. • Extra erosion and sediment control materials will be kept on hand, (i.e., heavy duty silt fencing, straw bales). • Check that erosion control tools are in good repair and properly functioning prior to conducting daily work and re-install or repair as required prior to commencing daily construction activities. • Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated). • To avoid sedimentation in significant wetlands, schedule grading within 30 m of a significant wetland to avoid times of high runoff volumes wherever possible. Temporarily suspend work if high runoff volume is noted or excessive flows of sediment discharges occur until contingency measures are in place. • Re-vegetate temporary roads to pre-construction conditions as soon as possible after construction activities are complete using species native to the area in naturally vegetated areas.	• Increased sedimentation and erosion avoided or minimized through the application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Monitor on-site conditions (i.e., erosion and sediment control, flooding, etc.) where construction occurs within 5 m of a significant wetland feature by an Environmental Monitor on the following basis: ▪ Daily during active construction periods; ▪ Prior to, during and post forecasted large rainfall events (>20 millimetres in 24 hours) or significant snowmelt events (i.e., spring freshet); ▪ Daily during extended rain or snowmelt periods; ▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer. • **Contingency Measures:** ▪ Suspend work if excessive flows of sediment discharges occur until additional mitigation measures are in place (e.g. installation of extra erosion and sediment control materials kept on site such as silt fencing, straw bales, etc.).
Increased erosion and sedimentation resulting from clearing and grubbing, excavation, backfilling and stockpiling where construction occurs within 30 m of Significant Wetlands and Significant Woodlands.	• Minimize erosion and sedimentation from clearing, grubbing, excavation, backfilling and stockpiling.	• Install sediment and erosion control fencing along edge of construction area if within 30 m of a significant wetland or woodland as per Ontario Provincial Standards Specifications (OPSD 219.130). • Develop and implement an erosion and sediment control plan before commencement of construction. • Extra erosion and sediment control materials will be kept on hand, (i.e., heavy duty silt fencing, straw bales).	• Increased sedimentation and erosion avoided or minimized through the application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Monitor on-site conditions (i.e., erosion and sediment control, flooding, etc.) by an Environmental Monitor where construction occurs within 5 m to 30 m of a significant feature on the following basis: ▪ Weekly during active construction periods; ▪ Prior to, during and post forecasted large rainfall events (>20 millimetres in 24 hours) or significant snowmelt events (i.e., spring freshet);

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
		• Check that erosion control tools are in good repair and properly functioning prior to conducting daily work and re-install or repair as required prior to commencing daily construction activities. • Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated). • To avoid sedimentation in significant wetlands, schedule grading within 30 m of a significant wetland to avoid times of high runoff volumes wherever possible. Temporarily suspend work if high runoff volume is noted or excessive flows of sediment discharges occur until contingency measures are in place. • Re-vegetate temporary roads to pre-construction conditions as soon as possible after construction activities are complete using species native to the area in naturally vegetated areas.		▪ Daily during extended rain or snowmelt periods; ▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer. • **Contingency Measures:** ▪ Suspend work if excessive flows of sediment discharges occur until additional mitigation measures are in place (e.g. installation of extra erosion and sediment control materials kept on site such as silt fencing, straw bales, etc.).
Increased erosion and sedimentation resulting from clearing and grubbing, excavation, backfilling and stockpiling where vegetation removal is proposed in a Significant Woodland.	• Minimize erosion and sedimentation from clearing, grubbing, excavation, backfilling and stockpiling.	• Install sediment and erosion control fencing along edge of construction area as per Ontario Provincial Standards Specifications (OPSD 219.130). • Install heavy duty sediment and erosion control fencing along construction disturbance area for access road to Turbines 78 and 79 where within 30 m of natural area 90. • Develop and implement an erosion and sediment control plan before commencement of construction. • Extra erosion and sediment control materials will be kept on hand, (i.e., heavy duty silt fencing, straw bales). • Check that erosion control tools are in good repair and properly functioning prior to conducting daily work and re-install or repair as required prior to commencing daily construction activities. • Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated). • Re-vegetate temporary roads to pre-construction conditions as soon as possible after construction activities are complete using species native to the area in naturally vegetated areas.	• Sedimentation avoided or minimized through the application of mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Monitor on-site conditions (i.e., erosion and sediment control, flooding, etc.) by an Environmental Monitor where construction occurs within 5 m to 30 m of a significant feature on the following basis: ▪ Weekly during active construction periods; ▪ Prior to, during and post forecasted large rainfall events (>20 millimetres in 24 hours) or significant snowmelt events (i.e., spring freshet); ▪ Daily during extended rain or snowmelt periods; ▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer. • **Contingency Measures:** ▪ Suspend work if excessive flows of sediment discharges occur until additional mitigation measures are in place (e.g. installation of extra erosion and sediment control materials kept on site such as silt fencing, straw bales, etc.).

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Increased erosion and sedimentation resulting from clearing and grubbing, excavation, backfilling and stockpiling near Turtle Wintering Areas, Rare Vegetation Communities, Turtle Nesting Habitats, Amphibian Woodland Breeding Habitat, Amphibian Wetland Breeding Habitats, and Amphibian Movement Corridors.	• Minimize erosion and sedimentation in significant wildlife habitat feature.	• Install sediment and erosion control fencing along edge of construction area if within 30 m of habitat feature as per Ontario Provincial Standards Specifications (OPSD 219.130).	• Erosion and sedimentation mitigated through sediment and erosion control fencing. • Moderate likelihood; if erosion and sedimentation occur, negative effects may be measurable but would likely represent a small change relative to existing conditions.	• Monitor on-site conditions (*i.e.*, erosion and sediment control, spills, flooding, etc.) by an Environmental Monitor where construction occurs within 30 m of a feature on the following basis: ▪ Weekly during active construction periods; ▪ Prior to, during and post forecasted large rainfall events (>20 millimetres in 24 hours) or significant snowmelt events (*i.e.*, spring freshet); ▪ Daily during extended rain or snowmelt periods; ▪ Monthly during inactive construction periods, if the site is left alone for 30 days or longer. • **Contingency Measures:** ▪ Suspend work if excessive flows of sediment discharges occur until additional mitigation measures are in place (e.g. install the extra erosion and sediment control materials kept on site, such as heavy duty silt fencing, straw bales, etc.).
Potential for unplanned intrusion into Significant Wetland in event of equipment malfunction during directional drilling. **Risk of soil or water contamination from spills during directional drilling.** **Risk of sedimentation or erosion into Significant Wetland during directional drilling.**	• Minimize potential for accidental intrusion into significant wetland. • Minimize soil or water contamination. • Minimize erosion, sedimentation and turbidity during directional drilling.	• Conduct drilling by licensed drillers in accordance with Regulation 903 under Ontario Water Resources Act, R.S.O. 1990. • Locate entrance and exit pits at least 30 m from wetland edge. • Collect drill cuttings as they are generated and place in a soil bin or bag for off-site disposal. • Installation of sediment fencing as per Ontario Provincial Standard Specifications (OPSD 219.130). • Ensure drill depth is at an appropriate depth below wetland to reduce the risk of a "frac-out". Drilling depth will be determined based on site-specific geotechnical conditions and would take into account soil type, soil variances, porosity, etc. as derived from exploratory borehole information. • Monitor natural features for signs of surface disturbance (e.g., escape of drilling mud, evidence of tunnel collapse). • Restore drilling sites to pre-construction conditions once construction is complete. • Develop a "Frac-Out" Contingency Plan outlining steps to contain any chemicals and avoid contamination of wetland feature.	• Risk of unplanned intrusion into wetland due to directional drilling, resulting in soil or water contamination and/or sedimentation and erosion, minimized through the application of mitigation measures. • Moderate likelihood; if unplanned intrusion occurred negative effects may be measurable but would likely represent a small change relative to existing conditions.	• Monitor directional drilling for the duration of such activities by an Environmental Monitor to ensure that "frac-out" or accidental intrusion does not occur, and if it does, to ensure that there are no effects on surface or groundwater. • **Contingency Measures:** ▪ Implement a "Frac-Out" Contingency Plan in the event of a "frac-out", which will include but is not limited to the following: ▪ Immediately stop all work, including the recycling of drilling mud / lubricant. ▪ Isolate affected watercourse or area using a temporary dam and install by-pass pump system (if required) to maintain continuous flow downstream of the site; ▪ Insert rigid in-water/soil containment unit or underwater boom into the "frac-out" source area in order to contain any sediments and/or deleterious materials originating from the "frac-out". ▪ No captured material will be left on-site. The captured material should be extracted by vacuum truck, if available, or pumped into a containment unit or area for off-site disposal; ▪ Monitor "frac-out" for four hours to determine if the drilling mud congeals. If drilling mud congeals,

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
				take no other action that would potentially suspend sediments in the water column. If drilling mud does not congeal, maintain isolation/containment unit in place and continue pumping captured material to a containment unit or area until drilling mud congeals or stops flowing. ▪ Notify the Ministry of the Environment's (MOE) Spills Action Centre (1-800-268- 6060) of the "frac-out" event and the response taken to contain the spill. This step should be completed during the 4 hour "frac-out" monitoring period. ▪ Engage a spill response team to contain and clean up excess drilling mud in the water. ▪ Monitor clean-up procedures to ensure they do not result in greater damage than leaving the mud in-place. ▪ If the spill affects an area that is vegetated, the area will be seeded and/or replanted using the same species to those in the adjacent area, or allowed to re-grow from existing vegetation. Re-vegetated areas will be monitored once per growing season for two years subsequent to "frac-out" to confirm re-vegetation is successful. ▪ Document post-cleanup conditions with photographs and prepare "frac-out" incident report describing time, place, actions taken to remediate "frac-out" and measures implemented to prevent recurrence. Provide incident report to MNR and MOE within 30 days of the incident.
Changes in water levels resulting from short term construction dewatering[1] near Significant Wetlands, Turtle Wintering Area, Seeps and Springs, Amphibian Woodland Breeding Habitats, and Amphibian Movement Corridors.	• Minimize effects on significant natural features due to dewatering activities.	• Determine the zone of influence of required dewatering activities prior to construction. • For significant wetlands potentially affected by dewatering, avoid dewatering activities during April 1 to July 31. If this is not possible, MNR will be consulted regarding mitigation measures that may be required. • For turtle wintering areas potentially affected by dewatering, avoid dewatering activities during October 1 to April 30. If this is not possible, MNR	• Dewatering effects minimized through the application of mitigation measures. • Negligible residual effects.	• For significant natural features within the zone of influence and potentially affected by dewatering activities, the following Monitoring Plan will be implemented: ▪ Prior to construction, undertake monthly monitoring for a minimum of six months of surface water levels (staff gauge), stream flow (if applicable), vertical hydraulic gradients (mini-piezometers), surface water temperature and vegetation health of the feature within the

1. *In the event that construction dewatering is not required, or if a significant feature is confirmed not to be within the zone of influence based on Project-specific geotechnical investigation, no dewatering-related monitoring or dewatering restrictions will be required for that feature.*

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
		will be consulted regarding mitigation measures that may be required. • For seeps and springs, avoid dewatering activities during December 1 to March 31, where possible. • For amphibian woodland breeding habitats and amphibian movement corridors potentially affected by dewatering, avoid dewatering activities during April 1 to July 31. If this is not possible, MNR will be consulted regarding mitigation measures that may be required. • Limit duration of dewatering to as short a time frame as possible. • Implement groundwater cut-offs as required to limit water taking quantities. • Limit dewatering where turbines are constructed within the sand and/or gravel deposits to less than 400,000 L/day. • Set back groundwater discharge locations at least 30 m from significant features. All groundwater discharge will undergo appropriate water quality and temperature controls, as required, and will be directed through a sediment filter (i.e., filter bag), sediment basin or other appropriate device capable of handling the anticipated volumes of water, before being discharged to the environment. The specific locations for directing treated groundwater discharge will be selected in the field at the time of construction, but will generally be limited to grassed areas, existing drainage ditching or agricultural fields.		identified dewatering zone of influence. ▪ During construction dewatering activities, undertake daily monitoring of surface water levels (staff gauge), stream flow (if applicable), vertical hydraulic gradients (mini-piezometers), surface water temperature and vegetation health of the feature within the identified dewatering zone of influence. ▪ Following construction, undertake monthly monitoring for up to one year of surface water levels (staff gauge), stream flow (if applicable), vertical hydraulic gradients (mini-piezometers), surface water temperature, and vegetation health of the feature within the identified dewatering zone of influence. Monitoring may be terminated prior to one year post-construction if there is no evidence of residual effects and levels have returned to norms established through pre-construction monitoring. • **Contingency Measures:** ▪ In the event of a decrease in surface water levels which can be attributed to the dewatering activities, stop dewatering until appropriate site-specific mitigation has been implemented. Implement contingency measures (to be determined in consultation with MNR), if required, including but not limited to rescue of stranded wildlife.
Clearing of vegetation for access roads in Significant Woodlands resulting in loss of up to 0.16 ha of forest cover (representing 0.008% of woodland area).	• Minimize loss of forest cover over time.	• Establish an area of forest equal in area to the cleared area (0.16 ha) through tree planting and management (e.g., in partnership with a local Conservation Authority). Details of the afforestation plan will be provided to MNR in a Compensation Plan. • Perform vegetation clearing outside of the breeding bird season (May 1 to July 31). If this is not possible, MNR will be consulted regarding mitigation measures that may be required. • Clearly stake area to be cleared. • Fell trees with a chainsaw toward the construction area to reduce damage to adjacent vegetation being retained.	• Some clearing of vegetation will occur for the access roads; this would represent a small change relative to existing conditions. • Loss of forest cover minimized through afforestation; however there will be a time delay for the planted area to reach the same function as the cleared forest.	• Daily monitoring of areas where active vegetation removal is occurring by Environmental Monitor. • Monitor establishment of planted area and replant/fill plant if required (may be undertaken by partner organization). • **Contingency Measures:** ▪ Any damaged trees will be pruned through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
		• Limit size of machines entering significant woodlands to minimize soil compaction. • Carry out removal of tree limbs on adjacent trees being retained under supervision of an Arborist or Forester. • Cut damaged tree roots clean as soon as possible and cover exposed roots in an approved topsoil under supervision of an Arborist or Forester.		
Disruption of Tundra Swans in Waterfowl Stopover and Staging Areas due to construction activities.	• Avoid disruption of Tundra Swans during migration.	• Schedule construction activities within 300 m[†] of the stopover and staging habitat to occur outside the important period of staging Tundra Swan (March 1 to April 15)[2]. If this is not possible MNR will be consulted regarding mitigation measures that may be required. • Construction activities within 300 m[†] will be limited to the disturbance areas as detailed on Figure 2-1. • Restore temporary construction areas to pre-construction conditions as soon as possible (e.g. re-vegetate formerly naturally vegetated areas with native plants).	• Disruption to Tundra Swan will be avoided by timing of construction activities. • Negligible residual effects.	• No monitoring or contingency measures required provided construction occurs outside migration period.
Disruption of migrating waterfowl in Waterfowl Stopover and Staging Areas (Terrestrial and Aquatic) due to construction activities.	• Avoid disruption of waterfowl during migration.	• Schedule construction activities within 100 m of the stopover and staging habitat to occur outside the important period of staging for migrating waterfowl (March 1 to April 15). If this is not possible, MNR will be consulted regarding mitigation measures that may be required.	• Disruption to migrating waterfowl will be avoided by timing of construction activities. • Negligible residual effects.	• No monitoring or contingency measures required provided construction occurs outside migration period.
Avoidance behaviour of winter raptors during construction near Raptor Wintering Area.	• Minimize avoidance by raptors.	• No construction within 120 m of this habitat during winter period (November to March) when raptors present. If this is not possible MNR will be consulted regarding mitigation measures that may be required.	• Effects on raptors will be minimized through construction timing. • Negligible residual effects.	• No monitoring or contingency measures required.
Noise disturbance to bats during construction near Bat Maternity Colonies.	• Minimize disturbance to bat roosting habitat.	• Schedule construction activities within 30 m of significant bat habitats to daylight hours during the bat maternal period of May 1st to July 31st, wherever possible.	• Disturbance will be avoided or minimized though timing of construction. • Construction effects temporary and minor.	• No monitoring or contingency measures required.

[†] *The area of the flooded field habitat plus a 100 m to 300 m radius buffer, dependant on local site conditions and adjacent land use, is the Significant Wildlife Habitat as per the Draft Ecoregion 7E Criterion Schedule Addendum to the Significant Wildlife Habitat Technical Guide (MNR, 2012). Therefore, the buffer area may be reduced to 100 m following the completion of pre-construction surveys described in the Natural Heritage Assessment and Environmental Impact Study (AECOM, 2013).*

[2] *Timing window may be modified based on the results of Tundra Swan migration monitoring (e.g. as conducted by the Lambton Heritage Museum); to be determined in consultation with MNR.*

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Displacement and/or mortality of nursing female and juvenile bats resulting from vegetation clearing for access road construction within Bat Maternity Colony. **Removal of confirmed significant cavity trees or other suitable, but not studied, cavity trees resulting from vegetation clearing for access road construction within Bat Maternity Colony.**	• No displacement and/or mortality of nursing female and juvenile bats. • Protection of suitable cavity trees for bat maternity colonies.	• Clearly delineate construction boundaries within 10 m of the habitat using protective fencing to avoid accidental damage to the habitat. • Prepare a tree preservation plan which identifies specific trees to be removed and whether each tree contains a cavity suitable for potential use as a bat maternity colony. • Given the small size of BMA-090A and limited amount of tree removal proposed, no tree greater than or equal to 25 cm DBH, that is within decay class 1-3 (Watt and Caceres, 1999) and has one or more cavities is to be removed. If this is not possible, MNR will be consulted regarding any additional mitigation measures that may be required. • Schedule tree removal to occur outside of the bat maternal period of May 1st to July 31st. If this is not possible, MNR will be consulted regarding mitigation measures that may be required.	• Significance of residual effects will be determined based on the results of post-construction monitoring.	• Supervision of tree removal by a qualified Environmental Monitor. • Undertake on-site inspections by an Environmental Monitor to ensure that protective fencing is intact and that there is no damage caused during construction on the following basis: ▪ Weekly during active construction periods; ▪ Inspection not required during inactive construction periods, where the site is left alone for 30 days or longer. **Contingency Measures:** ▪ Repair protective fencing if damaged. ▪ Any damaged trees will be pruned through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester. ▪ If accidental damage to habitat occurs, habitat restoration will occur using suitable native species.
Noise disturbance to and/or avoidance behaviour of bats during construction within Bat Maternity Colony.	• Minimize noise disturbance and/or avoidance behaviour during construction.	• Schedule tree removal to occur outside of the bat maternal period of May 1st to July 31st, wherever possible. If this is not possible, MNR will be consulted regarding mitigation measures that may be required.	• Disturbance avoided through timing of construction activities. • No residual effects anticipated.	• No monitoring or contingency measures required.
Disruption or possible mortality of turtles moving between wintering ponds and other areas resulting from construction near Turtle Wintering Areas.	• Minimize disruption to turtle movement.	• Post speed limits and turtle crossing signage along relevant construction access roads (30 km/hr). • Do not clear vegetation within 30 m of ponds in April, May, September or October. No vegetation within the defined habitat is to be removed. If this is not possible, MNR will be consulted regarding any additional mitigation measures that may be required. • To avoid collisions with turtles, schedule construction activities within 30 m to occur during daylight hours and not during the period of emergence (March 15 to May 31). • If construction must occur during this timing window, conduct area searches for turtles daily prior to construction activities.	• Disruption and/or mortality minimized through construction timing and speed limits. • Low likelihood of occurring and limited magnitude.	• If construction occurs within 30 m of a turtle wintering area (if determined to be significant) between March 15 and May 31, conduct area searches for turtles by a qualified Biologist prior to soil stripping or grubbing, as well as daily prior to construction activities by the Contractor within the construction footprint. • **Contingency Measures:** ▪ Turtles encountered within the construction area will be moved to a safe location (nearby pond) under the direction of the Environmental Monitor or a qualified Biologist.

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Possible indirect effects on habitat condition resulting from changes to surface water drainage patterns near Turtle Wintering Areas, Turtle Nesting Habitats, Amphibian Woodland Breeding Habitats, and Amphibian Wetland Breeding Habitats.	• Minimize indirect effects on significant wildlife habitat through changes in surface water drainage patterns.	• Ensure Best Management Practices are used to maintain current drainage patterns, including: ▪ Implement infiltration techniques to the maximum extent possible. ▪ Minimize paved surfaces and design roads to promote infiltration. ▪ Limit changes in land contours.	• Indirect effects to habitat minimized by maintaining grade. • Low likelihood of occurring and limited magnitude.	• Inspect locations following completion of access roads by an Environmental Monitor to ensure no changes in drainage patterns. • Examine condition of significant wildlife habitat features within 30 m of access roads following completion of construction. • **Contingency Measures:** ▪ If surface water drainage alterations are detected, undertake corrective measures to restore drainage pattern.
Possible mortality to snakes from construction equipment during construction near Reptile Hibernacula.	• Avoid mortality from equipment.	• No construction activities will occur within 30 m of the hibernaculum feature (*i.e.,* within the 30 m habitat buffer) between September 1 and May 15, to avoid overwintering snakes. • If construction must take place within 30 m of hibernacula during this timing window, no sub-surface (excavation) work is to occur. If above-ground activities are to occur: ▪ Erect temporary drift fence where within 30 m; and ▪ Conduct area searches for snake species within the construction area daily prior to construction activities. • If this is not possible, MNR will be consulted regarding additional mitigation measures that may be required.	• Mortality minimized through construction timing or drift fencing. • Low likelihood of occurring and limited magnitude (i.e., no or limited mortality expected).	• If construction occurs within 30 m of a reptile hibernaculum (if determined to be significant) between September 1 and May 15, conduct area searches for snakes by a qualified Biologist prior to soil stripping or grubbing, as well as daily prior to construction activities by the Contractor within the construction footprint. • **Contingency Measures:** ▪ Snakes encountered within the construction area will be moved to a safe location under the direction of the Environmental Monitor or a qualified Biologist.
Noise disturbance to and/or avoidance behaviour of deer during construction near Deer Winter Congregation Areas.	• Minimize disturbance to wintering deer.	• Schedule construction activities within 120 m of deer wintering areas to occur before December 1 or after April 15 when the snow depth is greater than 20 cm or there is evidence of yarding. If this is not possible, MNR will be consulted regarding mitigation measures that may be required. • In years where environmental conditions are not favourable for yarding, contact MNR to determine if construction activities may proceed between December 1 and March 31.	• Disturbance to wintering deer will be minimized through construction timing. • Negligible residual effects.	• No monitoring or contingency measures required if construction does not occur between December 1 and April 15. • If construction is scheduled to occur between December 1 and April 15, undertake survey to determine snow depth and evidence of yarding (e.g. concentrations of tracks) by a qualified Biologist. Contact MNR to determine if construction activities may proceed.

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Disruption of Bald Eagle in breeding habitat due to noise from construction activities near Bald Eagle and Osprey Nesting, Foraging and Perching Habitat.	• Avoid disruption of Bald Eagle breeding habitat.	• If the nest is active, no construction activities will occur within 200 m of the nest in feature BEN-01 (*i.e.* construction activities will remain outside the primary and secondary habitat zones, as defined by MNR). • If the nest is active, no construction activities will occur within 800 m[§] of the nest in feature BEN-01 during the most critical period for Bald Eagle nesting areas, which extends from March 1 until May 15. • Construction activities will be limited to the disturbance areas as detailed on Figure 2-1.	• Disruption to Bald Eagle avoided through construction timing. • Negligible residual effects.	• In any given year, if the nest is determined to be active and construction is to occur within 800 m[§] of the nest between February 15 and March 1 or between May 15 and August 15, monitoring for disturbance effects will be undertaken during construction by a qualified Biologist, using the Bald Eagle Activity Assessment protocol or, if completed, the Bald Eagle Behavioural Study, both described in the NHA. • The Bald Eagle Activity Assessment includes: ▪ Surveys conducted at approximately two week intervals starting on February 15 and extending to May 15. ▪ Surveys conducted during daylight hours from a suitable vantage point for a minimum of 30 minutes. ▪ All observed Bald Eagle individuals and nests will be recorded along with GPS coordinates of their location, individual life stage, and behavioural observations. ▪ If active breeding is confirmed, surveys will continue at the same frequency until fledglings have left the nest (approximately August 15). • **Contingency Measures:** ▪ If a significant change to Bald Eagle habitat use is noted through disturbance monitoring, such as changes to flight paths and/or abandonment of the nest, MNR will be contacted immediately to determine additional contingency measures if necessary.
Removal of vegetation within Woodland Raptor Nesting Habitat and Woodland Area-sensitive Bird Breeding Habitat (up to 0.16 ha). This tree removal is proposed within thin sections of forest that presently consist of edge habitat and contain no interior forest habitat.	• Avoid effects to interior forest habitat quantity or quality.	• Clearly delineate limits of easement using protective fencing to ensure that construction activities occur only within prescribed areas. • Minimize the area of tree removal within the natural area to the extent possible. • Construction activities will be limited to the disturbance areas as detailed on Figure 2-1.	• No effects to interior forest habitat quantity or quality.	• Supervision of vegetation removal by a qualified Environmental Monitor to limit removal of habitat to the extent possible. • **Contingency Measures** ▪ Prune any damaged trees through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.

[§] *This distance may be reduced through the completion of a pre-construction Behavioural Study according to the protocol described in the Natural Heritage Assessment and Environmental Impact Study (AECOM, 2013).*

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Breeding woodland raptors and/or woodland area-sensitive birds may be disturbed by noise from construction within Woodland Raptor Nesting Habitat and Woodland Area-sensitive Bird Breeding Habitat.	• Avoid disturbance to breeding raptors and/or area-sensitive birds.	• Schedule vegetation clearing within habitat to occur outside the breeding season of May 1 to July 31. If this is not possible, MNR will be consulted regarding mitigation measures that may be required.	• Disturbance to woodland raptors avoided through timing of construction activities.	• No monitoring or contingency measures required.
Possible mortality to turtles from construction equipment during construction near Turtle Nesting Habitats.	• Avoid mortality from equipment.	• Post speed limits and turtle crossing signage along relevant construction access road (30 km/hr). • Schedule construction activities within 30 m to avoid nesting period (May 15 to June 30). If this is not possible, MNR will be consulted regarding mitigation measures that may be required.	• Disruption minimized through speed limits and fencing. • Low likelihood of occurring and limited magnitude (i.e., no or limited mortality expected).	• If construction occurs within 30 m of turtle nesting habitat (if determined to be significant) between May 15 and June 30, conduct area searches for turtles by a qualified Biologist prior to soil stripping or grubbing, as well as daily prior to construction activities by the Contractor within the construction footprint. • **Contingency Measures:** ▪ Turtles encountered within the construction area will be moved to a safe location under the direction of the Environmental Monitor or qualified Biologist.
Removal of vegetation for construction of access roads within Seeps and Springs resulting in habitat damage (up to 0.01 ha).	• Minimize habitat damage within feature.	• Minimize the area of tree removal in feature to the extent possible. • Construction activities will be limited to the disturbance areas as detailed on Figure 2-1.	• Habitat damage minimized through application of mitigation measures. • Negligible residual effects.	• Supervision of vegetation removal by an Environmental Monitor to ensure no tree removal within 30 m of seeps.
Disruption or possible mortality of amphibians moving to breeding pools and home range near Amphibian Woodland Breeding Habitats, Amphibian Wetland Breeding Habitats, and Amphibian Movement Corridors.	• Minimize disruption to amphibians. • Minimize amphibian mortality along access roads.	• Limit construction of roads within 30 m of significant amphibian habitats to daylight hours between April 1 and June 30 (for significant frog breeding habitats) or between March 15 and April 30 (for significant salamander breeding habitat), to avoid excessive noise and vehicle caused mortality, wherever possible. If this is not possible, MNR will be consulted regarding mitigation measures that may be required. • Post speed limits along construction access roads (30 km/hr).	• Disruption mitigated through construction timing and speed limits. • Low likelihood of occurring and limited magnitude (*i.e.*, no or limited mortality expected).	• No monitoring required if timing windows are applied. • If construction must occur within 30 m during the noted time periods due to a critical phase of construction, work may be permitted if conditions for amphibian breeding are not ideal. Specifically, work may occur if any one of following conditions is met: temperatures are below 6°C, there has been no rain in the previous 24 hours or wind speeds are higher than 3 on the Beaufort Scale. The Environmental Monitor will track weather conditions and determine if suitable amphibian breeding conditions are or are not present.

Table 3-3 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Removal of vegetation for construction of access road within Hooded Warbler Habitat resulting in habitat damage (up to 0.15 ha). **Noise disturbance to breeding Hooded Warbler during construction of access road within Hooded Warbler Habitat.**	• Minimize disturbance to breeding habitat. • Avoid disturbance to breeding birds.	• Schedule vegetation clearing within habitat to occur outside the breeding season of May 1 to July 31. If this is not possible, MNR will be consulted regarding any additional mitigation measures that may be required. • Clearly delineate limits of easement using protective fencing to ensure that construction activities occur only within prescribed areas. • Construction activities will be limited to the disturbance areas as detailed on Figure 2-1. • Minimize the area of tree and shrub removal within the natural area to the extent possible. • Include plantings of native shrub species suitable to Hooded Warbler in the area of disturbance during restoration of disturbance areas for the access road.	• Some (up to 0.15 ha) permanent vegetation removal within the natural feature containing habitat for Hooded Warbler will occur. The amount of habitat loss is minor and restricted to two narrow sections of the woodlot; this would represent a small change relative to existing conditions. • Disturbance to Hooded Warbler avoided through timing of construction activities.	• Supervision of vegetation removal by a qualified Environmental Monitor to limit removal of habitat to the extent possible. **Contingency Measures:** ▪ Prune any damaged trees through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.

Table 3-4 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Risk of bird mortality caused by turbines (Project-wide). **Risk of bat mortality caused by turbines (Project-wide).**	• Minimize disturbance and/or mortality to wildlife.	• Utilize a lighting scheme that will minimize risk to bird or bat collisions, while fulfilling Transport Canada requirements.	• Risk of bird and bat collisions with turbines minimized through mitigation. • Significance of residual effects will be determined based on the results of post-construction monitoring.	• Develop and implement a monitoring program for bird and bat mortality consistent with *Birds and Bird Habitats:* Guidelines *for Wind Power Projects* (MNR, 2010) and *Bats and Bat Habitats: Guidelines for Wind Power Projects* (MNR, 2011) including: ▪ Mortality surveys; ▪ Carcass removal trials; and ▪ Searcher efficiency trials. • Conduct monitoring during the core season for bird activity and bat activity (May 1-October 31) for the first three years of operation. Mortality surveys will be conducted at each monitored turbine twice per week (at least 30% of turbines) and raptor mortality surveys will be continued once per week in November. • Monitor all turbines within the Project Location once during the survey period for evidence of raptor mortalities. • Conduct subsequent monitoring for two years at individual turbines (and unmonitored turbines in close proximity) where significant bird or raptor annual mortality is identified. • Conduct effectiveness monitoring at individual turbines for three years where mitigation has been implemented. • Report the findings of the bird and bat mortality monitoring programs to MNR on an annual basis for the first 3 years of operation. **Contingency Measures:** • Institute changes to turbine operation if mortality thresholds are exceeded, including changing the wind turbine cut-in speed to 5.5 m/s or feathering of blades.
Soil or water contamination from oil, gasoline, grease and other materials during maintenance activities where access roads, turbines or the transmission line are within 30 m of Significant Wetlands and Significant Woodlands.	• No on-site/ off-site contamination of soil or no contamination of groundwater or surface water.	• Develop and implement an emergency spills plan outlining steps to contain any spills during maintenance activities to avoid contamination of significant features.	• Residual effects considered negligible.	• No monitoring required. **Contingency Measures:** • Report the details of the spill to MOE, including a description of any assessment and remediation undertaken.

Table 3-4 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Loss of forest cover (up to 0.16 ha, representing 0.008% of woodland area) through vegetation clearing in Significant Woodland for construction of access roads.	• No loss of forest cover over time.	• Establish an area of forest equal in area to the cleared area (0.16 ha) through tree planting and management (e.g., in partnership with a local Conservation Authority). Details of the afforestation plan will be provided to MNR in a Compensation Plan.	• Some clearing of vegetation will occur for the access roads; this would represent a small change relative to existing conditions. • Loss of forest cover minimized through afforestation; however there will be a time delay for the planted area to reach the same function as the cleared forest.	• Conduct post-planting inventory of planted area to determine success of establishment (may be undertaken by partner organization). **Contingency Measures:** • If plantation is not establishing for any number of reasons, conduct silvicultural intervention including, but not limited to: fill planting, cleaning, re-planting or thinning (may be undertaken by partner organization).
Avoidance by Tundra Swans of stopover and staging habitat during migration due to proximity of Turbines 5 and 9 to Waterfowl Stopover and Staging Areas.	• Minimize disturbance or disruption to Tundra Swan stopover and staging habitats.	Turbine 5 (305 m from WSST-31, or 5 m from 300 m† buffer): • Implement contingency mitigation measures (as per consultation with MNR) if disturbance effects are detected through post-construction monitoring. Turbine 9 (187 m from WSST-37, or within 300 m† buffer): The final Project layout and development of Turbine 9 will be determined upon completion of pre-construction surveys for feature WSST-37. The following scenarios and development decisions will result: • **Scenario 1**: If WSST-37 is determined to be a significant waterfowl stopover and staging habitat for Tundra Swan and Turbine 9 is determined to be within the buffer applied to this habitat (size of buffer to be determined through pre-construction surveys), then Turbine 9 will not be built and the alternative Project layout presented in Appendix M in the Natural Heritage Assessment and Environmental Impact Study will apply. If Scenario 1 applies, the proponent may submit an addendum report to MNR with more detailed information that could support development of Turbine 9 within the habitat buffer of WSST-37. This report would include a detailed assessment of the likelihood and nature of potential disturbance effects to Tundra Swans and proposed mitigation measures to address those effects. MNR would be required to review the new information and confirm completion of the NHA/EIS addendum report before development of Turbine 9 will be permitted.	• Significance of residual effects will be determined based on the results of post-construction monitoring.	• Conduct 3 years of post-construction Tundra Swan monitoring at Features WSST-31 and WSST-37 (if determined to be significant) by a qualified Biologist using the protocol described in the NHA, including: ▪ Conduct surveys on three occasions approximately one week apart during the peak migratory period, generally March 1 to April 15[3]. ▪ One survey station will be placed per 0.5 km of candidate Tundra Swan stopover and staging habitat and be monitored for approximately 15 minutes. ▪ All observed waterfowl will be recorded along with their approximate location, age and behaviour. ▪ Report the findings of the Tundra Swan monitoring program to MNR on an annual basis for the first 3 years of operation. **Contingency Measures:** • If significant declines or disappearance of species is detected, determine whether this is likely to have been caused by the Project. If so, implement corrective measures that are developed through consultation with MNR.

† *The area of the flooded field habitat plus a 100 m to 300 m radius buffer, dependant on local site conditions and adjacent land use, is the Significant Wildlife Habitat as per the Draft Ecoregion 7E Criterion Schedule Addendum to the Significant Wildlife Habitat Technical Guide (MNR, 2012). Therefore, the buffer area may be reduced to 100 m following the completion of pre-construction surveys, as described in the Natural Heritage Assessment and Environmental Impact Study Report (AECOM, 2013).*

3. *Timing window may be modified based on the results of Tundra Swan migration monitoring (e.g. as conducted by the Lambton Heritage Museum); to be determined in consultation with MNR.*

Table 3-4 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
		• **Scenario 2**: If WSST-37 is determined to be a significant waterfowl stopover and staging habitat for Tundra Swan and Turbine 9 is determined to be outside the buffer applied to this habitat (size of buffer to be determined through pre-construction surveys), then Turbine 9 may be constructed. Contingency mitigation measures (as per consultation with MNR) will be implemented if disturbance effects are detected through post-construction monitoring. • **Scenario 3**: If WSST-37 is determined not to be a significant waterfowl stopover and staging habitat for Tundra Swan, Turbine 9 may be constructed and no mitigation or post-construction avoidance/ disturbance monitoring is required for WSST-37. • The results of pre-construction surveys and final habitat boundary delineation will be provided to MNR prior to any of these scenarios being acted upon.		
Risk of Tundra Swan collisions with Turbines 5 and 9 near Waterfowl Stopover and Staging Areas.	• Minimize Tundra Swan mortality from collisions.	• Implement operational mitigation if mortality threshold is exceeded as determined through post-construction monitoring (contingency measure).	• Risk of Tundra Swan collisions with Turbines 5 and 9 minimized through application of mitigation measures. • Significance of residual effects will be determined based on the results of post-construction monitoring.	• Include Turbines 5 and 9 in post-construction mortality monitoring (as described above). **Contingency Measures:** • Institute changes to turbine operation that are developed in consultation with MNR if mortality threshold is exceeded as determined through post-construction monitoring.
Disturbance to winter raptors associated with motion and/or sound of Turbine 45.	• Minimize disturbance effects to winter raptors.	• Implement mitigation measures if disturbance effects are detected through post-construction monitoring (contingency measure).	• Significance of residual effects will be determined based on the results of post-construction monitoring.	• Conduct 3 years of post-construction winter raptor monitoring at Feature RWA-01 (if determined to be significant) by a qualified Biologist using the protocol described in the NHA, including: ▪ Conduct surveys on up to six occasions at least 7-10 days apart in January and February, under calm, clear weather conditions, to the extent possible. ▪ Surveys will be conducted during daylight hours for all target species except for the Short-Eared Owl, for which surveys will be conducted 75 to 60 minutes before sunset, and finished by 30 minutes after sunset. ▪ Field personnel will conduct one transect eastward across north part of open upland area and to woodlot edge (approx. 1 km), then walk 200 m south and make a second transect westward across the open upland area. ▪ All observed winter raptors will be recorded along with GPS co-ordinates of their location, age, behaviour and estimated height above ground.

Table 3-4 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
				• The findings of the winter raptor monitoring programs will be reported back to MNR on an annual basis for the first 3 years of operation. **Contingency Measures:** • If significant declines or disappearance of species is detected, determine whether likely to have been caused by the Project. If so, corrective measures will be taken, to be determined through consultation with MNR.
Risk of raptor collisions with Turbine 45 near Raptor Wintering Area.	• Minimize raptor mortality from collisions.	• Implement operational mitigation if mortality threshold is exceeded as determined through post-construction monitoring (contingency measure).	• Risk of raptor collisions with Turbine 45 minimized through application of mitigation measures. • Significance of residual effects will be determined based on the results of post-construction monitoring.	• Include Turbine 45 in post-construction mortality monitoring if RWA-01 is determined to be significant (refer to monitoring plan and contingency measures as described above).
Bats may display avoidance behaviour caused by turbine lighting in Bat Maternity Colonies. **Bats may be disturbed by noise from turbine operation in Bat Maternity Colonies.**	• Protect bat roosting habitat.	• Propose a lighting scheme that will minimize potential disturbance to bats while fulfilling Transport Canada requirements. • Implement contingency mitigation measures (as per consultation with MNR) if disturbance effects are detected through post-construction monitoring.	• Significance of residual effects will be determined based on the results of post-construction monitoring.	• Conduct 3 years of post-construction monitoring for Features BMA-143, BMA-155, BMA-216, BMA-168, BMA-217 and BMA-382 according to protocol described for pre-construction survey (as described in March 2010 Draft version of *Bats and Bat Habitats: Guidelines for Wind Power Projects*) by a qualified Biologist, including: ▪ Through the night acoustic monitoring stations to be positioned within 10 m of the potential roost. ▪ Survey same stations as pre-construction survey. ▪ Visual monitoring to be conducted at dusk in June. ▪ Acoustic monitoring to begin at dusk and continue for 5 hours, for up to 10 nights, or until roost is confirmed. ▪ Monitoring to occur between June 1 and June 30. • Conduct 3 years of post-construction monitoring for Feature BMA-147, BMA-051, BMA-090B, BMA-098, BMA-102B, BMA-120, BMA-145, BMA-179, BMA-188, BMA-214, and BMA-297 (if determined to be significant) according to protocol described for pre-construction survey (as described in July 2011 version of *Bats and Bat Habitats: Guidelines for Wind Power Projects*) including: ▪ Conduct monitoring of roost trees through exit surveys through June. ▪ Conduct active visual and acoustic monitoring at the cavity opening or crevice from 30 minutes before dusk until 60 minutes after dusk in June. • Report the findings of all monitoring programs to MNR on an annual basis for the first 3 years of operation.

Table 3-4 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
				Contingency Measures: • If a permanent disturbance has been noted within this wildlife habitat, the MNR will be contacted to determine whether additional mitigation measures will be needed.
Bat mortality resulting from turbine operation near Bat Maternity Colonies.	• Minimize bat mortality from turbine operation.	• Implement operational mitigation if mortality threshold is exceeded as determined through post-construction monitoring (contingency measure).	• Bat mortality resulting from turbine operation minimized through application of mitigation measures. • Significance of residual effects will be determined based on the results of post-construction monitoring.	• Include turbines adjacent to bat maternity colonies (if determined to be significant) in post-construction mortality monitoring (refer to monitoring plan and contingency measures as described above). The subset of turbines selected for post-construction mortality monitoring will be determined in consultation with MNR.
Absence of confirmed significant cavity trees or other suitable, but not studied, cavity trees removed during construction of an access road within Bat Maternity Colony.	• Protection of bat roosting habitat.	• Post-construction monitoring to ensure continued use of habitat.	• Significance of residual effects will be determined based on the results of post-construction monitoring.	• Conduct 3 years of post-construction monitoring of all cavity trees within BMA-090A (if determined to be significant) following pre-construction survey methods, as described in July 2011 version of *Bats and Bat Habitats: Guidelines for Wind Power Projects* (see above) by a qualified Biologist. **Contingency Measures:** • If significant declines or disappearance of species is detected, determine whether likely to have been caused by the project. If so, corrective measures will be taken, to be determined through consultation with MNR.
Risk of road mortality of turtles moving between wintering ponds and other areas resulting from access road operation near Turtle Wintering Areas.	• Minimize turtle mortality along access roads.	• Maintain wildlife crossing signs and limit speed of vehicles near turtle wintering areas (30 km/hr).	• Risk of turtle road mortality reduced through mitigation measures. • Low likelihood of occurring and limited magnitude due to limited volume of maintenance vehicles.	• No monitoring or contingency measures required.
Risk of road mortality to snakes resulting from access road operation near Reptile Hibernacula.	• Minimize snake mortality along access road.	• Advise operations staff to take extra care while driving access roads near features RH-01, RH-03 and RH-04. • Erect long term drift fence between edge of habitat (RH-01, RH-03 or RH-04) and road if hibernaculum determined to be large (>25 snakes).	• Risk of snake mortality minimized through the application of mitigation measures. • Low likelihood of occurring and limited magnitude (i.e., no or limited mortality expected) due to limited volume of maintenance vehicles.	• Conduct reptile hibernacula surveys at reptile hibernacula within 120 m of access roads (RH-01, RH-03 and RH-04 if determined to be significant) annually for 2 years post-construction to assess any potential changes in snake populations or species composition using protocol described for pre-construction survey (if features determined to be significant) by a qualified Biologist, including: ▪ Examination of rock piles and vicinity on three occasions between mid-April and mid-May. ▪ Conduct an area search within 30 m of the feature by slowing walking around the feature and stopping at intervals while scanning the ground for snakes, for a minimum of 20 minutes. ▪ Identify species and count individuals.

Table 3-4 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
				• Report the findings of the reptile hibernacula monitoring program to MNR on an annual basis for the first 2 years of operation. **Contingency Measures:** • If significant declines or disappearance of species is detected, determine whether likely to have been caused by the Project. If so, corrective measures will be taken, to be determined through consultation with MNR.
Disturbance and/or mortality to Bald Eagles resulting from operation of the transmission line, resulting from effects on habitat and sight lines and/or collisions with the transmission line.	• Minimize disturbance to Bald Eagles resulting from transmission line operation.	• All permanent, above-ground infrastructure associated with the transmission line will be located at least 200 m from the active nest (i.e. outside the primary and secondary habitat zones, as defined by MNR). • The maximum height of the transmission line (poles and wires) will not exceed 20 m where within 400 m of the active Bald Eagle nest, and will not exceed 30 m where within 800 m[§] of the active nest, to minimize effects on sight lines from the nest. • Deterrents to prevent perching and roosting on the transmission line, as well as bird collisions with the transmission line (including power lines, static lines, guy wires, etc.) will be installed on all transmission line infrastructure within 800 m[§] of the active nest.	• Disturbance and/or mortality to Bald Eagles from transmission line operation minimized through mitigation measures. • Low likelihood and limited magnitude of residual effects.	• Conduct three years of post-construction Bald Eagle monitoring at feature BEN-01 (if determined to be an active nest) by a qualified Biologist, using the Bald Eagle Activity Assessment protocol or, if completed, the Bald Eagle Behavioural Study, both described in Section 4.2.3.1. • The Bald Eagle Activity Assessment includes: ▪ Surveys conducted at approximately two week intervals starting on February 15 and extending to May 15. ▪ Surveys conducted during daylight hours from a suitable vantage point for a minimum of 30 minutes. ▪ All observed Bald Eagle individuals and nests will be recorded along with GPS coordinates of their location, individual life stage, and behavioural observations. ▪ If active breeding is confirmed, surveys will continue at the same frequency until fledglings have left the nest (approximately August 15). • If the Bald Eagle Behavioural Study protocol is to be used during post-construction surveys, these surveys will begin after the Activity Assessment surveys confirm the nest is active and will follow the methods described in the NHA. The specific survey frequency may be adjusted from year to year, depending on the results of the surveys, if determined appropriate through consultation with the MNR. • Report the findings of the Bald Eagle monitoring program to MNR on an annual basis for the first 3 years of operation.

§. *This distance may be reduced through the completion of a pre-construction Behavioural Study according to the protocol described in the Natural Heritage Assessment and Environmental Impact Study Report (AECOM, 2013).*

Table 3-4 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
				• **Contingency Measures:** ▪ If significant declines or disappearance of species is detected, determine whether this is likely to have been caused by the Project. If so, implement corrective measures that are developed through consultation with MNR.
Risk of road mortality to turtles moving between nesting habitats and other areas resulting from access road operation near Turtle Nesting Habitat.	• Minimize turtle mortality along access roads.	• Maintain wildlife crossing signs and limit speed of vehicles near over-wintering pond (30 km/hr).	• Risk of turtle road mortality reduced through mitigation measures. • Low likelihood of occurring and limited magnitude due to limited volume of maintenance vehicles.	• Conduct 3 years post-construction turtle nesting surveys to assess any potential effects to TNH-02 (if feature determined to be significant) by a qualified Biologist using the protocol described in the NHA, which includes: ▪ Conduct surveys on three occasions between late May and late June; ▪ Conduct area search of nesting habitat for a minimum of 20 minutes; ▪ Any observed turtles or predated eggs will be identified and recorded along with GPS coordinates of their location, individual visual characteristics, and all necessary data to identify turtle species. • Report the findings of post-construction monitoring to MNR on an annual basis for the first 3 years of operation. **Contingency Measures:** If significant declines or disappearance of species is detected, determine whether likely to have been caused by the Project. If so, corrective measures will be taken, to be determined through consultation with MNR.
Risk of mortality to amphibians moving between breeding pools and home range resulting from access road operation near Amphibian Woodland Breeding Habitats, Amphibian Wetland Breeding Habitats and Amphibian Movement Corridors.	• Minimize amphibian mortality along access roads.	• Advise operations staff to avoid driving roads in proximity to these features at night between April 1 and June 30, and any rainy nights from spring to early autumn, wherever possible. • Maintain wildlife crossing signs and limit speed of vehicles near crossings (30 km/hr).	• Risk of amphibian mortality reduced through mitigation measures. • Low likelihood of mortality due to infrequent use of access roads by maintenance vehicles.	• Conduct 3 years post-construction amphibian call surveys (frogs and toads) and egg mass or adult surveys (salamanders) to assess any potential changes in amphibian breeding populations or species distribution (if features determined to be significant) at features within 30 m of an access road (AWO-01, AWO-03, AWO-05, AWO-06, AWO-11, AWO-12, AWO-16, AWE-01, AWE-02, AWE-03 and AWE-04) by a qualified Biologist using the protocol described in the NHA, which includes: ▪ Conduct call surveys at each Feature three times between April 1 and June 30, as per the Marsh Monitoring Protocol. Conduct surveys between one half-hour after sunset and 1:00 am and, to the extent possible, on nights that are clear,

Table 3-4 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
				cloudy, damp, foggy, or have light rain and minimum night air temperatures of 5°C, 10°C and 14°C for each of the three respective survey periods. Complete a 3-minute listening survey at each station. ▪ Conduct surveys to target non-vocalizing amphibians (i.e., salamanders) using one of the following three protocols: - Nocturnal survey for adult salamanders in late March to early April; - Surveys for salamander egg masses on two occasions in March and April; - Surveys for larval salamanders in May or June. • Report the findings of post-construction monitoring to MNR on an annual basis for the first 3 years of operation. • Conduct 1 year post-construction amphibian call surveys (frogs and toads) and egg mass or adult surveys (salamanders) to assess any potential changes in amphibian breeding populations or species distribution (if features determined to be significant) at features greater than 30 m from an access road (AWO-02, AWO-04, AWO-08, AWO-09, AWO-10, AWO-13, AWO-17, AWO-19, AWO-20 and AWE-05) by a qualified Biologist, using the protocol described above. • If the first year of post-construction monitoring indicates that a feature may no longer be significant, an additional 2 years of post-construction monitoring will occur following these pre-construction methods (as described above). • If a significant habitat is still significant after the first year of post-construction monitoring, no further monitoring will occur as the habitat will be considered to be unaffected. • The findings of all post-construction monitoring programs will be reported back to MNR on an annual basis for the first 3 years of operation. **Contingency Measures:** ▪ If significant declines or disappearance of species is detected, determine whether likely to have been caused by the Project. If so, corrective measures will be taken, to be determined through consultation with MNR.

Table 3-4 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Significant Wetlands, Woodlands, and Wildlife Habitat Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Effects to breeding populations of amphibians resulting from changes in water levels associated with construction dewatering near Amphibian Woodland Breeding Habitats and Amphibian Movement Corridor.	• Minimize effects on significant wildlife habitat due to dewatering activities.	• Post-construction monitoring to ensure continued use of habitat.	• Effects to breeding amphibians minimized through the application of mitigation measures.	• Conduct 3 years post-construction amphibian call surveys (frogs and toads) and egg mass or adult surveys (salamanders) to assess any potential changes in amphibian breeding populations or species distribution (if features determined to be significant) at features potentially affected by construction dewatering (AWO-01, AWO-08, AWO-13, AWO-16, AWO-17, AWO-20 and AMC-01) by a qualified Biologist, using the protocol described above. • Report the findings of post-construction monitoring to MNR on an annual basis for the first 3 years of operation. **Contingency Measures:** ▪ If significant declines or disappearance of species is detected, determine whether likely to have been caused by the Project. If so, corrective measures will be taken, to be determined through consultation with MNR.
Disturbance to Hooded Warbler breeding habitat resulting from access road operation within Habitat for Hooded Warbler.	• No displacement of Hooded Warbler from habitat. • No destruction of breeding habitat.	• Advise operations staff to avoid driving roads in proximity to this feature between May 1 and July 31, wherever possible.	• Low likelihood and limited magnitude of disturbance to Hooded Warbler breeding habitat due to low volume of traffic on access road.	• No monitoring or contingency measures required.

3.3 Surface Water and Groundwater

3.3.1 Surface Water

Construction and Decommissioning

Table 3-5 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to surface water resulting from construction and decommissioning.

Operation

Table 3-6 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to surface water and groundwater resulting from operations.

3.3.2 Geology and Groundwater

Construction and Decommissioning

Table 3-7 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to groundwater resulting from construction and decommissioning.

Operation

See **Table 3-6** for the mitigation measures, residual effects and monitoring plan associated with potential effects to groundwater resulting from operations.

Table 3-5 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Surface Water Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Increase to surface water temperature from reduced groundwater contribution if dewatering activities are required for excavation of turbine foundations.	• Minimize reduction of stream baseflows and groundwater upwelling areas, and increase in water temperatures.	**Water Management** • Control rate and timing of water pumping; pump from deep wells to infiltration galleries adjacent to water bodies or wetlands. • Restrict taking groundwater and surface water during drought conditions. • Regulate the discharge of water-taking (if required) to ensure that there is no flooding in the downstream area and no soil erosion, or stream channel scouring at the point of discharge. Use a discharge diffuser or other energy dissipation device will be used, if necessary, to mitigate flows which physically alter the stream channel or banks. • Install siltation control measures that are sufficient for the volumes pumped at both the taking location upstream of the construction site and (if necessary) the discharge site. All measures will be taken to properly maintain these control devices throughout the construction period. **Dewatering Activities** • Confirm the zone of influence of required dewatering activities prior to construction. • Schedule dewatering activities to take place during a seasonally dry time of year where possible. • Limit duration of dewatering to as short a time frame as possible. • Implement groundwater cut-offs as required to limit water taking quantities. • Limit dewatering where turbines are constructed within the sand and/or gravel deposits to less than 400,000 L/day. **Timing Windows** • Schedule construction activities that occur within 30 m of watercourses to avoid periods of critical habitat use (i.e., spawning) to the extent possible. There are generic restricted in-water work timing windows established by the Department of Fisheries and Oceans Canada (DFO). • Specific timing windows for this Project will be developed in consultation with the Ausable Bayfield Conservation Authority (ABCA) and St. Clair Region Conservation Authority (SCRCA).	• Reduced stream baseflows, groundwater upwelling areas and increase in water temperatures minimized through application of mitigation measures. • Low likelihood and limited magnitude of effects as there will only be small scale dewatering (if required).	• Where known groundwater dewatering is required, install staff gauges to monitor stream levels • Monitor water level at these locations to monitor watercourse depth and estimated flow before, during and after dewatering activities. **Contingency Measures:** • Control rate and timing of water pumping. ▪ In the event of a decrease in surface water levels, of which it can be attributed to the dewatering activities, stop dewatering until appropriate site specific mitigation plan has been developed.

Table 3-5 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Surface Water Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Increase to streamflows in watercourses that receive temporary groundwater dewatering discharge (if required). Groundwater discharge has potential to cause streambed and/or bank erosion and downstream sedimentation if not managed properly.	• Minimize increase in flows to watercourses and erosion and/or sedimentation.	**Erosion and Sediment Control** • Develop and implement an erosion and sediment control plan before commencement of construction. • Utilize erosion blankets, erosion control fencing, straw bales, etc., where necessary to mitigate potential excessive erosion and sedimentation. Ensure any materials placed in floodline are free from silt and other such particles. Keep extra erosion and sediment control materials on site (*e.g.*, heavy duty silt fencing, strawbales). • Check that erosion control tools are in good repair and properly functioning prior to conducting daily work and re-install or repair as required prior to commencing daily construction activities. • Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated). **Water Management – See above** **Timing Windows – See above**	• Increased flows to watercourses and associated streambed and/or bank erosion minimized through application of mitigation measures. • Low likelihood and limited magnitude of effects as there will only be short term dewatering (if required).	• Monitor erosion and sedimentation of receiving watercourse before and during dewatering events • Monitor water level and stream flow at these locations to test watercourse depth and flow before and during construction. • Collect surface water samples from discharge locations before, during and after construction. Analyze for general chemistry (e.g., temperature, pH, dissolved oxygen, and conductivity), suspended solids, total phosphorus and total metals (e.g., copper, iron, zinc and aluminum). These data will be used to determine background watercourse water quality at discharge locations. The findings of the monitoring program will be reported back to MOE following the completion of dewatering activities. **Contingency Measures:** • Install a temporary storage basin adjacent to foundation area to allow water to infiltrate.
Increased erosion, sedimentation and turbidity from clearing and grubbing on adjacent lands for construction of turbines, pads/turnaround areas, and access roads and from directional drilling activities.	• Minimize erosion, sedimentation and turbidity.	**Erosion and Sediment Control – See above** **Grading and Excavation** • Minimize changes in land contours and natural drainage; maintain timing and quantity of flows. Any grading of lands adjacent to water body features should match existing grades at the identified set-back, or buffer from the features. **Equipment Use** • Minimize vehicle traffic on exposed soils, avoid compacting or other hardening of natural ground surface, and avoid the movement of heavy machinery on areas with sensitive slopes. • Limit speed of vehicles near watercourse crossings.	• Increased erosion, sedimentation and turbidity from clearing and grubbing minimized through application of mitigation measures • Low likelihood and limited magnitude of effects as a result.	• Monitor on-site conditions (i.e., erosion and sediment control, spills, flooding, etc.) where construction occurs within 30 m of a water course on the following basis: ▪ Weekly during active construction periods. ▪ Prior to, during and post forecasted large rainfall events (>20 mm in 24 hours) or significant snowmelt events (i.e., spring freshet). ▪ Daily during extended rain or snowmelt periods. ▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer. • In the event that a spill / flooding occurs, report the details of the event to MOE, including a description of any assessment and remediation undertaken. **Contingency Measures:** • Suspend work if excessive flows of sediment discharges occur until mitigation measures are in place (e.g. installation of extra erosion and sediment control materials kept on site, such as silt fencing, straw bales, etc.).

Table 3-5 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Surface Water Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Soil compaction, which may result in hardening of surfaces and increased runoff into watercourses	• Minimize soil compaction and increased runoff into watercourses.	**Erosion and sediment control – See above** **Grading and Excavation – See above** **Water Quality – See above**	• Soil compaction and associated increase in runoff into watercourses minimized through application of mitigation measures • Low likelihood and limited magnitude of effects as a result.	• Monitor on-site conditions (i.e., erosion and sediment control, spills, flooding, etc.) where construction occurs within 30 m of a water course on the following basis: ▪ Weekly during active construction periods. ▪ Prior to, during and post forecasted large rainfall events (>20 mm in 24 hours) or significant snowmelt events (i.e., spring freshet). ▪ Daily during extended rain or snowmelt periods. ▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer. **Contingency Measures:** • Suspend work if excessive flows of sediment discharges occur until mitigation measures are in place.
Release / discharge of runoff from the construction area, which has the potential to transport sediment and nutrients into the watercourse.	• Minimize release or discharge of sediment-laden surface water into adjacent watercourse or drainage features.	**Water Quality – See above** **Erosion and Sediment Control – See above** **Timing Windows – See above**	• Release or discharge of sediment laden surface water into the adjacent watercourse or drainage features minimized through application of mitigation measures • Low likelihood and limited magnitude of effects as a result.	• Monitor on-site conditions (i.e., erosion and sediment control, spills, flooding, etc.) where construction occurs within 30 m of a water course on the following basis: ▪ Weekly during active construction periods. ▪ Prior to, during and post forecasted large rainfall events (>20 mm in 24 hours) or significant snowmelt events (i.e., spring freshet). ▪ Daily during extended rain or snowmelt periods. ▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer. • In the event that a spill / discharge of sediment occurs, report the details of the event to MOE, including a description of any assessment and remediation undertaken. **Contingency Measures:** • Suspend work if excessive flows of sediment discharges occur until mitigation measures are in place.
Obstruction of lateral flows in watercourses from water crossings.	• Minimize obstruction of lateral flows in watercourses.	**Culvert Design** • Design and install culverts to prevent creation of barriers to fish movement and maintain bankfull channel functions. • Install open bottom crossing structures where possible. • Design culverts to accommodate high flows of the watercourse by undertaking hydraulic engineering studies. • Embed the culvert below the streambed to maintain lateral flow. • Install adequate gravel base to maintain flow of shallow groundwater. • Locate crossings within straight sections of the stream, perpendicular to the bank, where possible. Avoid crossings on meander bends, braided streams and any other unstable areas.	• Obstruction of lateral flows in watercourses avoided through application of mitigation measures. • No likelihood of effect occurring.	• Monitor on-site conditions at all water body crossings (i.e., culverts are installed properly and embedded below the streambed.): prior to, during and after the installation of the culvert to ensure lateral flows have been maintained. **Contingency Measures:** • In the event the culvert creates issues relating to lateral flow and fish barriers, steps will be required to fix issues which may involve re-installing the culvert and ensuring it is properly installed and embedded within the streambed.

Table 3-5 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Surface Water Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
		• Use only clean material (i.e., rock or coarse gravel) for approaches to culverts. • Regularly maintain culverts to ensure no debris build-up is impeding stream flow. **Isolated Crossing** • Install in-water works for permanent water bodies in the dry via dam and pump method or creation of a diversion channel to maintain flow around the work site. For intermittent water bodies, work is preferred to be completed in the dry and carried out during seasonally dry or when the water body is frozen to the bottom. • Develop and implement a fish rescue plan for dewatering areas. This will include appropriate sized end-of-pipe fish screen to prevent potential losses of fish due to entrainment or impingement as outlined in the DFO Freshwater Intake End-of-Pipe Fish Screen Guideline. • Retain an adequate portion of channel with sufficient width and depth to allow for fish passage if construction requires that an instream work area be isolated from the primary channel. In the event that an area must be blocked from bank to bank, construct a temporary by-pass to allow fish passage around the construction area.		
Temporary disruption of substrates/habitat associated with in-water works.	• Minimise temporary disruption of substrates/habitats.	**Timing Windows – See above** **Isolated Crossing – See above** **Erosion and Sediment Control – See above** **Rehabilitation** • Re-vegetate and restore the turbine staging area following turbine installation with tiling (if desired by the owner). • Restore and maintain vegetative buffers around water bodies including within the foundation footprint where possible. • Restore and maintain vegetative buffers around water bodies including within the temporary construction areas. • Keep vegetation removal to a minimum. • Add suitable stream substrates (e.g., gravel or rip rap) to stabilize sediment and provide cover.	• Temporary disruption of substrates/habitat associated with in-water works minimized through application of mitigation measures. • Moderate likelihood and magnitude of effect occurring due to number of watercourse crossings.	• Monitor fish habitat once per week or throughout duration of in-water construction to identify any minor or major disturbances caused by construction activities by undertaking the following: ▪ Turbidity monitoring for sediment loading; ▪ Monitoring bank stability; ▪ Monitoring substrate composition; ▪ Monitoring stream flow and ensure fish passage is maintained at all times. • Document changes to aquatic habitat as a result of construction activities and obtain photographic documentation. • Report the findings of the monitoring program to MOE following the completion of in-water construction activities. **Contingency Measures:** • Mitigate or compensate for any disturbance to fish habitat according to Department of Fisheries and Oceans Canada (DFO) authorization and in consultation with ABCA and SCRCA.

Table 3-5 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Surface Water Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Degradation of fish habitat from culvert installation.	• Minimize degradation of fish habitat.	**Culvert Design – See above** **Timing Window – See above**	• Degradation of fish habitat minimized through application of mitigation measures. • Moderate likelihood of effect occurring due to number of watercourse crossings; however, magnitude of effect limited due to marginal habitat and common species; as such fish passage will be maintained and will continue to provide habitat.	• Monitor fish habitat throughout duration of in-water construction to identify any minor or major disturbances caused by construction activities. • Document changes to aquatic habitat as a result of construction activities and obtain photographic documentation. **Contingency Measures:** • Mitigate or compensate for any disturbance to fish habitat according to Department of Fisheries and Oceans Canada (DFO) authorization and in consultation with ABCA and UTRCA.
Soil/water contamination by oils, grease and other materials from accidental spills and release of contaminants from construction equipment.	• Minimize soil/water contamination.	**Equipment Use – See above plus:** • Use a spill collection pad for refuelling and maintenance. **Material Stockpiling and Handling** • Store any stockpiled materials at least 30 m away from water body to prevent deleterious substances from inadvertently discharging to the environment. • Develop a spill response plan and train staff on associated procedures. • Dispose of any waste material from construction activities by authorized and approved off-site vendors. **Water Quality – See above** **Timing Windows – See above**	• Soil / water contamination minimized through application of mitigation measures. • Low likelihood and limited magnitude of effects on surface water and groundwater as a result.	• Contractor to conduct routine inspections of construction equipment for leaks / spills **Contingency Measures:** • In the event of a spill: ▪ Immediately stop all work until the spill is cleaned up. ▪ Notify MOE's Spills Action Centre of any leaks or spills. ▪ If a spill enters a water body, collect and analyze water samples for appropriate parameters. ▪ Monitor daily until cleanup is completed.
Release of pressurized drilling fluids into watercourses from fractures in substrate (also known as a 'frac-out').	• Minimize fractures in substrates and release of pressurized drilling fluids into watercourse.	**Directional Drilling** • Conduct all drilling by licensed drillers in accordance with Regulation 903 under Ontario Water Resources Act, R.S.O. 1990. • Locate drill entry and exit pits at least 30 m from water bodies. • Collect drill cuttings as they are generated and place in a soil bin or bag for off-site disposal. • Ensure drill depth is at an appropriate depth below the water body to reduce the risk of a 'frac-out'. • Develop 'Frac-out' plan (see Section 5.3 of Water Assessment and Water Body Report, AECOM, 2013) **Water Quality – See above**	• Fractures in substrate releasing pressurized drilling fluids into watercourse and causing potential change to groundwater flow patterns minimized through application of mitigation measures. • Low likelihood of effects as a result of mitigation measures; however magnitude of effects could be high as release of pressurized drilling fluids into a water body could affect both water quality and aquatic habitat.	• Monitor directional drilling for the duration of such activities to ensure that "frac-out" does not occur, and if it does, to ensure that effects are minimized on surface or groundwater. **Contingency Measures:** • In the event of a "frac-out", immediately stop all work, including the recycling of drilling mud / lubricant and implement 'frac-out' contingency plan. • Implement 'Frac-out' plan.

Table 3-5 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Surface Water Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Reduction of streamflow due to the withdrawal of surface water for construction activities such as dust suppression, equipment washing and land reclamation (e.g., hydroseeding).	• Minimize effects to surface water and fish habitat.	**Erosion and Sediment Control – see above** **Water Management** • Restrict taking groundwater and surface water during drought conditions • Control rate and timing of water pumping from surface water features • Regulate the discharge of water-taking to ensure there is no soil erosion, or stream channel scouring is caused by the point of discharge.	• Low likelihood and limited magnitude of effects on surface water as a result.	• Monitor all surface water-taking activities to ensure no damage to watercourse and fish habitat occurs, including drops in water levels and damage to stream banks and bed from discharge. **Contingency Measures:** • In the event of decreased water levels and damage to stream banks and bed, suspend work until mitigation measures are in place.
Loss of riparian habitat adjacent to watercourses for installation of culverts and transmission line poles.	• Minimize loss of riparian habitat adjacent to watercourses	**Rehabilitation** • Keep vegetation removal to a minimum • Restore and maintain vegetative buffers around water bodies including within the temporary construction areas **Erosion and Sediment Control – see above**	• Loss of riparian habitat adjacent to watercourses minimized through application of mitigation measures. • Low likelihood and limited magnitude of effects riparian cover and adjacent watercourse.	• Monitor site during riparian vegetation removal. • Monitor on-site conditions (i.e., erosion and sediment control, etc.) where construction occurs within 30 m of a water course on the following basis: ▪ Weekly during active construction periods. ▪ Prior to, during and post forecasted large rainfall events (>20 mm in 24 hours) or significant snowmelt events (i.e., spring freshet). ▪ Daily during extended rain or snowmelt periods. ▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer. **Contingency Measures:** • Suspend work if excessive flows of sediment discharges occur until mitigation measures are in place. • Restabilize banks with plantings as works are complete to ensure no further damage to stream banks.
Changes in surface water drainage patterns to water bodies.	• Minimize changes in surface water drainage patterns and obstruction of lateral flows in surface water to water bodies.	• Minimize changes in land contours and natural drainage; maintain timing and quantity of flows. • Match any grading of lands adjacent to natural features to existing grades at the identified set-back, or buffer from the features.	• Changes in surface water drainage patterns and obstruction of lateral flows avoided through mitigation measures. • Low likelihood and limited magnitude of effect as a result.	• Inspect locations within 30 m of wetlands following completion of access roads by an Environmental Monitor to ensure no grade changes. • **Contingency Measures:** ▪ If surface water drainage alterations are detected, undertake corrective measures to restore drainage pattern.
Damage to stream banks from the use of heavy machinery.	• Minimize damage to stream banks.	**Work Area** • Stabilize banks where necessary, minimizing area and duration of soil exposure. • Operate machinery on land and in a manner that minimizes disturbance to stream banks • Erect sediment fencing around water bodies and areas to be avoided • Locate staging areas away from watercourses and if possible out of the regulated floodplain to limit risk of impacts to aquatic habitat and surface water quality from accidental spills. **Erosion and Sediment Control – see above** **Rehabilitation** • Restore and maintain vegetative buffers around water bodies including within the temporary construction areas	• Damage to stream banks minimized through application of mitigation measures. • Low likelihood and limited magnitude of effects on surface water and groundwater as a result.	• Monitor on-site conditions (i.e., erosion and sediment control, etc.) where construction occurs within 30 m of a water course on the following basis: ▪ Weekly during active construction periods. ▪ Prior to, during and post forecasted large rainfall events (>20 mm in 24 hours) or significant snowmelt events (i.e., spring freshet). ▪ Daily during extended rain or snowmelt periods. ▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer. **Contingency Measures:** • Suspend work if excessive flows of sediment discharges occur until mitigation measures are in place. • Restabilize banks with appropriate measures as soon as works are complete to ensure no further damage to stream banks.

Table 3-6 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Surface Water and Groundwater Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Increase in impervious surfaces from presence of turbine foundation and access roads, resulting in increased water temperatures, increased surface runoff and stream peak flows, and reduced infiltration, base flows and upwelling.	• No changes to surface water quality or quantity.	• Adhere to all setback requirements from watercourses. • Control quantity and quality of stormwater discharge using best management practices, and implement infiltration techniques to the extent possible (e.g., use of a permeable surface for access roads).	• Increase in impervious surfaces and subsequent changes to surface water quality or quantity minimized due to setback requirements and through application of mitigation measures. • Low likelihood and limited magnitude of effect due to small increase in impervious surfaces within entire Project Study Area.	• No monitoring or contingency measures required.
Soil / water contamination by oils, gasoline, grease and other materials (e.g., turbine lubricant and maintenance activities, use of access roads).	• No off-site contamination of soil and no contamination of groundwater or surface water	• Control soil / water contamination through best management practices. • Ensure machinery arrives on site in a clean, washed condition and is to be maintained free of fluid leaks. • Develop a spill response plan and train staff on associated procedures. • Site maintenance, vehicle washing and refuelling stations where contaminants are handled at least 30 m away from natural features including water bodies and significant woodlands, wetlands, and wildlife habitat. • Implement vehicle and equipment cleaning procedures and practices to minimize or eliminate the discharge of pollutants from vehicle/ equipment cleaning operations to watercourses or natural areas. • Store any stockpiled materials away from natural features to prevent deleterious substances from inadvertently discharging to the environment. • Dispose of any waste material from maintenance activities by authorized and approved off-site vendors.	• Soil / water contamination will be minimized through application of mitigation measures. • Low likelihood and limited magnitude of effects on surface water and groundwater as a result.	• Develop an emergency spills plan • Implement Contingency Measures in the event of a spill: ▪ Immediately stop all work until the spill is cleaned up. ▪ Notify MOE's Spills Action Centre of any leaks or spills. ▪ If a spill enters a water body, collect and analyze water samples for appropriate parameters. ▪ Monitor daily until cleanup is completed
Obstruction of lateral flows in watercourses and other waterbodies due to design of culverts and debris build-up at water crossings.	• No obstructions of lateral flows.	• Design culverts to accommodate high flows of the watercourse. • Inspect culverts during routine maintenance activities for buildup of debris.	• Obstruction of lateral flows in watercourses will be avoided through culvert design and maintenance activities. • No likelihood of effect occurring.	• No monitoring or contingency measures required.

Table 3-7 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Groundwater Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Reduction in groundwater quality and quantity due to dewatering when excavating and constructing the turbine foundations.	• Minimize reduction in groundwater quality and quantity.	• Direct the discharge from dewatering back into the nearest watercourse (following sediment control practices) to negate the potential that drawdown will decrease baseflow into streams and groundwater discharge into wetlands. • Limit duration of dewatering to as short a time frame as possible • Implement groundwater cut-offs as required to limit water taking quantities • Limit dewatering where turbines are constructed within the sand and/or gravel deposits or where shallow water table conditions are expected to less than 400,000 L/day (Turbines: 1-8, 10, 13, 20, 28, 31-34, 44, 59, 75-76, 83-85, 88-92, 94, 99, and 105)	• Reduction in groundwater quality and quantity minimized through application of mitigation measures. • Low likelihood and negligible magnitude of effects based on the amount of dewatering required and the duration of expected dewatering activities.	• Undertake environmental monitoring of significant natural features and water wells within the calculated radius of influence for construction dewatering prior to, during and post construction dewatering. **Contingency Measures:** • If surface water levels are temporarily affected from construction dewatering activities, divert water from dewatering activities following appropriate water quality and water temperature controls (i.e. filter bags and/or envirotanks, discharge locations, etc.) to the surface water feature to supplement flow and or surface water levels. • Restrict dewatering activities to a seasonally dry time of year to minimize dewatering requirements when the dewatering may affect a significant natural heritage feature (i.e. a wetland).
Increase in impervious area created by the turbine base and access roads resulting in reduced infiltration near to the noted ground-water recharge areas (beach foreshore deposits and glacial outwash deposits).	• Minimize increase in impervious areas.	• Direct runoff from the constructed impervious surfaces to ground surface to prevent any decrease in infiltration and recharge.	• Reduced infiltration near groundwater recharge areas minimized through application of mitigation measures. • Low likelihood and limited magnitude of effects based on amount of dewatering required.	• No monitoring or contingency measures required.
Formation of sinkholes during foundation construction.	• Minimize formation of sinkholes.	• Conduct geotechnical investigations at all turbine locations prior to construction.	• Formation of sinkholes avoided through application of mitigation measures. • No likelihood of occurrence.	• No monitoring or contingency measures required.

3.4 Emissions to Air, including Odour and Dust

Construction and Decommissioning

Table 3-8 describes the mitigation measures, residual effects and monitoring plan associated with emissions to air resulting from construction and decommissioning.

Table 3-8 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Emissions to Air Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Increased dust and air emissions due to construction activity.	• Minimize deterioration of air quality.	• Use spray water and environmentally friendly dust suppressants applied at an environmentally acceptable rate to minimize the release of dust from gravel, paved areas and exposed soils only where necessary on problem areas; • Implement a speed limit that will lead to reduced disturbance of dust on paved and unpaved roads; and, • Ensure proper maintenance of vehicles and machinery to limit noise, Criteria Air Contaminant (CAC) emissions and leaks.	• Increased dust and air emissions minimized through application of mitigation measures. • High likelihood of effects occurring; however, any dust and air emissions are short-term and magnitude of such effects will be limited.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan). • **Contingency Measures:** ▪ Suspend construction in high winds.

Operation

Table 3-9 describes the mitigation measures, residual effects and monitoring plan associated with emissions to air resulting from operations.

Table 3-9 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Emissions to Air Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Emissions of contaminants from maintenance vehicles and generator sets.	• Limit impact of maintenance vehicles on local air quality.	• Ensure all engines (vehicles and generators) meet emission requirements specified by the MOE and Ontario Ministry of Transportation (MTO).	• Emissions of contaminants from maintenance vehicles minimized through application of mitigation measures. • Low likelihood of occurring and limited magnitude due to limited volume of maintenance vehicles.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan). • No contingency measures required.
Dust as a result of vehicle traffic over gravel roads and/or cleared areas.	• Limit dust generation from maintenance vehicles.	• Limit speed of maintenance vehicles to minimize dust generation.	• Dust from vehicular traffic minimized through application of mitigation measures. • Low likelihood of occurring and limited magnitude due to limited volume of maintenance vehicles.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan). • No contingency measures required.

3.5 Noise

Construction and Decommissioning

Table 3-10 describes the mitigation measures, residual effects and monitoring plan associated with noise resulting from construction and decommissioning.

Table 3-10 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Noise Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Increased noise due to construction activity.	• Minimize noise increases for inhabited areas.	• Ensure that construction equipment is kept in good condition and does not exceed noise emissions as specified in MOE publication NPC-115. • Operate construction vehicles in accordance with municipal by-laws. • Implement speed limit on unpaved roads.	• Increased noise minimized through application of mitigation measures. • High likelihood of effect occurring; however, increase in noise levels associated with construction is short-term and magnitude of such effects will be limited.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan). • **Contingency Measures:** ▪ Repair faulty equipment resulting in increased noise levels in a timely fashion.

Operation

Table 3-11 describes the mitigation measures, residual effects and monitoring plan associated with noise resulting from operations.

Table 3-11 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Noise Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Increased noise levels experienced by receptors (residents located on non-leased properties) due to turbine operation.	• Limit noise levels to applicable noise regulations and guidelines at non-participating receptors.	• Adhere to noise setbacks. • Repair equipment in a timely manner.	• Noise levels experienced by non-participating receptors (residents located on non-leased properties) due to turbine operation will comply with the applicable noise regulations and guidelines.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan). • Contingency Measures ▪ Repair damaged turbine component. ▪ Operate turbines that are out of compliance in noise-reduced mode.
Increased noise levels experienced by receptors (residents located on non-leased properties) due to substation operation.	• Limit noise level to applicable noise regulations and guidelines at non-participating receptors.	• Repair equipment in a timely manner. • Install a noise barrier around the transformer substation to comply with MOE noise limits.	• Noise levels experienced by non-participating receptors near the substation will be below applicable noise regulations and guidelines due to setback requirements and application of mitigation measures. • High likelihood but limited magnitude of effects as a result.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan). • No contingency measures required.

3.6 Local Interests, Land Use and Infrastructure

Construction and Decommissioning

Table 3-12 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to local interests, land use and infrastructure resulting from construction and decommissioning.

Table 3-12 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Local Interests, Land Use and Infrastructure Resulting from Construction and Decommissioning

Potential Effect	Performance Objectives	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Minor reduction in usable agricultural land.	• Minimize reduction in usable agricultural land.	• Orientation of access roads determined in consultation with landowners to minimize impacts to agricultural use where possible.	• Minor reduction in usable agricultural land minimized through application of mitigation measures. • High likelihood of effect occurring; however, limited magnitude due to size of overall footprint within the entire Project Study Area.	• No monitoring or contingency measures required.
Increased congestion due to increase in truck traffic and short-term lane closures on local roads during delivery of project components.	• Minimize disturbances to local traffic patterns.	• Develop a traffic management plan for the construction phase and submit to the Municipalities prior to construction; and, • Notify the community in advance of construction delivery schedules and install signage to notify road users of construction activity.	• Increased congestion due to increase in truck traffic and short-term lane closures minimized through application of mitigation measures. • High likelihood of effect occurring; however, limited magnitude due to spread-out nature of the project and duration of lane closures.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan, Design & Operations Report (AECOM, 2013)). • Contingency Measures: ▪ Establish alternate delivery routes.
Damage to local infrastructure	• Minimize damage to local infrastructure.	• Adhere to best practices regarding the operation of construction equipment and delivery of construction materials; and, • Undertake roads condition survey prior to construction and post-construction.	• Damage to local infrastructure minimized through application of mitigation measures. • Moderate likelihood and magnitude of effects occurring due to presence oversize loads during delivery of turbine components.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan). • Contingency Measures: ▪ Return damaged infrastructure to original condition (or better) where appropriate.

Operation

Table 3-13 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to local interests, land use and infrastructure resulting from operations.

Table 3-13 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Local Interests, Land Use and Infrastructure Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Minor reduction in usable agricultural land.	• Minimize reduction of farmland.	• Minimize length of access roads where possible. • Consult with landowners to design access roads to minimize impacts to agricultural practices. • Compensate landowners on Project Location as per land lease agreement.	• Minor reduction in usable agricultural land. • High likelihood of effect, however limited magnitude due to size of overall footprint within the entire Project Study Area.	• No monitoring or contingency measures required.
Change to visual landscape which may affect the use and enjoyment of private property and recreational amenities.	• Limit visual impact of turbines where possible.	• Adhere to setback requirements.	• Change to visual landscape which may affect the use and enjoyment of private property and recreational amenities. • Likelihood and magnitude dependent on perception of residents and visitors to presence of turbines.	• No monitoring or contingency measures required.
Stray voltage effects to livestock.	• Minimize effects of stray voltage on livestock.	• Build and maintain the Project as prescribed by the Distribution System Code and the Electrical Safety Authority to minimize the risk of stray voltage. • Point of interconnection is part of the transmission system, not the distribution system thus reducing potential to impact any customers.	• Very low likelihood and very limited magnitude (if any) expected based on existing wind farm operations.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan. • No contingency measures required.
Damage to crops or trees due to turbine malfunction or failure associated with 39 turbines located within 80 m of neighbouring property lines	• Minimize damage to crops or trees due to turbine malfunction or failure.	• Ensure ongoing regular maintenance and monitoring of turbines. • Implement shutdown mechanisms and protocols in extreme weather instances to prevent damage to wind turbines.	• Damage to crops or trees minimized through mitigation measures • No likelihood of effect as a result of mitigation strategy.	• No monitoring or contingency measures required.

3.7 Other Resources

Construction and Decommissioning

No effects on open or closed landfills, aggregate resources, forest resources or petroleum wells are anticipated as a result of the construction phase of the Project due to the distance between the Project and these resources.

Operation

No potential effects on landfills or petroleum wells are anticipated as a result of the operation phase of the Project due to the distance between the Project and these resources.

3.8 Public Health and Safety

Construction and Decommissioning

Effects on public health and safety have been described in previous sections, including Emissions to Air, Noise, and Local Interests, Land Use and Infrastructure.

Operation

Table 3-14 describes the mitigation measures, residual effects and monitoring plan associated with potential effects to public health and safety resulting from operations.

Table 3-14 Mitigation Measures, Residual Effects and Monitoring Plan Associated with Potential Effects to Public Health and Safety Resulting from Operations

Potential Effect	Performance Objective	Mitigation Strategy	Residual Effects	Monitoring Plan and Contingency Measures
Impacts on public health and safety from ice shed and/or shadow flicker.	• No public health and safety incidents.	• Adhere to setback requirements to limit likelihood of any impacts.	• No impacts on public health and safety from ice shed due to setback requirements. • Very low likelihood and very limited magnitude of impacts (if any) on public health and safety from shadow flicker due to setback requirements and based on existing wind farm operations.	• Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan). **Contingency Measures** • Suspend operations during icing conditions to minimize the risk of ice shed.

3.9 Areas Protected Under Provincial Plans and Policies

The Project is not proposed in any protected or plan areas. As such, there are no potential effects on these areas as a result of the Project.

4. Summary and Conclusions

Field work and data collection were undertaken to determine the potential effects of this Project during the construction and operation / maintenance phases. Mitigation measures to manage these potential effects have been identified and monitoring and contingency plans proposed to ensure effects are minimized.

Significant adverse effects have been avoided through careful site selection, facility layout planning and strict adherence to all regulatory requirements. All turbines, access roads, and ancillary facilities have been sited with landowner consultation to minimize the impact to current agricultural operations.

The overall conclusion is that this project can be constructed, installed and operated without any significant adverse residual effects to the environment. Post-construction monitoring related to effects on wildlife, including birds and bats, will be undertaken to confirm this conclusion.

5. References

AECOM, 2013:
Final Jericho Wind Energy Centre Construction Plan Report

AECOM, 2013:
Final Jericho Wind Energy Centre Decommissioning Plan Report

AECOM, 2013:
Final Jericho Wind Energy Centre Design and Operations Plan Report

AECOM, 2013;
Final Jericho Wind Energy Centre Natural Heritage Assessment Report and Environmental Impact Study Report

AECOM, 2013:
Final Jericho Wind Energy Centre Water Assessment and Water Body Report

AECOM, 2013
Final Jericho Wind Energy Centre Wind Turbine Specification Report

Ontario Ministry of the Environment, 2011:
Technical Guide to Renewable Energy Approvals. Available: http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_088422.pdf

Appendix A

Land Ownership

Appendix A. Land Ownership

The table below provides a legal description of the properties on which project infrastructure will be sited. All properties are privately owned and are under agreement with NextEra.

Legal Description
PT LT 43 CON LAKE ROAD EAST BOSANQUET AS IN L796971; LAMBTON SHORES
PT LT 39 CON LAKE ROAD EAST BOSANQUET AS IN L331171; LAMBTON SHORES
PT LT 38-39 CON LAKE ROAD EAST BOSANQUET AS IN L797586; LAMBTON SHORES
PT LT 38-40 CON LAKE ROAD EAST BOSANQUET AS IN L748695; LAMBTON SHORES
PT LT 28 CON 6 BOSANQUET AS IN L727530; LAMBTON SHORES
PT LT 42 CON LAKE ROAD EAST BOSANQUET; PT LT 27 CON 6 BOSANQUET AS IN L840285; LAMBTON SHORES
PT LT 28 CON 6 BOSANQUET; PT LT 38-40, 42 CON LAKE ROAD EAST BOSANQUET AS IN BQ10884; PT LT 27 CON 6 BOSANQUET BEING A FORCED RD, KNOWN AS NEW LAKE RD AND ELLIOT RD; LAMBTON SHORES
RDAL BTN LT 26 AND 27 CON 6 BOSANQUET; RDAL BTN LT 42 CON LAKE ROAD EAST & LT 26 CON 7 BOSANQUET; RDAL BTN LT 43 CON LAKE ROAD EAST & LT 26 CON 7 BOSANQUET EXTENDING FROM NORTHVILLE RD TO JERICHO RD AKA KENNEDY LINE; LAMBTON SHORES
PT LT 50 CON LAKE ROAD WEST BOSANQUET AS IN L917067; LAMBTON SHORES
PT LT 51 CON LAKE ROAD WEST BOSANQUET AS IN L469767 EXCEPT L507270; LAMBTON SHORES
RDAL BTN CON LAKE ROAD EAST AND CON LAKE ROAD WEST BOSANQUET; PT LT 50-58 CON LAKE ROAD EAST BOSANQUET; PT LT 50-59 CON LAKE ROAD WEST BOSANQUET AS IN L952874 & PT 1, PP1044; BTN ARMY CAMP ROAD & LAKE ROAD EAST & LAKE ROAD WEST; BEING THE KING'S HWY #21; AKA LAKESHORE ROAD; LAMBTON SHORES
PT LT 13 CON 12 BOSANQUET PT 1, 25R2317; LAMBTON SHORES
PT LT 13 CON 12 BOSANQUET AS IN L721740; S/T DEBTS IN L360132, S/T BENEFICIARIES IN L360131; LAMBTON SHORES
PT LT 51 CON LAKE ROAD EAST BOSANQUET AS IN L900904; LAMBTON SHORES
PT LT 50 CON LAKE ROAD EAST BOSANQUET AS IN L470081; LAMBTON SHORES
PT LT 50-51 CON LAKE ROAD EAST BOSANQUET PT 1, 25R2667; LAMBTON SHORES
PT LT 22 CON 10 BOSANQUET AS IN L896569; LAMBTON SHORES
RDAL BTN LT 16 AND LT 17 CON 10 BOSANQUET; RDAL BTN LT 16 AND LT 17 CON 11 BOSANQUET; RDAL BTN LT 16 AND LT 17 CON 12 BOSANQUET; RDAL BTN LT 16 AND LT 17 CON 13 BOSANQUET AKA THOMSON LINE; LAMBTON SHORES
FIRSTLY, RDAL BTN LT 21 AND LT 22 CON 10 BOSANQUET; RDAL BTN LT 21 AND LT 22 CON 11 BOSANQUET; PT LT 22 CON 10 BOSANQUET; PT LT 22 CON 11 BOSANQUET PT 1 & 2, 25R306; SECONDLY, PT LT 21 CON 11 BOSANQUET PT 8, 25R306; AKA COUNTY RD NO. 6; AKA RAVENSWOOD LINE; LAMBTON SHORES
RDAL BTN LT 49 AND LT 50 CON LAKE ROAD EAST BOSANQUET; RDAL BTN CON 9 AND CON 10 BOSANQUET LYING BTN THOMSON LINE & KING'S HWY # 21, AKA ARMY CAMP ROAD; LAMBTON SHORES
RDAL BTN LT 16 AND LT 17 CON 6 TO 9 BOSANQUET AKA THOMSON LINE; LAMBTON SHORES
PT LT 48-49 CON LAKE ROAD EAST BOSANQUET AS IN L572219 (FIRSTLY); LAMBTON SHORES
PT LT 44-49 CON LAKE ROAD EAST BOSANQUET BEING NEW LAKE ROAD AKA BRUCE SCOTT RD; LAMBTON SHORES
RDAL BTN LT 21 AND LT 22 CON 6 TO 9 BOSANQUET; PT LT 21 CON 6 BOSANQUET; PT LT 21 CON 7 BOSANQUET; PT LT 21 CON 8 BOSANQUET; PT LT 21 CON 9 BOSANQUET; PT LT 22 CON 6 BOSANQUET; PT LT 22 CON 7 BOSANQUET; PT LT 22 CON 8 BOSANQUET; PT LT 22 CON 9 BOSANQUET PT 1,2,4 TO 12, 25R307 AKA RAVENSWOOD LINE; LAMBTON SHORES
PT LT 20-21 CON 9 BOSANQUET AS IN L904734 AS AMENDED BY L910652; S/T L904734; LAMBTON SHORES
PT LT 18 CON 9 BOSANQUET; PT LT 18 CON 8 BOSANQUET AS IN L326624; LAMBTON SHORES
PT LT 18 CON 8 BOSANQUET AS IN L647863; S/T EXECUTION 98-0000687, IF ENFORCEABLE; LAMBTON SHORES
PT LT 19 CON 8 BOSANQUET AS IN L410948; LAMBTON SHORES
LT 20 CON 8 BOSANQUET; PT LT 19 CON 8 BOSANQUET AS IN L934350; LAMBTON SHORES
PART OF LOT 22 CON 8 BOSANQUET AS IN L277194; LAMBTON SHORES
LT 24 CON 8 BOSANQUET; LAMBTON SHORES
LT 47 CON LAKE ROAD EAST BOSANQUET LYING S OF BRUCE SCOTT RD; LAMBTON SHORES
PT LT 46 CON LAKE ROAD EAST BOSANQUET PT 2, 25R963; LAMBTON SHORES
PT LT 46 CON LAKE ROAD EAST BOSANQUET AS IN L358894 EXCEPT PT 1, 25R963; LT 47 CON LAKE ROAD EAST BOSANQUET LYING N OF BRUCE SCOTT RD; LAMBTON SHORES
RDAL BTN CON LAKE ROAD EAST AND CON 7 BOSANQUET; RDAL BTN CON 7 AND CON 8 BOSANQUET BTN LT 26 CON 7 & RAVENSWOOD LINE AKA JERICHO RD; LAMBTON SHORES
LT 26 CON 7 BOSANQUET; LAMBTON SHORES
PT LT 25 CON 7 BOSANQUET AS IN L761065; LAMBTON SHORES
LT 19 CON 7 BOSANQUET; LAMBTON SHORES

Legal Description
LT 18 CON 7 BOSANQUET; LAMBTON SHORES
LT 17 CON 7 BOSANQUET; LAMBTON SHORES
PT LT 18-19 CON 6 BOSANQUET AS IN L830287; LAMBTON SHORES
PT LT 19-20 CON 6 BOSANQUET AS IN L439620, EXCEPT PT 101, 102 & 103, 25R2901; LAMBTON SHORES
PT LT 25 CON 6 BOSANQUET AS IN L930922; LAMBTON SHORES
RDAL BTN CON 7 AND CON 8 BOSANQUET BTN RAVENSWOOD LINE & THOMSON LINE AKA JERICHO RD; LAMBTON SHORES
LT 20 CON 7 BOSANQUET; LAMBTON SHORES
PT LT 25 CON 5 BOSANQUET; PT LT 25 CON 4 BOSANQUET AS IN L595927 EXCEPT PP219; LAMBTON SHORES
LT 22 CON 5 BOSANQUET EXCEPT PP162 & L503387; LAMBTON SHORES
PT LT 29 CON 4 BOSANQUET AS IN L926632; LAMBTON SHORES
PT LT 28 CON 3 BOSANQUET AS IN L746259 & L833244 EXCEPT EASEMENTS THEREIN; LAMBTON SHORES
FIRSTLY: PT LT 26 CON 3 BOSANQUET AS IN BQ8835; PT LT 25, 24 CON 3 BOSANQUET PT 2 & 3, 25R6093; SECONDLY: PT LT 23 CON 3 BOSANQUET; PT LT 23, 22 CON 2 BOSANQUET ; PT LT 24 CON 3 BOSANQUET, PT LT 25 CON 3 BOSANQUET, PT LT 26 CON 3 BOSANQUET BEING FORCED RD THROUGH LT 22 & 23 CON 2, LT 23, 24, 25 & 26 CON 3 AKA WIDDER RD, RIDGE RD, PINEHILL RD & PORT FRANKS RD; LAMBTON SHORES
PT LT 25, 24 CON 3 BOSANQUET PT 1, 25R6093; LAMBTON SHORES
LT 24 CON 2 BOSANQUET; PT LT 24-25 CON 3 BOSANQUET AS IN L329653 EXCEPT PT 1, 25R1084 & PT 1, 2 & 3, 25R6093; LAMBTON SHORES
PT LT 23 CON 2 BOSANQUET AS IN L166603 EXCEPT FORCED RD THROUGH LT 23 CON 2 AKA WIDDER RD, RIDGE RD, PINEHILL RD & PORT FRANKS RD; LAMBTON SHORES
RDAL BTN CON 3 AND CON 4 BOSANQUET; PT LT 25 CON 3 BOSANQUET AS IN L129943 & L132974 AKA GORDON RD BTN BOG LINE & RAVENSWOOD LINE; LAMBTON SHORES
RDAL BTN CON 5 AND CON 6 BOSANQUET; RDAL BTN LT 21 AND LT 22 CON 5 BOSANQUET; PT RDAL BTN LT 21 AND LT 22 CON 4 BOSANQUET; PT RDAL BTN CON 5 AND CON LAKE RD EAST BOSANQUET; PT LT 30, 29, 28, 27, 26, 25, 24, 23, 22, 21 CON 5 BOSANQUET; PT LT 22-28 CON 6 BOSANQUET; PT LT 38 CON LAKE ROAD EAST BOSANQUET; PT LT 22, 21 CON 4 BOSANQUET PT 2 & 3, L841949 S OF BOG LINE AKA COUNTY RD 79, THE KING'S HWY NO. 82, HWY NO.79 & NORTHVILLE RD EXCEPT PT 2, 25R8956; LAMBTON SHORES
PART OF LOTS 23 & 24 CON 4 BOSANQUET AS IN L922722; SAVE & EXCEPT PART 1, 25R9938 MUNICIPALITY OF LAMBTON SHORES
PT LT 21 CON 5 BOSANQUET AS IN L845675; LAMBTON SHORES
PT LT 20-21 CON 5 BOSANQUET AS IN L312391 (FIRSTLY) & L846205 EXCEPT PT 105 TO 107 & 112, 25R2901; LAMBTON SHORES
PT LT 20 CON 5 BOSANQUET AS IN L830286; S/T DEBTS IN L428807; LAMBTON SHORES
N 1/2 LT 19 CON 5 BOSANQUET EXCEPT PT 97, 25R2901; LAMBTON SHORES
S 1/2 LT 19 CON 5 BOSANQUET EXCEPT PT 96, 25R2901; LAMBTON SHORES
E 1/2 LT 17 CON 4 BOSANQUET; LAMBTON SHORES
RDAL BTN CON 5 AND CON 6 BOSANQUET; PT LT 17-21 CON 5 BOSANQUET; PT LT 17-21 CON 6 BOSANQUET PT 78, 79, 81 TO 88, 90, 91, 93, 95 TO 107 & 109 TO 112, 25R2901 LYING BTN RDAL BTN LT 21 & 22 & RDAL BTN 16 & 17 AKA NORTHVILLE ROAD; LAMBTON SHORES
RDAL BTN LT 16 AND LT 17 CON 4 BOSANQUET; RDAL BTN LT 16 AND LT 17 CON 5 BOSANQUET (AKA THOMSON LINE) LYING BTN NORTHVILLE ROAD & GORDON ROAD; LAMBTON SHORES
KING ST PL 1 THEDFORD; KING ST PL 4 THEDFORD; PT LT 21 CON 4 BOSANQUET; PT RDAL BTN CON 3 AND CON 4 BOSANQUET AS IN L517851, PT 2, 25R3935; BEING KING ST AKA GORDON RD; BTN HIGHWAY NO. 82 & THOMSON LINE; LAMBTON SHORES
RDAL BTN LT 16 AND LT 17 CON 2 BOSANQUET; RDAL BTN LT 16 AND LT 17 CON 3 BOSANQUET BTN KING ST & ARKONA RD; AKA THOMSON LINE; LAMBTON SHORES
PT LT 1-3, 15-21, 33-36 PL 4 BOSANQUET; PT MILL ST, FRANK ST, CHURCH ST, TEMPERANCE ST PL 4 BOSANQUET; PT LT 18-20 CON 2 BOSANQUET PT 1 L841949 NW OF RDAL BTN CON 1 & 2 BOSANQUET, BEING COUNTY RD 79 (FORMERLY KINGS HIGHWAY #79, AKA MAIN ST, ARKONA RD); LAMBTON SHORES
PT LT 19 CON 1 BOSANQUET AS IN L845808; LAMBTON SHORES
LT 46, 74 PL 3 BOSANQUET; PT LT 18 CON 1 BOSANQUET PT 1,5,6,7 & 9, 25R3357; LAMBTON SHORES
LT 44-45 PL 3 BOSANQUET; RESERVE BTN LT 43 AND LT 44 PL 3 BOSANQUET; LAMBTON SHORES
W 1/2 LT 28 CON 1 BOSANQUET EXCEPT PP850; LAMBTON SHORES
LT 27 CON 1 BOSANQUET EXCEPT BQ12068; LAMBTON SHORES
LT 23 CON 1 BOSANQUET; LAMBTON SHORES
RDAL BTN CON 1 AND CON 2 BOSANQUET; PT LT 17-18 CON 2 BOSANQUET; PT LT 36-38, 40-41 PL 3 BOSANQUET AS IN L841949, EXCEPT PP139, COUNTY RD 79, AKA ARKONA RD, AKA KINGS HWY 79, BTN THOMSON LINE AND BOG LINE; LAMBTON SHORES
RDAL BTN LT 16 AND LT 17 CON 1 BOSANQUET; PT RDAL BTN CON 1 AND CON 2 BOSANQUET; PT LT 158 PL 3 BOSANQUET; PT LT 17, 16 CON 1 BOSANQUET; PT LT 169-170 PL 3 BOSANQUET; PT LT 16-17 CON 2 BOSANQUET; PT LT 17-18 PL 3 BOSANQUET AS IN L841950, THOMSON LINE AKA KING'S HWY 7, BTN ARKONA RD & E OF AUSABLE RIVER; LAMBTON SHORES
W1/2 LT 16 CON 3 BOSANQUET; LAMBTON SHORES
PT LT 16 CON 2 BOSANQUET; PT LT 16 CON 3 BOSANQUET AS IN L359262 EXCEPT PT 1, 2, 3 & 5 25R1284; LAMBTON SHORES

Legal Description
PT LT 13 CON 3 BOSANQUET AS IN L828460; LAMBTON SHORES
PT LT 11 CON 2 BOSANQUET; PT LT 11-12 CON 3 BOSANQUET AS IN L828460 EXCEPT PP390 & PP566; S/T L594022; LAMBTON SHORES
PT LT 12 CON 3 BOSANQUET AS IN L711002; LAMBTON SHORES
LT 10 CON 3 BOSANQUET; LAMBTON SHORES
PT LT 9 CON 2 BOSANQUET AS IN L784066; LAMBTON SHORES
PT LT 10 CON 2 BOSANQUET AS IN L747168; LAMBTON SHORES
S1/2 LT 11 CON 2 BOSANQUET EXCEPT PP390 & PP566; LAMBTON SHORES
LT 12 CON 2 BOSANQUET EXCEPT PP390 & PP566; T/W L594022; LAMBTON SHORES
PT LT 13 CON 2 BOSANQUET AS IN L562381; LAMBTON SHORES
PT LT 14 CON 2 BOSANQUET AS IN L729044 EXCEPT PP390 & PP567; S/T BENEFICIARIES INTEREST IN L928165; LAMBTON SHORES
PT LT 14 CON 1 BOSANQUET AS IN L838454; S/T L412957; S/T EXECUTION 05-0000110, IF ENFORCEABLE; LAMBTON SHORES
PT LT 14 CON 1 BOSANQUET AS IN L574278; S/T & T/W L412957; LAMBTON SHORES
LT 10 CON 1 BOSANQUET EXCEPT PP390 & PP566; LAMBTON SHORES
PT RDAL BTN CON 1 AND CON 2 BOSANQUET; PT LT 9-16 CON 1 BOSANQUET; PT LT 9-16 CON 2 BOSANQUET AS IN L832418 BEING KING'S HWY NUMBER 7 & 79 (AKA ARKONA RD) LYING BTN CEDAR POINT LINE & THOMSON LINE; LAMBTON SHORES
RDAL BTN CON 3 AND CON 4 BOSANQUET AKA GORDON RD LYING BTN CEDAR POINT LINE & THOMSON LINE; LAMBTON SHORES
RDAL BTN LT 12 AND LT 13 CON 2 BOSANQUET; RDAL BTN LT 12 AND LT 13 CON 3 BOSANQUET AKA FARMERS LINE EXCEPT PP758; LAMBTON SHORES
PT LT 15 CON 1 BOSANQUET DESIGNATED PART 1 PLAN 25R9889; LAMBTON SHORES
PT LT 15 CON 1 BOSANQUET DESIGNATED PART 1 25R-9784 & PART 1 25R-1693 EXCEPT PT 1 25R9889 SUBJECT TO AN EASEMENT AS IN L412957 TOGETHER WITH AN EASEMENT AS IN L412957 MUNICIPALITY OF LAMBTON SHORES
RDAL BTN CON 7 AND CON 8 BOSANQUET ABUTTING LT 4 TO 16 AKA JERICHO RD; LAMBTON SHORES
RDAL BTN LT 3 AND LT 4 CON 4 BOSANQUET; RDAL BTN LT 3 AND LT 4 CON 5 BOSANQUET; RDAL BTN LT 3 AND LT 4 CON 6 BOSANQUET; RDAL BTN LT 3 AND LT 4 CON 7 BOSANQUET AKA JURA LINE; LAMBTON SHORES
LT 16 CON 7 BOSANQUET; LAMBTON SHORES
FIRSTLY RDAL BTN CON 5 AND CON 6 BOSANQUET ABUTTING LT 4 TO 16; PT LT 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4 CON 6 BOSANQUET; PT LT 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4 CON 5 BOSANQUET AS IN PP750, PT 21-23, 25-28, 30-32, 34-36, 38-48, 50-55, 58-62, 64-70, 72-74, 76-77, 25R2901, PT 2, 25R1951, PT 1, 25R2060, PT 2, 25R2724; SECONDLY PT LT 8 CON 6 BOSANQUET PT 2, 25R1831; PT LT 16 CON 5 BOSANQUET PT 9, 25R6986 AKA NORTHVILLE RD; S/T BQ19629, BQ19630, BQ19807, BQ20079; LAMBTON SHORES
PT LT 15 CON 7 BOSANQUET AS IN L862247; LAMBTON SHORES
PT LT 13-14 CON 7 BOSANQUET AS IN L295602 & PT 2 & 3, 25R6986; LAMBTON SHORES
LT 11 CON 6 BOSANQUET EXCEPT PT 55 & 58, 25R2901; S/T BQ19629; LAMBTON SHORES
PT LT 10 CON 6 BOSANQUET AS IN L753137 EXCEPT PT 50, 25R2901; S/T BQ19630; LAMBTON SHORES
PT LT 10 CON 6 BOSANQUET AS IN L733018 EXCEPT PT 48 & 50, 25R2901; S/T BQ19630; LAMBTON SHORES
PT LT 10 CON 6 BOSANQUET AS IN L753136 EXCEPT PT 48, 25R2901; S/T BQ19630; LAMBTON SHORES
PT LT 9 CON 6 BOSANQUET AS IN L828460; LAMBTON SHORES
LT 6 CON 7 BOSANQUET; LAMBTON SHORES
N 3/4 LT 5 CON 7 BOSANQUET; LAMBTON SHORES
LT 4 CON 7 BOSANQUET; S 1/4 LT 5 CON 7 BOSANQUET; LAMBTON SHORES
PT LT 7 CON 6 BOSANQUET AS IN L425259 EXCEPT PT 32, 36 & 38, 25R2901; LAMBTON SHORES
LT 16 CON 4 BOSANQUET; LAMBTON SHORES
LT 9 CON 4 BOSANQUET; PT LT 10 CON 4 BOSANQUET AS IN L960574; S/T BQ20851; LAMBTON SHORES
RDAL BTN LT 8 AND LT 9 CON 4 BOSANQUET; RDAL BTN LT 8 AND LT 9 CON 5 BOSANQUET AKA CEDAR POINT LINE; LAMBTON SHORES
PT LT 8 CON 5 BOSANQUET AS IN L936596; LAMBTON SHORES
LT 7 CON 5 BOSANQUET EXCEPT PT 34,35 & 39, 25R2901; LAMBTON SHORES
PT LT 5 CON 4 BOSANQUET PT 1, 25R2296; LAMBTON SHORES
LT 4 CON 4 BOSANQUET EXCEPT W 30 FT; LAMBTON SHORES
PT LT 5-6 CON 4 BOSANQUET AS IN L671910 EXCEPT PTS 1 & 2 PLAN 25R10036; LAMBTON SHORES
RDAL BTN CON 11 AND CON 12 BOSANQUET AKA KINNAIRD RD ABUTTING LOTS 9 TO 16; LAMBTON SHORES
RDAL BTN LT 8 AND LT 9 CON 8 BOSANQUET; RDAL BTN LT 8 AND LT 9 CON 9 BOSANQUET; RDAL BTN LT 8 AND LT 9 CON 10 BOSANQUET; RDAL BTN LT 8 AND LT 9 CON 11 BOSANQUET AKA CEDAR POINT LINE; PT RDAL BTN CON 9 AND CON 10 BOSANQUET AKA CEDAR POINT LINE BTN KINNAIRD RD & JERICHO RD; LAMBTON SHORES
RDAL BTN LT 12 AND LT 13 CON 8 BOSANQUET; RDAL BTN LT 12 AND LT 13 CON 9 BOSANQUET; RDAL BTN LT 12 AND LT 13 CON 10 BOSANQUET; RDAL BTN LT 12 AND LT 13 CON 11 BOSANQUET AKA PROOF LINE; PT RDAL BTN CON 9 AND CON 10 BOSANQUET AKA PROOF LINE BTN KINNAIRD RD & JERICHO RD; LAMBTON SHORES
RDAL BTN CON 9 AND CON 10 BOSANQUET ABUTTING LOTS 13 TO 16; LAMBTON SHORES
N 1/2 LT 15 CON 9 BOSANQUET; LAMBTON SHORES
RDAL BTN CON 9 AND CON 10 BOSANQUET AKA ARMY CAMP RD ABUTTING LOTS 9 TO 12; LAMBTON SHORES

Legal Description
LT 10 CON 9 BOSANQUET; LAMBTON SHORES
RDAL BTN CON 11 AND CON 12 BOSANQUET; RDAL BTN LT 30 AND LT 31 CON SOUTH BOUNDARY BOSANQUET AKA KINNAIRD RD BTN CEDAR POINT LINE & TOWNSEND LINE; LAMBTON SHORES
RDAL BTN TWP OF WARWICK AND TWP OF BOSANQUET; PT LT 21-30 CON SOUTH BOUNDARY BOSANQUET; PT LT 8-11 CON 8 NER WARWICK; PT LT 12-14 CON 7 NER WARWICK AS IN PP877 & PT 1 25R5816 & PT 1-3 25R5896 & PT 2, 25R2867 AKA TOWNSEND LINE BTN KINNAIRD RD & JERICHO RD; LAMBTON SHORES
LT 4 CON 11 BOSANQUET; S 1/2 LT 5 CON 11 BOSANQUET; LAMBTON SHORES
S 1/2 LT 6 CON 10 BOSANQUET; LAMBTON SHORES
N 1/2 LT 6 CON 10 BOSANQUET; LAMBTON SHORES
S 1/2 LT 7 CON 10 BOSANQUET; LAMBTON SHORES
RDAL BTN CON 9 AND CON 10 BOSANQUET BTN LT 4-8; RDAL BTN LT 25 AND LT 26 CON SOUTH BOUNDARY BOSANQUET; RDAL BTN LT 3 CON 9 AND LT 26 CON SOUTH BOUNDARY BOSANQUET AKA ARMY CAMP RD BTN CEDAR POINT LINE & TOWNSEND LINE; LAMBTON SHORES
E 1/2 LT 8 CON 9 BOSANQUET; LAMBTON SHORES
S 1/2 LT 5 CON 9 BOSANQUET; LAMBTON SHORES
LT 7 CON 8 BOSANQUET; LAMBTON SHORES
LT 6 CON 8 BOSANQUET; LAMBTON SHORES
PT LT 21 CON SOUTH BOUNDARY BOSANQUET AS IN L609818 EXCEPT PP877; LAMBTON SHORES
PT LT 22-23 CON SOUTH BOUNDARY BOSANQUET AS IN L583890; LAMBTON SHORES
LT 29 CON SOUTH BOUNDARY BOSANQUET EXCEPT PP877; LAMBTON SHORES
PT LT 30 CON SOUTH BOUNDARY BOSANQUET AS IN L250964 EXCEPT PP877; LAMBTON SHORES
PT LT 30 CON SOUTH BOUNDARY BOSANQUET AS IN L473981; LAMBTON SHORES
PT LT 2 CON 5 BOSANQUET AS IN L885254; LAMBTON SHORES
PT LT 1 CON 5 BOSANQUET AS IN L533555 EXCEPT PP887; LAMBTON SHORES
PT LT 15 CON SOUTH BOUNDARY BOSANQUET AS IN L768753 EXCEPT PL877; LAMBTON SHORES
PT LT 12-13 CON SOUTH BOUNDARY BOSANQUET AS IN L587106; LAMBTON SHORES
PT LT 12 CON SOUTH BOUNDARY BOSANQUET PT 1, 25R6208; LAMBTON SHORES
PT LT 12 CON SOUTH BOUNDARY BOSANQUET AS IN L147658 EXCEPT PP877 & PT 1, 25R6208; LAMBTON SHORES
LT 2 CON 7 BOSANQUET; LAMBTON SHORES
PT LT 19 CON SOUTH BOUNDARY BOSANQUET AS IN L877447; LAMBTON SHORES
PT LT 16-18 CON SOUTH BOUNDARY BOSANQUET AS IN L386766; LAMBTON SHORES
PT LT 16-17 CON SOUTH BOUNDARY BOSANQUET AS IN L828460; LAMBTON SHORES
PT LT 16-17 CON SOUTH BOUNDARY BOSANQUET AS IN L894686; LAMBTON SHORES
RDAL BTN CON 7 AND CON 8 BOSANQUET AKA JERICHO RD BTN RDAL BTN TWP OF WARWICK & BOSANQUET & RDAL BTN LT 3 & 4 CON CON 6 & 7 AKA JURA LINE; LAMBTON SHORES
PT LT 11-20 CON SOUTH BOUNDARY BOSANQUET; PT LT 15-20 CON 7 NER WARWICK; RDAL BTN TWP OF WARWICK AND TWP OF BOSANQUET BTN JERICHO RD & GORDON RD; LAMBTON SHORES
RDAL BTN CON 5 AND CON 6 BOSANQUET; PT LT 1-3 CON 5 BOSANQUET; PT LT 15-16 CON SOUTH BOUNDARY BOSANQUET; PT LT 2-3 CON 6 BOSANQUET BEING RDAL BTN CON 5 & 6 & PT 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 18 & 20 25R2901 AKA NORTHVILLE RD; LAMBTON SHORES
PT LT 8 CON 3 BOSANQUET AS IN L291109; LAMBTON SHORES
LT 6 CON 3 BOSANQUET; LAMBTON SHORES
PT LT 4-5 CON 3 BOSANQUET AS IN L784064 & L862506; LAMBTON SHORES
PT LT 5 CON 3 BOSANQUET; PT LT 4-6 CON 2 BOSANQUET AS IN L485201; LAMBTON SHORES
PT LT 8 CON 2 BOSANQUET AS IN L784066; LAMBTON SHORES
PT LT 1 CON 2 BOSANQUET AS IN L713974; LAMBTON SHORES
PT LT 8 CON 1 BOSANQUET AS IN L594022, EXCEPT PP758; LAMBTON SHORES
PT LT 7 CON 1 BOSANQUET AS IN L808359; LAMBTON SHORES
PT LT 1, A CON 1 BOSANQUET AS IN L693666; LAMBTON SHORES
RDAL BTN CON 3 AND CON 4 BOSANQUET; RDAL BTN LT 11 CON SOUTH BOUNDARY AND LT A CON 3 BOSANQUET BTN CEDAR POINT LINE & CON SOUTH BOUNDARY BOSANQUET; AKA GORDON RD; LAMBTON SHORES
PT LT 4 CON 3 BOSANQUET AS IN BQ6039 & BQ6040; RDAL BTN LT 3 AND LT 4 CON 2 BOSANQUET; RDAL BTN LT 3 AND LT 4 CON 3 BOSANQUET AKA JURA LINE; LAMBTON SHORES
RDAL BTN CON 1 AND CON 2 BOSANQUET ABUTTING LT A & LT 1-8 CON 1; PT LT 1-8, A CON 1 BOSANQUET; PT LT 1-8, A CON 2 BOSANQUET; PT RDAL BTN LT 3 AND LT 4 CON 1 BOSANQUET; PT RDAL BTN LT 3 AND LT 4 CON 2 BOSANQUET; PT RDAL BTN CON 1 AND CON S BOUNDARY BOSANQUET; PT RDAL BTN CON 2 AND CON S BOUNDARY BOSANQUET AS IN L832418; BEING COUNTY RD 79; AKA ARKONA RD; AKA THE KING'S HIGHWAY NO. 7; BTN CEDAR POINT LINE & THE SOUTH BOUNDARY CONCESSION; LAMBTON SHORES
LT 7 CON 2 BOSANQUET EXCEPT PP758; LAMBTON SHORES

Legal Description
PT LOT 6 CON 1 BOSANQUET AS IN LL468731, EXCEPT PT 1 ON PL 25R9710 MUNICIPALITY OF LAMBTON SHORES
PT RDAL BTN TWP OF WARWICK AND TWP OF BOSANQUET; PT LT 21-23 CON 6 NER WARWICK; PT LT 7-10 CON SOUTH BOUNDARY BOSANQUET AS IN PP877 & PP814 AKA TOWNSEND LINE BTN GORDON RD & ARKONA RD; LAMBTON SHORES
LT 10 CON SOUTH BOUNDARY BOSANQUET EXCEPT PP814; LAMBTON SHORES
LT 9 CON SOUTH BOUNDARY BOSANQUET EXCEPT PP877; LAMBTON SHORES
E 1/2 LT 26 CON 4 NER WARWICK; S/T EXECUTION 05-0000110, IF ENFORCEABLE; WARWICK
PT LT 27 CON 4 NER WARWICK AS IN L147306; S/T EXECUTION 05-0000110, IF ENFORCEABLE; WARWICK
RDAL BTN CON 4 & 5 NER WARWICK AKA BIRNAM LINE LYING BTN HWY 7 & SEXTON RD; WARWICK
RDAL BTN LT 24 & 25 CON 3 NER WARWICK; RDAL BTN LT 24 & 25 CON 4 NER WARWICK; RDAL BTN LT 24 & 25 CON 5 NER WARWICK; RDAL BTN LT 24 & 25 CON 6 NER WARWICK; PT LT 24-25 CON 3 NER WARWICK; PT LT 24-25 CON 4 NER WARWICK; PT LT 24-25 CON 5 NER WARWICK; PT LT 24-25 CON 6 NER WARWICK; PT LT 38-40 PL 6 WARWICK; PT LT 77-78, 87-93 PL 7 WARWICK; PT FAIR ST PL 7 WARWICK; PT FAIR ST, SIMCOE ST, ONTARIO ST PL 6 WARWICK; PT LT 41-42, 57-60, 75-76 PL 6 WARWICK AKA PL 7 ARKONA, AS IN L832418 AKA ARKONA RD, AKA HWY 7 & 79, COUNTY RD 79, LYING N OF BRICK YARD LINE; WARWICK
PT LT 19-20 CON 7 NER WARWICK AS IN L776572 EXCEPT PP877; WARWICK
PT LT 22 CON 6 NER WARWICK AS IN L783921, EXCEPT PP877; WARWICK
PT LT 22 CON 6 NER WARWICK AS IN L110242, EXCEPT PP877 & L783921; WARWICK
FIRSTLY RDAL BTN LT 18 AND LT 19 CON 5 NER WARWICK; RDAL BTN LT 18 AND LT 19 CON 6 NER WARWICK; RDAL BTN LT 18 AND LT 19 CON 7 NER WARWICK; PT LT 18 CON 6 NER WARWICK; PT LT 19 CON 5 NER WARWICK; PT LT 19 CON 6 NER WARWICK AS IN L411374 & L411359 & PT 36, 37, 38, 39, 40 & 41 25R2057 & PT 2 25R914; SECONDLY PT LT 18 CON 5 NER WARWICK AS IN L207519, AKA NAUVOO RD; LAMBTON SHORES
RDAL BTN CON 4 AND CON 5 NER WARWICK ABUTTING LT 19 - 24 CON 4 & 5 NER, AKA BIRNAM LINE; LAMBTON SHORES
RDAL BTN CON 4 & 5 NER WARWICK AKA BIRNAM LINE, LYING BTN W LIMIT OF FIRST SCHOOL RD & RDAL BTN LT 18 & 19 CON 5 NER; WARWICK
PT LT 13 CON 7 NER WARWICK AS IN L844833; WARWICK
PT LT 14 CON 7 NER WARWICK AS IN L698059; WARWICK
RDAL BTN CON 6 NER AND CON 7 NER WARWICK (AKA HICKORY CREEK LINE) BTN W LIMIT OF FIRST SCHOOL RD & COUNTY RD #9; WARWICK
RDAL BTN LT 9 AND LT 10 CON 3 NER WARWICK; RDAL BTN LT 9 AND LT 10 CON 4 NER WARWICK AKA WARWICK VILLAGE RD BTN BIRNAM LINE & BRICK YARD LINE; WARWICK
W 1/2 LT 10 CON 3 NER WARWICK; WARWICK
PT LT 10 CON 3 NER WARWICK AS IN L703197; WARWICK
NW 1/4 LT 11 CON 3 NER WARWICK; WARWICK
NE 1/4 LT 11 CON 3 NER WARWICK; WARWICK
PT LT 10 CON 3 NER WARWICK BEING THE N 33 FT OF THE E 1/2; WARWICK
W 1/2 LT 12 CON 3 NER WARWICK S/T INTEREST IN L824361; WARWICK
E 1/2 LT 12 CON 3 NER WARWICK; WARWICK
RDAL BTN LT 12 AND 13 CON 3 NER WARWICK; RDAL BTN LT 12 AND 13 CON 4 NER WARWICK AKA FIRST SCHOOL RD BTN BIRNAM LINE & BRICK YARD LINE; WARWICK
RDAL BTN LT 15 AND 16 CON 3 NER WARWICK; RDAL BTN LT 15 AND 16 CON 4 NER WARWICK AKA BETHEL RD BTN BIRNAM LINE & BRICK YARD LINE; WARWICK
S1/2 LT 7 CON 2 NER WARWICK; WARWICK
RDAL BTN LT 6 AND LT 7 CON 1 NER WARWICK; RDAL BTN LT 6 AND LT 7 CON 2 NER WARWICK AKA ELARTON RD BTN BRICK YARD LINE & EGREMONT RD; WARWICK
RDAL BTN CON 2 AND CON 3 NER WARWICK AKA BRICK YARD LINE BTN FOREST RD & WARWICK VILLAGE RD; WARWICK
E 1/2 LT 11 CON 6 NER WARWICK; WARWICK
LT 10 CON 8 NER WARWICK EXCEPT PP877; WARWICK
E 1/2 LT 10 CON 7 NER WARWICK; WARWICK
W 1/2 LT 11 CON 7 NER WARWICK; WARWICK
W 1/2 LT 12 CON 7 NER WARWICK EXCEPT PP877 & PT 1 25R3483; WARWICK
RDAL BTN CON 6 NER AND CON 7 NER WARWICK AKA HICKORY CREEK LINE BTN ELARTON RD AND FIRST SCHOOL RD; WARWICK
RDAL BTN LT 9 AND LT 10 CON 7 NER WARWICK; RDAL BTN LT 9 AND LT 10 CON 8 NER WARWICK AKA WARWICK VILLAGE RD BTN N LIMIT OF HICKORY CREEK LINE AND S LIMIT OF TOWNSEND LINE; WARWICK
PT LT 9, CON 16 , AS IN 929034 ; MUNICIPALITY OF NORTH MIDDLESEX/WEST WILLIAMS
PT LT 17, CON 21, BF , PART 1 , 33R9887 ; MUNICIPALITY OF NORTH MIDDLESEX

Legal Description
PART OF ELGINFIELD ROAD (HIGHWAY 7) (KING STREET) BEING PART OF ORIGIN AL ROAD ALLOWANCE BETWEEN LOTS 16 & 17, CONCESSION 21 & BROKEN FRONT C ONCESSION 21.; PART OF ORIGINAL ROAD BETWEEN CONCESSION 21 & BROKEN FR ONT CONCESSION 21.; PART OF FORCED ROAD THROUGH LOT 17, BROKEN FRONT C ONCESSION 21.; PART OF LOTS 16 & 17, CONCESSION 21 & BROKEN FRONT CONC ESSION 21.; PART LOF LOTS 1 & 2, WEST OF MAIN STREET & NORTH OF KING S TRET., RP 248.; PART OF LOT 1, EAST OF JOHN ST. & NORTH OF KING ST., R P 248.; PART OF LOT 1, WEST OF JOHN STR. & NORTH OF KING ST., RP 248.; PART OF LOT 3, SOUTH OF KING ST., RP 248; PART OF JOHN ST., RP 248.; AND PART OF ORIGINAL 10.058 WIDE ROAD ALLOWANCE ABUTTING THE AUSABLE R IVER, BEING PTS 2 & 3 ON P-2044-32 (ER58834 ORDER-IN-COUNCIL)
THAT PT OF THE AUSABLE RIVER, LYING E OF THE CENTER LINE IN THE TWP OF WEST WILLIAMS FROM THE SLY LIMIT OF THE RDAL BTN LTS 16 & 17, CON 21, BF TO THE SLY LIMIT BTN THE TWPS OF WEST WILLIAMS & MCGILLIVRAY ; MUNICIPALITY OF NORTH MIDDLESEX/WEST WILLIAMS
PT LTS 17 & 18 CON 21 BF DESIGNATED AS PT 1 PL 33R-12894.; MUNICIPALIT Y OF NORTH MIDDLESEX/WEST WILLIAMS .; "CONSENT OF COMMITTEE OF ADJUSTMENT IN LT471190"
PT LTS 17 & 18 CON 21 BF AS IN 591017 SAVE & EXCEPT PT 1 PL 33R-9887 AND PT 1 PL 33R-12894 MUNICIPALITY OF NORTH MIDDLESEX
PART OF ELGINFIELD ROAD (HIGHWAY 7) (ORIGINAL ROAD ALLOWANCE BETWEEN C ONCESSIONS 16 & 17) LYING BETWEEN THE WESTERLY LIMIT OF THE ORIGINAL R OAD ALLOWANCE BETWEEN LOTS 20 & 21, CONCESSION 17 & THE WESTERLY LIMIT OF THE ORIGINAL ROAD ALLOWANCE BETWEEN CONCESSIONS 17 & 21.; PART OF LOTS 21, 22, 23 CONCESSION 17.; PART OF LOTS 17 & 18, CONCESSION 16.; PART OF THE ORIGINAL ROAD ALLOWANCE BETWEEN CONCESSIONS 17 & 21.; PT OF THE ORIGINAL ROAD ALLOWANCE BETWEEN CONCESSIONS 16 & 21, BEING PT 4 ON P-2044-32 (ER58834 ORDER-IN-COUNCIL).
PART OF ELGINFIELD ROAD (HIGHWAY 7) (ORIGINAL ROAD ALLOWANCE BETWEEN CONCESSIONS 16 & 17) LYING BETWEEN THE WESTERLY LIMIT OF THE ORIGINAL ROAD ALLOWANCE BETWEEN LOTS 20 & 21, CONCESSION 17 & THE WESTERLY LIMIT OF THE ROAD IN LIEU OF THE ROAD ALLOWANCE BETWEEN LOTS 5 & 6, AS WIDENED.; PART OF LOTS 7 TO 20 (BOTH INCLUSIVE), CONCESSION 17.; PART OF LOTS 5 TO 16 (BOTH INCLUSIVE), CONCESSION 16.; PART OF LOT 7, CONCESSION 17 (CLOSED BY PLAN 257367(MISC) BEING PART OF ELGINFIELD ROAD.; PAR T OF ORIGINAL ROAD ALLOWANCE BETWEEN LOTS 20 & 21, CONCESSION 17.; PART OF ORIGINAL ROAD ALLOWANCE BETWEEN LOTS 16 & 17, CONCESSION 16.; PART OF ORIGINAL ROAD ALLOWANCE BETWEEN LOTS 15 & 16, CONCESSION 17.; PART OF ORIGINAL ROAD ALLOWANCE BETWEEN LOTS 12 & 13, CONCESSION 16.; PART OF ORIGINAL ROAD ALLOWANCE BETWEEN LOTS 10 & 11, CONCESSION 17.; PART OF ORIGINAL ROAD ALLOWANCE BETWEEN LOTS 8 & 9, CONCESSION 16 BEING PART 5 ON P-2044-32 (ER58834 ORDER-IN-COUNCIL)
RDAL BTN LT 16 AND LT 17 CON 6 TO 9 BOSANQUET AKA THOMSON LINE; LAMBTON SHORES
PT LT 17 CON 6 BOSANQUET AS IN L645370; LAMBTON SHORES
RDAL BTN CON 5 AND CON 6 BOSANQUET; PT LT 17-21 CON 5 BOSANQUET; PT LT 17-21 CON 6 BOSANQUET PT 78, 79, 81 TO 88, 90, 91, 93, 95 TO 107 & 109 TO 112, 25R2901 LYING BTN RDAL BTN LT 21 & 22 & RDAL BTN 16 & 17 AKA NORTHVILLE ROAD; LAMBTON SHORES
RDAL BTN LT 16 AND LT 17 CON 4 BOSANQUET; RDAL BTN LT 16 AND LT 17 CON 5 BOSANQUET (AKA THOMSON LINE) LYING BTN NORTHVILLE ROAD & GORDON ROAD; LAMBTON SHORES
RDAL BTN LT 16 AND LT 17 CON 2 BOSANQUET; RDAL BTN LT 16 AND LT 17 CON 3 BOSANQUET BTN KING ST & ARKONA RD; AKA THOMSON LINE; LAMBTON SHORES
RDAL BTN LT 16 AND LT 17 CON 1 BOSANQUET; PT RDAL BTN CON 1 AND CON 2 BOSANQUET; PT LT 158 PL 3 BOSANQUET; PT LT 17, 16 CON 1 BOSANQUET; PT LT 169-170 PL 3 BOSANQUET; PT LT 16-17 CON 2 BOSANQUET; PT LT 17-18 PL 3 BOSANQUET AS IN L841950, THOMSON LINE AKA KING'S HWY 7, BTN ARKONA RD & E OF AUSABLE RIVER; LAMBTON SHORES
No Information in Geowarehouse
W1/2 LT 16 CON 3 BOSANQUET; LAMBTON SHORES
RDAL BTN CON 3 AND CON 4 BOSANQUET AKA GORDON RD LYING BTN CEDAR POINT LINE & THOMSON LINE; LAMBTON SHORES
LT 16 CON 7 BOSANQUET; LAMBTON SHORES
FIRSTLY RDAL BTN CON 5 AND CON 6 BOSANQUET ABUTTING LT 4 TO 16; PT LT 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4 CON 6 BOSANQUET; PT LT 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4 CON 5 BOSANQUET AS IN PP750, PT 21-23, 25-28, 30-32, 34-36, 38-48, 50-55, 58-62, 64-70, 72-74, 76-77, 25R2901, PT 2, 25R1951, PT 1, 25R2060, PT 2, 25R2724; SECONDLY PT LT 8 CON 6 BOSANQUET PT 2, 25R1831; PT LT 16 CON 5 BOSANQUET PT 9, 25R6986 AKA NORTHVILLE RD; S/T BQ19629, BQ19630, BQ19807, BQ20079; LAMBTON SHORES
PT LT 15-16 CON 5 BOSANQUET AS IN L805842 & PT 10, 25R6986; LAMBTON SHORES
E 1/2 LT 16 CON 5 BOSANQUET; LAMBTON SHORES
LT 16 CON 4 BOSANQUET; LAMBTON SHORES

Appendix B

Parkhill Interconnect Renewable Energy Approval Application Project Description Report (GLGH, 2013)

PARKHILL INTERCONNECT

RENEWABLE ENERGY APPROVAL APPLICATION

PROJECT DESCRIPTION REPORT

February 2013

GL Garrad Hassan

GL Garrad Hassan

RENEWABLE ENERGY APPROVAL APPLICATION
PROJECT DESCRIPTION REPORT

PARKHILL INTERCONNECT, ONTARIO

Client	Jericho Wind, Inc.
Contact	Ross Groffman
Document No	800253-CAMO-R-01
Issue	C
Status	Final
Classification	Client's Discretion
Date	07 February 2013

Author

G. Constantin

Checked by

-

Approved by

N. O'Blenes

GL Garrad Hassan Canada, Inc.

151 Slater Street, Suite 806, Ottawa, Ontario, K1P 5H3, Canada
www.gl-garradhassan.com

IMPORTANT NOTICE AND DISCLAIMER

1. Acceptance of this document by the Client is on the basis that GL Garrad Hassan Canada, Inc. a GL Group member operating under the GL Garrad Hassan brand (hereafter ''GL GH''), is not in any way to be held responsible for the application or use made of the findings and the results of the analysis herein and that such responsibility remains with the Client.

   This Report shall be for the sole use of the Client for whom the Report is prepared. The document is subject to the terms of the Agreement between the Client and GL GH and should not be relied upon by third parties for any use whatsoever without the express written consent of GL GH. The Report may only be reproduced and circulated in accordance with the Document Classification and associated conditions stipulated in the Agreement, and may not be disclosed in any offering memorandum without the express written consent of GL GH.

   GL GH does not provide legal, regulatory, tax and/or accounting advice. The Client must make its own arrangements for consulting in these areas.

   This document has been produced from information as of the date hereof and, where applicable, from information relating to dates and periods referred to in this document. The Report is subject to change without notice and for any reason including, but not limited to, changes in information, conclusion and directions from the Client.

2. This Report has been produced from information relating to dates and periods referred to herein. Any information contained in this Report is subject to change.

KEY TO DOCUMENT CLASSIFICATION

Strictly Confidential	For disclosure only to named individuals within the Client's organization
Private and Confidential	For disclosure only to individuals directly concerned with the subject matter of the Report within the Client's organization
Commercial in Confidence	Not to be disclosed outside the Client's organization
GL GH only	Not to be disclosed to non-GL GH staff
Client's Discretion	Distribution for information only at the discretion of the Client (subject to the above Important Notice and Disclaimer)
Published	Available for information only to the general public (subject to the above Important Notice and Disclaimer)

REVISION HISTORY

Issue	Issue Date	Summary
A	05 June 2012	Initial version
B	05 November 2012	Update of Project description and Project mapping
C	07 February 2013	Reference to the Operation and Maintenance Building, Update Environmental Effects Monitoring Plan

TABLE OF CONTENTS

LIST OF TABLES

1 PREAMBLE

Jericho Wind, Inc. is proposing to develop the Jericho Wind Energy Centre and the Parkhill Interconnect Project ("Parkhill Interconnect"), which are subject to Ontario Regulation 359/09 (Renewable Energy Approvals (REA) under Part V.0.1 of the Ontario Environmental Protection Act (EPA)) [1]. Jericho Wind, Inc. is seeking a Renewable Energy Approval from the Ontario Ministry of the Environment (MOE) for the Jericho Wind Energy Centre and its related Parkhill Interconnect Project.

The Parkhill Interconnect will consist of a switchyard, approximately 11.5 km of 115 kV transmission line and a substation. The substation will consist of two (2) 135/225 MVA transformers. The 115 kV line will run from the Parkhill Interconnect's switchyard, known as the Bornish Switchyard, to the Parkhill Interconnect's substation, known as the Parkhill Substation. The Parkhill Substation will then be interconnected to a Hydro One-owned switchyard, known as the Evergreen Switchyard, and to an existing Hydro One 500 kV transmission line that is common to the Jericho Wind Energy Centre, the Adelaide Wind Energy Centre (owned by Kerwood Wind, Inc.), and the Bornish Wind Energy Centre (owned by Bornish Wind, LP). The Point of Common Coupling will be the interface between the Parkhill Substation and Hydro One's Evergreen Switchyard. The Parkhill Interconnect will be owned by Bornish Wind LP, Kerwood Wind, Inc., and Jericho Wind, Inc. These three companies are wholly-owned subsidiaries of NextEra Energy Canada, ULC ("NextEra").

This Project Description Report has been prepared in accordance with section 54.1 of O. Reg. 359/09 and the MOE's "Draft Technical Guide to Renewable Energy Approvals"(2012) [3].

1.1 General Project Description

The proposed Parkhill Interconnect is located in the Municipality of North Middlesex, Middlesex County, Ontario (please refer to Figure 1-1). The Study Area comprises a 115 kV transmission line from the Bornish Switchyard to the Point of Common Coupling (PCC) on Hydro One's 500 kV transmission line. The electricity generated from the Adelaide, Bornish and Jericho Wind Energy Centres will converge at the Bornish Switchyard. From this point, the proposed 115 kV line will carry electricity generated by all three projects to the Parkhill Substation then to a second Hydro One-owned Switchyard on to an existing Hydro One 500 kV transmission line. Approximately 11.5 km in length, the transmission line is proposed to be mounted on new hydro poles within the road rights-of-way along Kerwood, Elginfield and Nairn Roads. There may be occasional locations where the transmission is below ground for technical reasons.

Table 2-1: Geographic coordinates of the Transmission Line Study Area

Site	Easting	Northing
Northwest corner	441 165	4 780 749
Northeast corner	458 588	4 777 297
Southwest corner	438 585	4 771 264
Southeast corner	458 588	4 766 303

The location of the Transmission Line Study Area was defined early in the planning process for the proposed wind energy facility, based on the availability of existing infrastructure for connection to the electrical grid. The Transmission Line Study Area was used to facilitate information collection and Records Review.

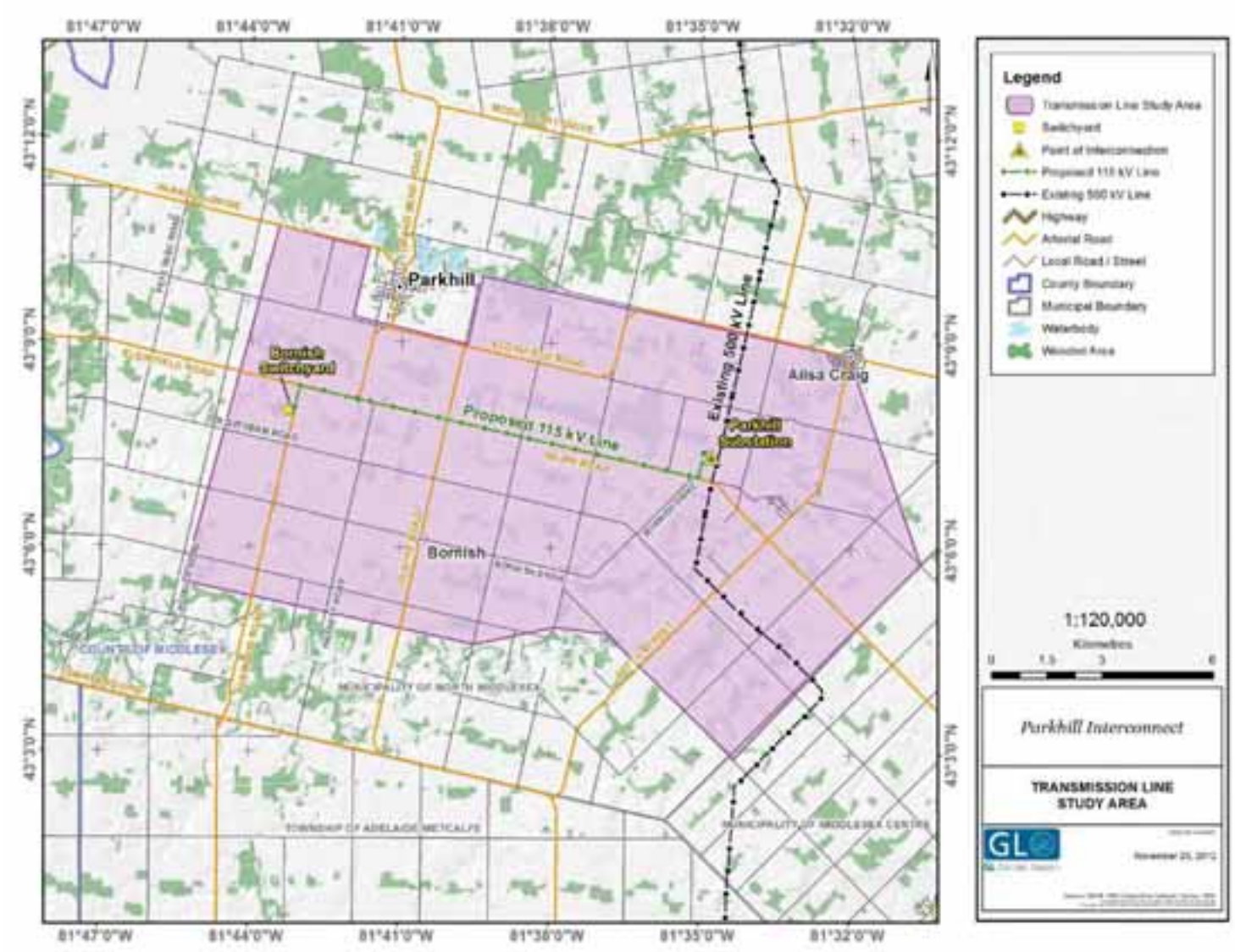


Figure 2-1: Transmission line study area

1.2 Contact Information

1.2.1 Project Proponent

Jericho Wind, Inc., a wholly owned subsidiary of NextEra Energy Canada, ULC, is the proponent for the Parkhill Interconnect. The primary contact for Jericho Wind, Inc. is:

Derek Dudek
Community Relations Consultant
NextEra Energy Canada, ULC
390 Bay Street, Suite 1720
Toronto, ON M5H 2Y2
Canada
Phone: 1-877-257-7330
Email: Jericho.Wind@NextEraEnergy.com
Website: www.NextEraEnergyCanada.com

1.2.2 Project Consultant

GL Garrad Hassan Canada, Inc., a member of the GL Group and part of the GL Garrad Hassan brand, (hereafter referred to as "GL GH"), has been retained to lead the REA Process for the Parkhill Interconnect Project.

The Environmental and Permitting Services team of GL GH has completed mandates throughout Canada, the United States and in many other parts of the world. These mandates include permitting management, permit applications, environmental impact assessment, and various environmental studies for more than 15,000 MW of wind and solar-PV projects.

GL GH's environmental team is composed of over 20 environmental professionals, including environmental impact specialists, planners, GIS, technicians and engineers.

GL GH has no equity stake in any device or project. This rule of operation is central to its philosophy, distinguishing it from many other players and underscoring its independence.

GL GH's contact information is as follows:

Nancy O'Blenes
GL Garrad Hassan Canada, Inc.
Uxbridge, ON L9P 1A5
Tel.: (416) 801-6822
nancy.o'blenes@gl-garradhassan.com

Further information about GL GH can be found at: www.gl-garradhassan.com.

1.3 Other Approvals Required

The Parkhill Interconnect is subject to the provisions of the *Environmental Protection Act* and Ontario Regulation 359/09 and Ontario Regulation 521/10. The issuance of an approval by the MOE will require approval by the Ministry of Natural Resources (MNR) and the Ministry of Tourism and Culture and Sport (MTCS).

In addition to the approvals required under O. Reg 359/09 and 521/10, the Parkhill Interconnect will require local approvals such as municipal building permits, as well as Ausable Bayfield Conservation Authority permits where potential disturbances to watercourses are anticipated. The Parkhill Interconnect may also require a permit under the *Endangered Species Act* (ESA), upon completion of an Approval and Permitting Requirements Document (APRD).

1.4 Federal Involvement

This Parkhill Interconnect is not expected to trigger the *Canadian Environmental Assessment Act* (CEAA), as no federal authority will be expected to provide a licence, permit, certificate, or other regulatory authorization.

2 PROJECT INFORMATION

2.1 Facility Components

The Parkhill Interconnect will be made up of the following main components:

- Transmission line;
- Access roads;
- Substation;
- Switchyard; and
- Operations and maintenance building.

2.1.1 Transmission Line

A 115 kV transmission line, from the Bornish Switchyard, will collect power from the Adelaide, Bornish, and Jericho Wind Energy Centres. The transmission line will travel along Kerwood, Elginfield and Nairn Roads within the municipal rights-of-way to the Parkhill Substation then to a second Hydro One-owned Switchyard on to an existing Hydro One 500 kV transmission line. It is anticipated that the transmission line will be mounted on new hydro poles. The local utility company may require Jericho Wind, Inc. to erect additional poles, or replace undersized poles, in order to accommodate the transmission line. The poles are proposed to be constructed of wood, concrete, or steel and will be between 18 and 30 m in height.

The interconnection plan for any wind project is subject to study, design, and engineering by the Independent Electricity System Operator which manages the province's electricity grid, Hydro One and the Ontario Energy Board, which regulates the industry through the Transmission System Code and the Distribution System Code. Details regarding the transmission lines, their routes, and the electrical substation will be developed during the Pre-Construction Design Phase of the Parkhill Interconnect.

2.1.2 Access Roads

On-site access roads will be constructed to provide an access point to the properties for equipment during the construction phase and for maintenance activities during operation. Typically the access roads will be approximately 11 m wide.

2.1.3 Switchyard

The Bornish Switchyard will be located beside the Bornish Wind Energy Centre Substation and will be approximately 2-3 ha in size. The switchyard will also be located on privately-held lands through a lease or purchase agreement. The switchyard control house will be powered through a station service transformer connected to the transmission line. The switchyard will include switches, breakers, electrical bus work, instrument transformers, grounding, metering equipment, control house, steel structures supporting incoming and outgoing transmission line circuits, and other ancillary equipment. Switchyard grounding will meet the Ontario Electrical Safety Code.

2.1.4 Substation

Having an overall footprint of 2-3 ha in size, the Parkhill Substation will be located on privately-held lands through a lease or purchase agreement. The substation control house will be powered through a station service transformer connected to the transmission line. The substation equipment will include an isolation switch, a circuit breaker, two step-up transformers, transmission switch gear, instrument transformers, grounding and metering equipment, and other ancillary equipment. All substation grounding equipment will meet the Ontario Electrical Safety Code.

A secondary containment system will be installed to capture any leaks from the transformer. Water in the containment system will be visually inspected for any evidence of oil (which would float to the top). If oil is present, a tank truck will be brought to site to pump the water/oil mix into it. The water/oil mix will then be disposed of off-site at a licensed facility. If no oil is detected in the water, the water will be pumped out to an adjacent swale and then allowed to infiltrate into the ground.

2.1.5 Operations and Maintenance Building

An operations building, approximately 30 m by 15 m in size, will be constructed on the Bornish substation property for the purpose of monitoring the day-to-day operations of the Bornish, Jericho and Adelaide Wind Energy Centers, and supporting maintenance efforts. A small parking lot will be constructed to accommodate staff vehicles. Prior to the construction phase, a Stormwater Pollution Prevention Study will be conducted to address any potential effects associated with stormwater runoff.

Potable water will be supplied by a well or through the municipal water system and a septic bed will be constructed for the disposal of sewage. The septic bed will be constructed to the minimum size required for the size of the operation and maintenance building. It is the Project owner's responsibility to ensure proper maintenance of the septic system. The operations and maintenance building, septic system and water supply will be constructed in accordance with applicable municipal and provincial standards.

2.2 Project Activities

The Parkhill Interconnect consists of three main phases: (i) site preparation and construction, (ii) operations, and (iii) decommissioning. This section presents an overview of the activities of each of these phases.

2.2.1 Construction and Installation

The Project Location, situated within the broader Project Study Area, is defined in O. Reg. 359/09 as "*...a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person is engaging in or proposes to engage in the project*". As described therein, the Project Location boundary is the outer limit of where site preparation and construction activities will occur (i.e. Disturbance Areas, described below) and where permanent infrastructure will be located.

Disturbance Areas have been identified surrounding various Parkhill Interconnect components; such areas correspond to the "Project Location" boundaries in the map in Appendix A. These areas denote zones where temporary disturbance during the construction phase may occur as a result of temporary Parkhill Interconnect component laydown and storage areas. With the exception of the Parkhill Interconnect components described above, no permanent infrastructure is proposed within these areas. Following construction activities, the land will be returned to pre-construction conditions.

Construction of the Parkhill Interconnect will meet or exceed all local regulations and standards (i.e. Ontario Electric Safety Code, Ontario Building Code, etc.). The proposed infrastructure is presented in Appendix A.

Surveying and Geotechnical Study Activities

Surveys will be required for the micrositing of the switchyard, access roads, electrical lines, and the substation. Crews will drive light trucks to reach sites primarily using existing roads. They will then survey the site on foot and mark the locations using stakes.

Existing buried infrastructure located on public property will be identified using the Ontario One Call service and buried infrastructure located on private property will be identified by private contractors prior to construction or geotechnical sampling and updated throughout construction, as required.

Geotechnical sampling typically involves a truck-mounted drill rig visiting the sampling locations, drilling the borehole, and collecting geotechnical information. This operation typically uses two operators and requires one to two hours per location.

Any archaeological sites, as identified during the Archaeological Assessment, will be clearly marked in the field. All personnel working on or entering the construction area will be instructed to avoid these areas.

This activity can be summarized as follows:

- Equipment required: At a minimum, trucks, a truck-mounted drill rig, and possibly a track-mounted drill rig.
- Materials brought on site: None. The only chemicals required for this phase are oils, gasoline, and grease used to operate construction equipment. Fuel handling will be conducted in compliance with the mitigation measures outlined in Section 4.
- Timing: These activities will take place prior to construction and are not season-dependent. Preference is to complete this activity in the winter to minimize crop disruption. This operation typically uses two operators and requires one to two hours per site.
- Material generated: Some drill cuttings (composed of soil) will be generated and will be disposed of on site by scattering in the vicinity of the borehole.

Construction of Access Roads

Typically the access roads will be approximately 11 m wide during the construction phase to accommodate large construction equipment.

The construction of the access roads will typically require clearing and grubbing of any vegetation, excavation of the topsoil layer, and adding a layer of compacted material to a typical depth of 300 to 600 mm, depending upon site-specific geotechnical conditions. Clean granular material (typically "A" or "B" gravel) will be brought to the site as needed and will not be stockpiled on site. The topsoil will be kept and re-used on site. New culverts may be required to maintain drainage in ditches at junctions with roadways and will be constructed to support the construction equipment and delivery trucks. The location of proposed water crossings will be summarized in the water assessment. The exact culvert details, installation details, and erosion control measures will be determined in conjunction with the Ausable Bayfield Conservation Authority as part of their permitting process; however, the culverts are proposed to be open bottom and are proposed to be left in place following the operations phase, in consultation with the landowner.

The access roads will typically require one to three days for construction. Depending on the length of the access roads, construction may require approximately 10-25 truckloads of gravel.

Municipal and provincial roads will also be used for transporting equipment, and minor modifications may be required to some of the existing roads (e.g. widening the turning radius) to accommodate oversized loads. Any road damages will be repaired.

This activity can be summarized as follows:

- Equipment required: At a minimum, trucks, graders, and bulldozers. The trucks and graders will be driven to the site and the bulldozers will be transported via trailers.

- Materials brought on site: Granular material for road construction and steel culverts. The only chemicals required for this phase are oils, gasoline, and grease used to operate construction equipment. Fuel handling will be conducted in compliance with the mitigation measures outlined in Section 4.
- Timing: This activity will preferentially be completed in late spring or summer to take advantage of typically drier weather. If necessary, this activity can be completed in the spring or fall, depending on the amount of rainfall. The access road to each turbine will typically require one to three days of construction.
- Material generated: Once the construction activities have been completed, the granular base will be removed and distributed to the landowners, if desired, or removed from the site and disposed of in an approved and appropriate manner. The disturbed area will have its topsoil replaced from stockpiled material and will be reseeded in consultation with the landowner.

Delivery of Project Components

The Parkhill Interconnect components will be delivered by truck and trailer throughout the construction phase at the Project Location. A traffic management plan will be developed using MTO Book 7 standards and will be provided to Middlesex County. Alternative traffic routes will be prepared to address traffic congestion, as needed.

115 kV Transmission Line

The 115 kV transmission line, from the Bornish Switchyard, will collect power from Adelaide, Bornish, and Jericho Wind Energy Centres. The transmission line will travel along Kerwood, Elginfield and Nairn Roads within the municipal rights-of-way to the Parkhill Substation then to a second Hydro One-owned Switchyard on to an existing Hydro One 500 kV transmission line.

It is anticipated that the transmission line will be mounted onnew hydro poles. The local utility company may require Jericho Wind, Inc. to erect additional poles, or replace undersized poles, in order to accommodate the transmission line. The poles are proposed to be constructed of wood, concrete or steel and will be between 18 and 30 m tall.

Holes are typically augured in the ground using a truck-mounted auger device. The poles are then inserted using special cranes to a typical depth of 1 to 2 m below grade. The poles are then “dressed” (made ready to accept conductors) using a boom truck. Typically, one crew will install the poles and one crew will dress them. Approximately six construction vehicles (including trucks and a pole loader) and a crew of 12-15 persons are anticipated for construction of the transmission lines. Twelve to sixteen poles can be installed and dressed in one day. Once the poles are in place and dressed, cables are strung in place using boom trucks and special cable reel trucks. Lastly, any pre-existing poles that are no longer in use are removed. Some packing-material waste may be generated. All recyclable materials will be separated from non-recyclable materials and both streams will be removed from the site and disposed of at an approved and licensed facility.

The interconnection plan for any wind project is subject to study, design and engineering by the Independent Electricity System Operator (which manages the province’s electricity grid), Hydro One and

the Ontario Energy Board (which regulates the industry through the Transmission System Code and the Distribution System Code).

Equipment will include, at a minimum, a truck-mounted crane, flatbed trailers and a truck-mounted auger. The only chemicals required for this phase are oils, gasoline, and grease used to operate construction equipment. Fuel handling will be conducted in compliance with the mitigation measures outlined in Section 4.

Substations and Switchyard

As explained above, a 115 kV transmission line will be built to connect the Parkhill Interconnect Project to a Hydro One 500 kV line, which will run from the Bornish Switchyard to the Parkhill Substation. The substation at the point of interconnection will be approximately 2-3 ha in size and will be located adjacent to the 500 kV line. The substation equipment will include an isolation switch, a circuit breaker, a step-up power transformer, transmission switch gear, instrument transformers, and grounding and metering equipment. Substation grounding will meet the Ontario Electrical Safety Code.

The Bornish Switchyard will be approximately 2-3 ha in size. The switchyard will also be located on privately-held lands through a lease or purchase agreement. The switchyard will include switches, breakers, electrical bus work, instrument transformers, grounding, metering equipment, control house and steel structures supporting incoming and outgoing transmission line circuits. Switchyard grounding will meet the Ontario Electrical Safety Code.

The substation and switchyard areas will be gravelled with clean material imported to the site on an as-needed basis and sloped to facilitate drainage. A secondary containment system will be installed around the transformer in the event of an oil leak to prevent any soil contamination.

Construction is expected to last approximately four months. During construction of the substation, topsoil and subsoils will be stripped and stockpiled separately. Stripped topsoil and subsoil will be replaced in the temporary storage facility area and topsoil stripped from the substation area will be distributed on other Parkhill Interconnect Project properties. The construction crew will consist of approximately 25-40 persons.

Both streams of waste will be removed by a licensed sub-contractor.

This activity can be summarized as follows:

- Equipment Required: Small trenchers, a small crane, forklifts, concrete trucks and a bulldozer. The trucks and graders will be driven to the site and the bulldozers will be transported by trailers.
- Materials brought on site: gravel, an isolation switch, a circuit breaker, instrument transformers, grounding and metering equipment, insulators, transformer oil, and electrical cabling. The trucks and graders will be driven to the site and the bulldozers will be transported by trailer. The only chemicals required for this phase are oils, gasoline, and grease used to operate construction equipment and transformer oil. Fuel handling will be conducted in compliance with the mitigation measures outlined in Section 4.

- Timing: This will preferentially be completed in late spring or summer to take advantage of typically drier weather. If necessary, this activity can be completed in the spring or fall, depending on weather conditions.
- Material generated: Some packing material waste will be generated. The recyclable material will be separated from the non-recyclable material on site. Both streams of waste will be removed by a licensed sub-contractor.

Operations and Maintenance Building

An operations building measuring approximately 30 m by 15 m will be assembled on the Bornish substation property. The facility will be used to monitor the day-to-day operations of the Bornish, Jericho and Adelaide Wind Energy Centers, and to support maintenance efforts. A small parking lot will be constructed to accommodate staff vehicles. Prior to the construction phase, a Stormwater Pollution Prevention Study will be conducted to address any potential effects associated with stormwater runoff.

Potable water will be supplied by a well or through the municipal water system and if required, a septic bed will be constructed for the disposal of sewage. The septic bed will be constructed to the minimum size required for the size of the operation and maintenance building. Both will be constructed in accordance with applicable municipal and provincial standards. Construction of the operations building may take up to three months to complete. It is anticipated that construction activities will require approximately 10-15 persons.

This activity can be summarized as follows:

- Equipment Required: At a minimum, forklifts, concrete trucks and smaller crew trucks.
- Materials brought on site: a pre-fabricated building structure. The only chemicals required for this phase are oils, gasoline, and grease used to operate construction equipment. Fuel handling will be conducted in compliance with the mitigation measures outlined in Section 3.
- Timing: This will preferentially be completed in late spring or summer to take advantage of typically drier weather. If necessary, this activity can be completed in the spring or fall, depending on weather conditions.
- Material generated: Some packing material waste will be generated. The recyclable material will be separated from the non-recyclable material on site. Both streams of waste will be removed by a licensed sub-contractor.

2.2.2 Operations

Electrical System Maintenance

The transmission lines, switchyard and substation will require periodic preventive maintenance activities. Routine maintenance will include condition assessment for above-ground infrastructure and protective relay maintenance of the substation in addition to monitoring of the secondary containment system for

traces of oil. Lastly, vegetation control will be required around the transmission line to prevent any damage to the line and ensure safe operation.

2.2.3 Decommissioning

The anticipated life of the Parkhill Interconnect is estimated to be a minimum of 30 years. The following sections describe how the Parkhill Interconnect will be dismantled either during construction (although unlikely) or following the operations phase of the Parkhill Interconnect.

Decommissioning During Construction

Although it is unlikely that the Parkhill Interconnect would be decommissioned prior to the operations phase, should this occur, the actual procedures for dismantling the Parkhill Interconnect would depend upon the state of construction activities. Dismantling would follow the steps outlined in the Section "Procedures for Dismantling" below and any exposed soils would be re-seeded in consultation with the landowner.

Decommissioning After Ceasing Operations

Should it be decided to not repower the Parkhill Interconnect at the end of its service life, the steps outlined in the Section "Procedures for Dismantling" would be taken to dismantle the various Parkhill Interconnect components.

Procedures for Dismantling

If the facility is to be decommissioned and components are to be removed at the end of its service life or during construction, the procedures will be similar to the construction phase, but in reverse sequence.

The procedures will include:

1. Roads and culverts, if required, will be removed unless the landowner requests that they be left in place. Road bedding material will be removed and replaced with clean subsoil and topsoil for reuse by the landowner for agricultural purposes. If requested by the landowner and subject to approval by the ABCA and the MNR, the culverts will be removed and the land will be contoured to maintain the current drainage patterns.
2. Overhead lines and poles, unless required to be left in place, will be removed and the holes will be filled with clean fill.
3. The substation, switchyard and operations building will be dismantled. These will be decommissioned in an appropriate manner and in accordance with the standards of the day. All materials will be recycled, where possible, or disposed off site at an approved and appropriate facility.

Restoration of Land

Once the equipment has been removed, the land will be restored to its previous agricultural capacity in consultation with the landowner. This will be accomplished by removing the granular material from roadways and culverts, depending on the landowner preference. Agricultural capacity will be restored and the land re-contoured to maintain proper drainage. Preferably, this will be accomplished using stockpiled subsoil and topsoil. If there is insufficient material onsite, topsoil and/or subsoil will be imported from a source acceptable to the landowner.

Although strict spill prevention procedures will be in place, the potential for small spills of solvents or fuels exists through the routine maintenance and operation of the substation and/or decommissioning process. The soil conditions of the component areas will be surveyed per current standards to determine if any impacts have occurred. Should soil impacts be noted, the impacted soils will be delineated, excavated and removed, per applicable standards, from the site for disposal at an approved and appropriate facility. The removed soils will be replaced with stockpiled subsoil and topsoil, if available. If no subsoil or topsoil is available onsite, clean fill and topsoil will be imported.

2.3 Hazardous Waste Disposal, Sewage and Stormwater Management and Water-Taking Activities

All hazardous material will be treated using best practices. Hazardous material including fuel, oils, and grease may not be stored on site, but off site in a designated safe storage area. Disposal of hazardous wastes will only be required in the event of an accidental spill. The effect of accidental spills will be minimized by ensuring that relevant industry regulations are followed including (i) refuelling construction equipment only at crane pads or designated areas, (ii) storing hazardous materials off site at designated safe storage areas, and (iii) maintaining emergency spill kits on the Parkhill Interconnect site.

The final decision on waste disposal or recycling will be the responsibility of the on-site contractor who will refer to the *Environmental Protection Act* before submitting a Generator Registration Report for each waste type produced at the facility.

Stormwater management will be practiced through the installation of erosion and runoff prevention measures during the construction and decommissioning phases, where necessary.

Further information on water takings is outlined in the Water Body and Water Assessment Reports and can be found as part of the complete REA Application package.

2.4 Project Location Map

A map in Appendix A illustrates the Parkhill Interconnect site area and vicinity. The map identifies off-site land uses, cultural and heritage features, and water bodies within the Parkhill Interconnect Project area and within a radius of 300 m thereof.

3 ENVIRONMENTAL EFFECTS MONITORING PLAN

This section presents a summary of potential effects, mitigation measures and residual effects associated with environmental interactions during the construction and operations phases of the Parkhill Interconnect. For the sake of comprehensiveness, construction phase effects are also discussed and presented here, but are also found in the Construction Plan Report.

More detailed discussions relating to natural heritage impacts, archaeological and heritage impacts, noise impacts, land use impacts and water body impacts will be found in the Natural Heritage Assessment reports, Archaeological Assessment Reports, Heritage Report, Noise Impact Assessment, Property Setback Assessment, and Water Body Report, as part of the complete REA Application package.

3.1 Methodological Approach

As requested under the REA, potential effects from the construction, installation, and operation of the Parkhill Interconnect must be assessed while considering applicable mitigation and compensation measures. In order to assess *residual* effects from a project (i.e. after considering mitigation/compensation measures), GL GH uses the residual effect definitions elaborated by the Canadian Environmental Assessment Agency. A residual effect "level" and "significance" is then applied, as presented in Table 4-1 below.

Table 4-1: Levels of residual effects and significance of effect

Residual Effect	Level of Concern	Residual Effect Significance
Potential impact could threaten sustainability of the resource and should be considered a management concern. Research, monitoring and/or recovery initiatives should be considered.	High	Significant
Potential impact could result in a decline in resource to lower-than-baseline but stable levels in the study area after Project closure and into the foreseeable future. Regional management actions such as research, monitoring and/or recovery initiatives may be required.	Medium	Significant
Potential impact may result in a slight decline in resource in study area during the life of the Project. Research, monitoring and/or recovery initiatives would not normally be required.	Low	Non-significant
Potential impact may result in a slight decline in resource in study area during construction phase, but the resource should return to baseline levels.	Minimal	Non-significant

Depending on the outcome of the effects assessment, follow-up and/or monitoring programs could be proposed in order to further investigate the potential effects, or to verify the significance of the effect following commissioning.

Table 4-2 and Table 4-3 outline the potential impacts and mitigation measures of the Construction and Operations Phases, respectively.

3.1.1 Construction

Table 4-2: Potential negative effects and mitigation measures – Construction

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
Cultural Heritage (Protected Properties, Archaeological and Heritage Resources				
Disturbance or displacement of archaeological resources by any ground disturbance activity.	Avoid disturbance/loss of archaeological sites.	Conduct Archaeological Assessment and apply recommended avoidance measures and other measures from licensed archaeologist or Ministry of Tourism, Culture and Sport (MTCS) to Project design. Details of the Archaeological Assessment can be found in the reports on this subject as part of the complete REA application package.	The Archaeological Assessment was undertaken as per MTCS guidelines and has received confirmation from the MTCS. The likelihood and magnitude of this residual effect is considered non-significant.	Immediate notification of the Archaeologist and the MTCS in the event archaeological resources are found. Apply monitoring measures as recommended by the MTCS.
Natural Heritage				
Noise disturbance and/or avoidance behaviour during construction – Bald Eagle Nesting, Foraging and Perching Habitat	To protect any potentially nesting bald eagles from disturbance, displacement, or mortality as a result of the development of the Parkhill Interconnect.	Project layout will be constructed so that all construction activities will occur at least 200m from the nest location, and outside of the both the primary and secondary habitat zones, Project layout will be designed so that all infrastructure, except for the transmission line, will be set back from the nest a minimum of 400m, Overhead lines (and poles) that are located greater than 400m but within 800m of the nest will be less than 30m in height, Construction within the tertiary zone (as determined by site-specific surveys) will not occur from March 1st to May 15th,	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. If a permanent disturbance has been noted within this wildlife habitat, the MNR will be contacted.	During construction, monitoring of the eagle nest will follow the methods for the Behavioural Study and occur for the duration that construction activities occur within the tertiary zone of the nest within the period of February 15th to August 15th, exclusive of March 1st to May 15th when no construction will be permitted within the tertiary zone of the active nest. If a permanent disturbance has been noted within this wildlife habitat, the MNR will be contacted to determine whether additional mitigation measures will be needed.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		During construction, monitoring of the eagle nest will follow the methods for the Behavioural Study and occur for the duration that construction activities occur within the tertiary zone of the nest within the period of February 15th to August 15th, exclusive of March 1st to May 15th when no construction will be permitted within the tertiary zone of the active nest. Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.		
Accidental vegetation removal – significant woodlands.	Minimize direct impacts on significant vegetation communities.	Clearly delineate work area within 30 m of significant natural features or wildlife habitats using erosion fencing, or similar barrier, to avoid accidental damage to species. Any vegetation removal required along roadside transmission lines should be minimized and occur completely within the road right-of-way. Any tree limbs or roots that are accidentally damaged by construction activities within significant woodlands will be pruned using proper arboricultural techniques. No herbicides will be used within significant features or wildlife habitats. No vegetation removal will occur in rare plant communities or sensitive landforms.	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures and best management practices are applied.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.		
Sedimentation and erosion - significant woodlands.	Maintain or restore vegetated buffers, including riparian zones.	Implement a sediment and erosion control plan within 30 m of a significant natural feature or wildlife habitat. Install, monitor, and maintain erosion and sediment control measures (i.e. silt fences) around the construction areas within 30 m of a significant natural feature or wildlife habitat. Minimize vehicle traffic on exposed soils, and limit heavy machinery traffic on sensitive slopes. Re-vegetate temporary access roads, that are in non-agricultural habitat, to pre-construction conditions as soon as possible. Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. The likelihood and magnitude of this residual effect is considered non-significant.	Environmental supervision during construction as part of a routine inspection program will be implemented to ensure adherence to the prescribed mitigation measures.
Spills (i.e. oil, gasoline, grease, etc.) - significant woodlands.	Avoid contamination of significant natural features.	All maintenance activities, vehicle refueling or washing, and chemical storage will be located more than 30 m from any significant natural feature or wildlife habitat. Develop a spill response plan and train staff on appropriate procedures.	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. The likelihood and	Environmental supervision during construction as part of a routine inspection program will be implemented to ensure adherence to the prescribed mitigation measures. Develop a spill response plan and train staff on appropriate procedures.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Keep emergency spill kits on site. Dispose of waste material by authorized and approved off-site vendors. Any stockpiled material will be stored more than 30 m from a woodland or water body. Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.	magnitude of this residual effect is considered non-significant.	Keep emergency spill kits on site.
Changes in soil moisture and compaction - significant woodlands.	Minimize impact to soil moisture regime and vegetation species composition.	Implement infiltration techniques to the maximum extent possible. Minimize paved surfaces and design roads to promote infiltration. Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures and best management practices are applied.
Disturbance and/or mortality to local wildlife.	Minimize impact to local wildlife.	Avoid construction or decommissioning activities that are within non-agricultural habitats, during sensitive time periods (i.e. breeding bird season) wherever possible. Conduct nest searches if vegetation removal will occur during the breeding bird season (May1st-July 31st) Clearly post construction speed limits	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. The likelihood and magnitude of this residual effect is considered non-	Environmental supervision during construction as part of a routine inspection program will be implemented to ensure adherence to the prescribed mitigation measures.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Construction activities within 30 m of significant woodlands should occur during daylight hours to avoid excessive noise and/or light disturbances to wildlife. Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.	significant.	
Changes to surface water hydrology – significant woodlands.	Maintain existing surface water flow patterns.	Keep changes in land contours to a minimum. Maintain streams and timing and quantity of flow. Minimize grading activities to maintain existing drainage patterns where possible. Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures and best management practices are applied.
Water Bodies				
Alteration of local drainage patterns	Minimize impacts on local drainage patterns	Design to maintain existing surface water drainage patterns and functions (including project layout, grading, storm water management facilities and structure designs) Utilize existing roads and road crossing structures where possible Crossing structures should be sized appropriately so as to not result in alterations in stream hydrology, scouring	The Water Body Assessment was undertaken as per MOE guidelines. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures and best management practices are applied.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		or flooding crossing structures. Newly impervious surfaces should consider use of permeable material. Details of the Water Body Assessment can be found in the reports on this subject as part of the complete REA application.		
Fish habitat alteration/loss	Limit fish habitat alteration/loss	Consideration of design layout to minimize number of crossings. Consider layout distances to water body features and sensitivity of those features. Crossing locations should be selected as to avoid key habitat features (i.e. refuge pool) and cross the feature within a straight reach of the channel as to avoid meanders etc. and cross perpendicular where possible. Crossing structures should be designed to reduce loss and alterations of habitat where possible (i.e. reduces affected area by cutting back from grading limit to road and install headwall, open bottom culvert etc.). Crossing structure should be properly sized and positioned appropriately (angle and embedded) so as to avoid erosion issues and creation of potential fish barriers. Crossing structures should be sized appropriately so as to not result in alterations in stream hydrology, scouring	The Water Body Assessment was undertaken as per MOE guidelines. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures and best management practices are applied.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		or flooding crossing structures. Crossing structure type should consider sensitivity of the water body and location of crossing. Any loss to the productive capacity of a watercourse must be compensated for under the Fisheries Act. Details of the Water Body Assessment can be found in the reports on this subject as part of the complete REA application.		
Erosion and sedimentation	Minimize impacts of erosion and sedimentation on water bodies	Minimize potential for soil compaction (see Soil Compaction). Controlled vehicle and machinery access routes, avoid water bodies where possible. Schedule clearing, grubbing and grading activities to avoid times of very high runoff volumes, wherever possible. Implement Flood Response Plan if on-site flooding occurs. Implement Erosion and Sediment Control Plan. Stabilize banks as soon as possible after construction disturbance (i.e. plantings, rock etc.), if insufficient time is available in the growing season to establish vegetative cover, an overwintering treatment such as erosion control blankets, fibre matting etc. should be applied to contain the site over the winter period.	The Water Body Assessment was undertaken as per MOE guidelines. The likelihood and magnitude of this residual effect is considered non-significant.	Environmental supervision during construction as part of a routine inspection program will be implemented to ensure adherence to the prescribed mitigation measures.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Minimize disturbance by keeping construction equipment outside and away from water bodies wherever possible. If dewatering is required, work in dry conditions (i.e. low flow period) or isolate in-water, work area, if required. . Install silt fencing in-water downstream of dewatering activities. Dewatering discharge rates should be evaluated so as to not result in erosion and sedimentation to receiving water body. Dewatering discharge should be dissipated (i.e. sand bags, hay bales etc.) and may require to be split to more than one location Implement Stormwater Management Plan. Details of the Water Body Assessment can be found in the reports on this subject as part of the complete REA application		
Water Quality Impairment	Minimize any negative impacts to water quality	Implement Erosion and Sediment Control Plan. Implement Spill Response Plan. Keep machinery clean and refuel well away from any water body (>30 m). Fuel and other construction related chemical stored securely away from water bodies (>30 m).	The Water Body Assessment was undertaken as per MOE guidelines. The likelihood and magnitude of this residual effect is considered non-significant.	Environmental supervision during construction as part of a routine inspection program will be implemented to ensure adherence to the prescribed mitigation measures.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Any discharges to a water body must meet MOE Policy 2 standards (at or better water quality than that of the receiving water body). Adequately treat any discharge water prior to discharge as to meet MOE policy 2 standards (i.e. filer bags). Implement Stormwater Management Plan. Details of the Water Body Assessment can be found in the reports on this subject as part of the complete REA application.		
Temporary disruption of fish habitat (in-water work)	Limit disruption of fish habitat	Restrict construction to coldwater timing windows, as indicated by local OMNR. Work in the dry (i.e. low flow) or isolate work area using good engineering practices. Machinery should be operated in a manner that minimizes disturbance to the banks and bed of the watercourse. If using a water containment structure, implement Fish Salvage Plan to remove any fish prior to dewatering work area, as needed Stabilize banks as soon as possible after construction disturbance (i.e. plantings, rock, etc). Details of the Water Body Assessment can be found in the reports on this subject as part of the complete REA application.	The Water Body Assessment was undertaken as per MOE guidelines. The likelihood and magnitude of this residual effect is considered non-significant.	Environmental supervision during construction as part of a routine inspection program will be implemented to ensure adherence to the prescribed mitigation measures.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
Water Level Alteration	Minimize alteration of water level	Dewatering ZOI and rates should be determined prior to dewatering and assessed for impact on affected water bodies. Implement Water Level Response Plan, trigger criteria to be determined in consultation with OMNR. Details of the Water Body Assessment can be found in the reports on this subject as part of the complete REA application.	The Water Body Assessment was undertaken as per MOE guidelines. The likelihood and magnitude of this residual effect is considered non-significant.	Environmental supervision during construction as part of a routine inspection program will be implemented to ensure adherence to the prescribed mitigation measures.
Soil Compaction	Minimize the amount of soil compaction.	Controlled vehicle access routes. Staging areas should be located away from water bodies (i.e. 30 m). Details of the Water Body Assessment can be found in the reports on this subject as part of the complete REA application.	The Water Body Assessment was undertaken as per MOE guidelines. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures and best management practices are applied.
Debris entering a water body	Limit the amount of debris entering water bodies	Construction debris should be stabilized (i.e. tarps) away from water bodies (i.e. 30 m). Refuse and other material should be appropriately disposed of off-site. Staging areas should be located away from water bodies (i.e. 30 m). Drilling shafts should be located away from water bodies (i.e. 30 m). Details of the Water Body Assessment can be found in the reports on this subject	The Water Body Assessment was undertaken as per MOE guidelines. The likelihood and magnitude of this residual effect is considered non-significant.	Environmental supervision during construction as part of a routine inspection program will be implemented to ensure adherence to the prescribed mitigation measures.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		as part of the complete REA application.		
Emissions to Air, including Odour and Dust				
Reduction in air quality due to CAC emissions and dust.	Minimize deterioration of air quality.	Ensure proper operation and maintenance of vehicles and machinery to limit noise, CAC emissions and leaks. Use water or water-based dust suppressant to control dust on unpaved roads. Implement speed limits on unpaved roads. Minimize vehicular traffic on exposed soils and stabilize high traffic areas with clean gravel surface layer or other suitable cover material. Minimize mud tracking by construction vehicles along access routes and areas outside of the immediate work site, and ensuring timely cleanup of any tracked mud, dirt and debris. Cover or otherwise containing loose construction materials that have potential to release airborne particulates during transport, installation or removal.	The likelihood and magnitude of this residual effect is considered non-significant.	Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in emergency Response and Communications Plan).
Noise				
Increase in noise levels in Project Study Area	Minimize noise increases for inhabited areas	Ensure proper operation and maintenance of vehicles and machinery to limit noise, CAC emissions and leaks. Implement speed limits on unpaved roads. Construction equipment will be kept in	The likelihood and magnitude of this residual effect is considered non-significant.	Faulty equipment resulting in increased noise levels are to be repaired in a timely fashion. Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in emergency Response and

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		good condition and will not exceed the noise emissions as specified in MOE publication NPC-115.		Communications Plan).
Local and Provincial Interests, Land Use and Infrastructure				
Increased traffic and noise in Project Study Area.	Minimize disturbance to local community and achieve zero human safety incident. Receive limited complaints	Ensure proper operation and maintenance of vehicles and machinery to limit noise, CAC emissions and leaks. Implement Communications Plan namely by informing local communities of construction schedule, use of signs, and communicating truck routes.	The likelihood and magnitude of this residual effect is considered non-significant.	Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan).
Reduction in usable agricultural land.	Minimize reduction in useable agricultural land.	Minimize length of access roads (most agricultural use only affected during construction) where possible.	The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures are applied.
Increased congestion due to increase in truck traffic and short-term lane closures on local roads during delivery of Project components.	Minimize disturbance to local community and achieve zero human safety incident.	Notify the community in advance of construction delivery schedules and installing signage to notify road users of construction activity. If required by municipal authorities, develop a traffic management plan for the construction phase and submit to the municipalities prior to construction and communicate truck routes.	The likelihood and magnitude of this residual effect is considered non-significant.	Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan).
Damage to local infrastructure.	Minimize damage to local infrastructure.	Adhere to the best practices regarding the operation of construction equipment and delivery of construction materials. If required by municipal authorities,	The likelihood and magnitude of this residual effect is considered non-significant.	Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan).

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		undertake road condition survey prior to construction and post-construction.		If required by local authorities, return damaged infrastructure to original condition (or better) where appropriate.
Areas Protected under Provincial Plans and Policies				
N/A	N/A	N/A	N/A	N/A
Public Health and Safety				
Effects on public health and safety during construction have been described above under (i) Emissions to Air, including Odour and Dust; (ii) Noise; and (iii) Local and Provincial Interests, Land Use and Infrastructure.	N/A	N/A	N/A	N/A
Other Resources				
The presence of petroleum wells have been identified through consultation with the OGSR database to be within 75 m of project infrastructure	No negative effects on petroleum resources or the renewable energy project	As part of the Approval and Permitting Requirements Document and as per the Ontario Ministry of Natural Resources (MNR) "Template for Renewable Energy Projects: Setbacks from Petroleum Operations" a site validation of all petroleum wells and facilities identified by the OGSR Library to be within 75 m of the Project location was conducted and confirmed that there are NO petroleum wells or facilities existing within 75 m of the Project location.	N/A	N/A

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Notice of the findings has been reported to the Aylmer District MNR.		

3.1.2 Operations

Table 4-3: Potential negative effects and mitigation measures – operations

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
Cultural Heritage				
Alteration of the visual character of a cultural heritage site.	Minimize visual impact of recognized heritage sites.	Conduct a Heritage Assessment and apply measures recommended by the heritage specialist or by MTCS. Details of the Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.	The Heritage Assessment was undertaken as per MTCS guidelines and this Project is expected to receive confirmation from the MTCS. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures are applied.
Natural Heritage				
Noise disturbance and/or avoidance behaviour during operation - Bald Eagle Nesting, Foraging and Perching Habitat	To protect any potentially nesting bald eagles from disturbance, displacement, or mortality as a result of the development of the Parkhill Interconnect.	Post-construction eagle surveys will follow pre-construction methods, either the Activity Assessment or Behavioural Study methods, whichever is conducted, but will continue until the chicks have left the nest and occur for 3 years after the project becomes operational. If the Behavioural Survey methods are to be used during post-construction surveys, they will begin after the Activity Assessment surveys confirm the nest is active and will follow the same general methods as the pre-construction surveys. The specific survey frequency may be adjusted from year to year, depending on the results of the surveys, if determined appropriate through consultation with the MNR.	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. If a permanent disturbance has been noted within this wildlife habitat, the MNR will be contacted.	Post-construction eagle surveys will follow pre-construction methods, either the Activity Assessment or Behavioural Study methods, whichever is conducted, but will continue until the chicks have left the nest and occur for 3 years after the project becomes operational. If the Behavioural Survey methods are to be used during post-construction surveys, they will begin after the Activity Assessment surveys confirm the nest is active and will follow the same general methods as the pre-construction surveys. The specific survey frequency may be adjusted from year to year, depending on the results of the surveys, if determined appropriate through consultation with the MNR. If a permanent disturbance has been noted within this wildlife habitat, the MNR will be contacted to determine whether additional mitigation

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Deterrents to prevent perching and roosting on the transmission line, as well as bird collisions with the transmission line (including power lines, static lines, guy wires, etc.) will be installed on all transmission line infrastructures within 800m of the nest, if active. Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.		measures will be needed.
Application of herbicides.	Protection of native vegetation species. Minimize impacts to local wildlife and their habitats.	No herbicides will be used within significant features or wildlife habitats. Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures are applied.
Soil or water contamination.	Avoid contamination of significant natural features.	Develop a spill response plan and train staff on appropriate procedures. Keep emergency spill kits on site. Vehicle washing, refueling stations, and chemical storage will be located more than 30 m from natural features or water bodies. Dispose of waste material by authorized and approved offsite vendors.	The Natural Heritage Assessment was undertaken as per MNR guidelines and this Project is expected to receive confirmation from the MNR. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures are applied.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Details of the Natural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.		
Water Bodies				
Water quality impairment	No impairment of water quality	Implement Spill Response Plan Implement road salt, sand management Plan. Avoid or limit use of pesticides, where possible. Address any impacts resulting from design or construction phases. Details of the Water Body Assessment can be found in the reports on this subject as part of the complete REA application package.	The Water Body Assessment was undertaken as per MOE guidelines. The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures are applied.
Emissions to Air, including Odour and Dust				
Emissions of contaminants from maintenance vehicles.	Limit impact of maintenance vehicles on local air quality.	Ensure proper maintenance and operations of vehicles and machinery to limit noise, CAC emissions, and leaks.	The likelihood and magnitude of this residual effect is considered non-significant.	Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan).
Noise				
Increase in noise levels	Minimize noise level increases in the Project area.	Calculate noise levels at PoRs and design Project to comply with MOE noise guidelines.	The likelihood and magnitude of this residual effect is considered non-	Implement the communications plan and address noise complaints during operations (see Complaints Resolution Process in Emergency

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
	Comply with MOE's permissible sound limits at all identified Points of Reception. Receive limited complaints	Details of the Noise Impact Assessment can be found in the reports on this subject as part of the complete REA application package.	significant.	Response and Communications Plan). Faulty equipment resulting in increased noise levels are to be repaired in a timely fashion.
Local and Provincial Interests, Land Use and Infrastructure				
Reduction of farmland	Minimize reduction of farmland	Design Project to minimize loss of farmland, namely by placing components at lot boundaries where possible. Implement Site Reclamation Plan at the end of construction, namely to re-instate initial conditions on temporary areas used during construction. Compensate landowners on Project Location as per land lease agreement.	The likelihood and magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant; therefore, no monitoring or contingency is required provided the recommended mitigation/compensation measures are applied.
Areas Protected under Provincials Plans and Policies				
N/A	N/A	N/A	N/A	N/A
Public Health and Safety				
N/A	N/A	N/A	N/A	N/A
Radio communication and Radar Systems				
N/A	N/A	N/A	N/A	N/A

4 REFERENCES

[1] Ontario Regulation 359/09, made under the *Environmental Protection Act*, Renewable Energy Approvals under Part 1.0 of the Act.

[2] Ontario Regulation 521/10, made under the *Environmental Protection Act*, Renewable Energy Approvals under Part 1.0 of the Act.

[3] DRAFT Technical Guide to Renewable Energy Approvals, Ontario Ministry of the Environment, April 2012.

APPENDIX A PROJECT LOCATION MAP

Legend

Project Components
- Project Location
- 300 m Boundary

Natural Heritage Features
- Generalized Habitat
- Bat Maternity Area
- Amphibian Breeding Habitat
- Significant Wetland
- Significant Woodland

Other Components
- Arterial Road
- Local Road / Street
- Permanent Watercourse
- Intermittent Watercourse
- Waterbody
- Air Strip
- Pit or Quarry
- Park or Sports Field

0 0.5 1 2 km

Parkhill Interconnect

PROJECT LOCATION MAP

1009-001-L1101-002-RG

November 5, 2012

Projection: UTM Zone 17, NAD83
Sources: OMNR, ORN (Ontario Road Network), CanVec, OBM

Air Photo ARCMAP Imagery September 2010