



Construction Plan Report Ernestown Wind Park

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SUMMARY OF CHANGES – Construction Plan Report

The following changes have been made to this report to update it from the report released in July of 2012.

1. The report format was retooled and its presentation was altered slightly, as a result some table and figure numbers have changed.
2. The report was updated to reflect the selection of the Enercon E92 Turbine. Additional clarifications have been added where necessary and references to the Vestas turbine have therefore been removed. The Enercon E92 has a transformer mounted inside the turbine tower, therefore all references to any other transformer type have been removed.
3. Clarifications regarding the connection voltage were added throughout this report.
4. The proponent opted to construct a smaller less intrusive switching station instead of a substation; the location and footprint of this station remain unaltered. Minor editorial changes were made to reflect this change.
5. Sections of this report were updated to reflect the decision to carry the collector lines above ground, subsequently all references to below ground collector lines have been removed.
6. *Section 2.1.1* was updated to include more detail regarding the construction of the new entrance onto Millhaven Road, and provide additional clarification regarding the upgrades to the existing farm lane, as well as to clarify the two different types of watercrossings.
7. Minor typographical errors were corrected in the text.
8. The Site Plan map in *Figure 1* was updated to reflect the above changes, **no turbine locations were changed.**
9. Table 3 has been updated to reflect ongoing field investigations and consultations with the Ministry of Natural Resources
10. Section 2.1.1 and 2.1.2 Access Roads and Road Upgrades were updated to reflect changes to the site layout with regards to ongoing consultations and field reconnaissance

1. INTRODUCTION

1.1 General Information

Ernestown Windpark LP is proposing the development of the Ernestown Wind Park (the Project) located in Loyalist Township, the County of Lennox and Addington, Ontario. The project is located on privately owned land, municipally zoned as agricultural and industrial.

The Project involves construction, operation and decommissioning of five Enercon E92 2.3 MW wind turbines modified to operate at 2 MW for a total name plate of 10MW. The Project requires construction of new access roads to the turbine sites and a new 44 kV overhead electrical connection line which will connect with an existing distribution line located along Taylor Kidd Boulevard.

Table 1: Construction Plan Report Requirements (as per O.Reg. 359/09 – Table 1)

Requirements	Completed	Section Reference
Set out a description of the following in respect of the renewable energy project:		
Details of any construction or installation activities.	Yes	2
The location and timing of any construction or installation activities for the duration of the construction or installation.	Yes	1.2
Any negative environmental effects that may result from construction or installation activities within a 300 m radius of the activities.	Yes	3
Mitigation measures proposed in respect of any potential negative environmental effects.	Yes	3

1.2 General Timing of Principal Construction Activities

The Project is subject to Ontario Regulation 359/09 under the Environmental Protection Act, and requires a Renewable Energy Approval (REA), as a Class 4 wind facility. The project was awarded a Feed-in Tariff (FIT) contract for 20 years. All required permits will be obtained prior to commencing construction.

Figure 1: Site Plan

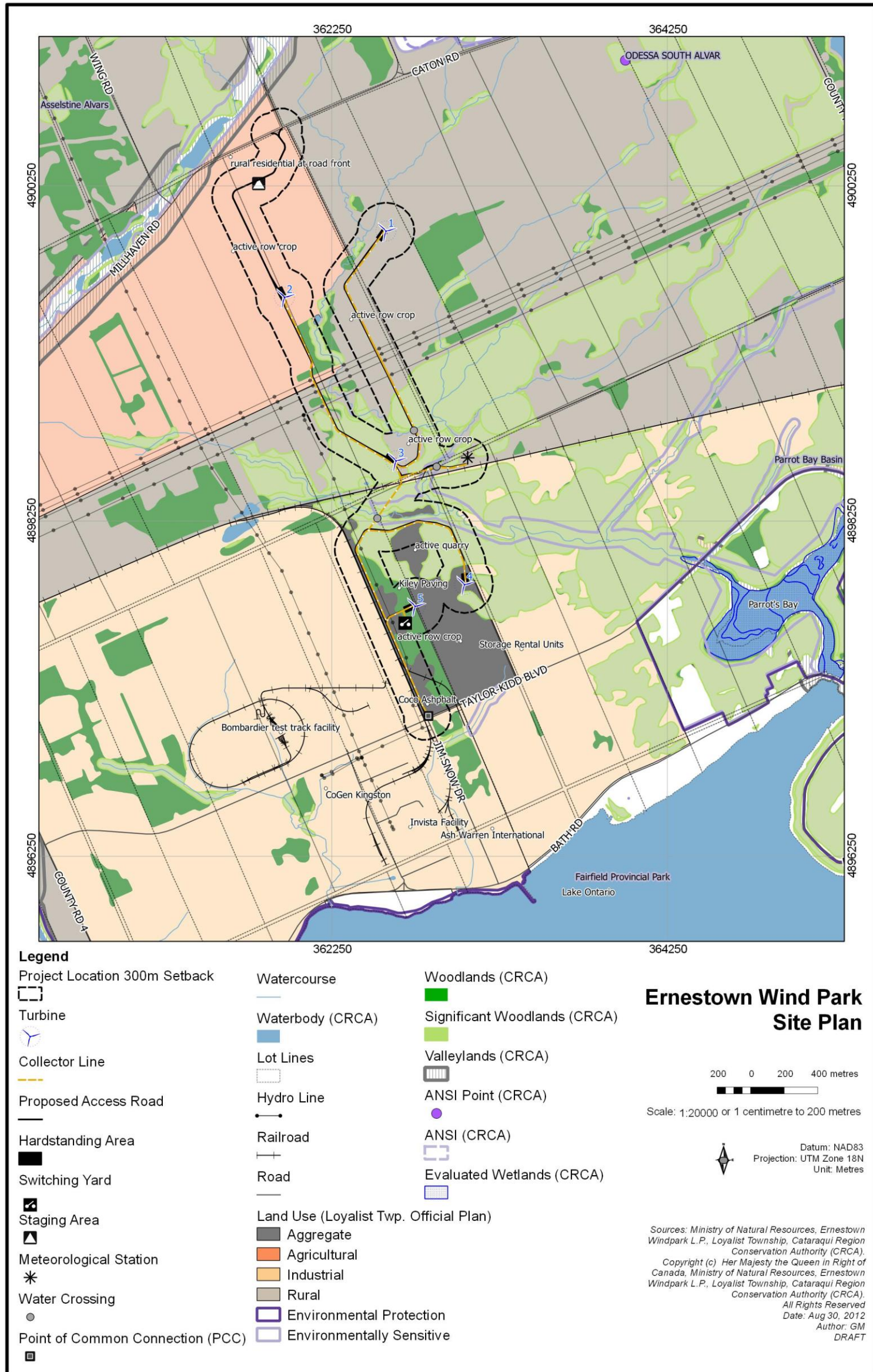
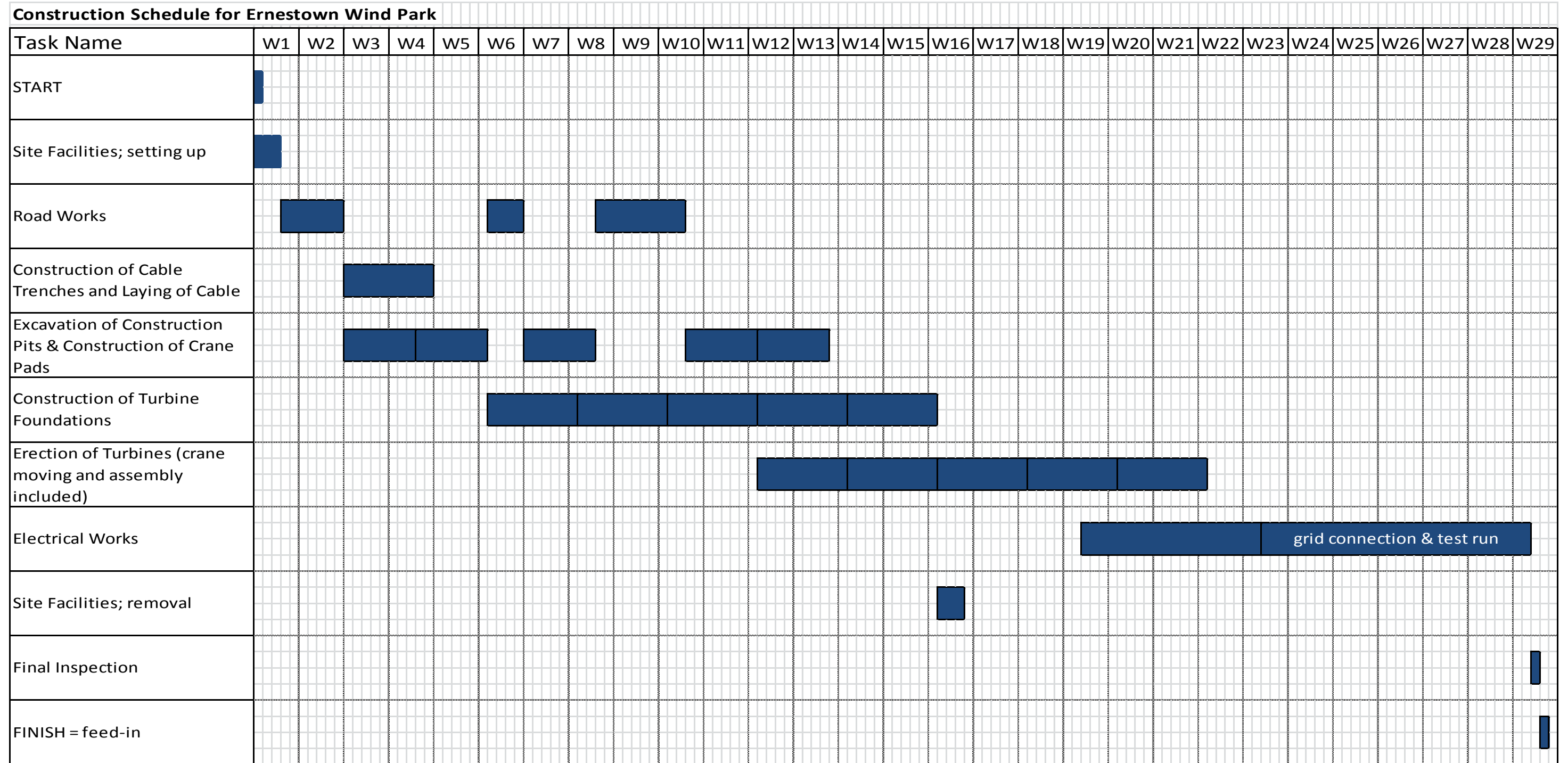


Table 2: Proposed Construction Timeline



2. CONSTRUCTION AND INSTALLATION ACTIVITIES

The Construction Plan Report is a mandatory component of an application for the Renewable Energy Approval for Class 4 wind facilities. This report has been prepared in accordance with the requirements of the Ontario Regulation 359/09 and Technical Bulletin Three Guidance for Preparing the Construction Plan Report (MOE, 2010).

The Project requires the installation of five (5) Enercon E92 2.3 modified to operate at 2 MW wind turbine generators. Step up transformers at the base of each turbine, will be connected by above ground collector lines. The underground collector lines will travel along access roads to a new switching station located north of Taylor Kidd Road. The switching station will facilitate the electrical connection of the Project to the Hydro One Networks Inc. (HONI) distribution system, as show in Figure 1.

The Project will require construction of ancillary components such as access roads, crane pads, laydown areas and crane assembly areas. No municipal roadway improvements will be required to facilitate delivery of project components to the project site.

The wind turbine will be a pitch regulated upwind turbine; the major components such as the generator, converter, braking system are located on top of the tower in the nacelle. Sensors within the nacelle communicate with operations software (Supervisory Control and Data Acquisition (SCADA) system) which controls the operations and direction of the turbine. Through this set up the turbine will follow the wind direction, control the pitch and speed of the blades automatically; it will also inform the turbine when conditions require the system to shut down. To facilitate remote monitoring and operation of the facility, fibre optic cables will be installed and will run along with the collector system.

The nacelle and blades of each turbine will sit atop a 98 metre tower, supported by the construction of a concrete foundation. It is estimated that each foundation will be up to 3m deep and 18m in diameter. Each foundation will be designed according to the site conditions at each turbine location.

The wind turbine will generate power at 400 kV and will be transformed by the transformers to 44kV which is the voltage of the circuit the project will connect to. An above ground collector line will deliver electricity from each turbine to a new switching station where it will connect with the HONI system. The above ground line will require the installation of new wooden poles with 60-100m spacing, an approximate height of 13.1 metres and a wire height of 7 metres. Installation of these new poles will require holes to be augured; after which poles

will be inserted, leveled and then the holes will be backfilled using the substrate which was extracted during auguring, the area will then be compacted.

The switching station will be located north of Taylor Kidd Boulevard, adjacent to Turbine 5, on a 12m x 24m fenced gravel pad. The switch yard will contain switching equipment, lightning protection systems, disconnect equipment, and a metering device. The switchyard will be contained by a chain link fence to prevent unauthorized entry. Minimal excavation will be required to provide for leveling for the concrete platform. A diagram of the substation and overhead electrical line can be found in Figure 1.

All component sizes and placement will be confirmed by the Construction Contractor prior to construction, and following the geotechnical assessment.

2.1 Materials Brought on Site & Construction Equipment

Construction of the Project will utilize standard building practices and materials for a majority of the project. Materials such as gravel, sand, concrete, wood, electrical wiring and cables, and various metals will be brought onto the site for the purposes of construction. Construction vehicles such as excavators, material transport trucks and cranes will be required on site to facilitate the construction. It is anticipated that the construction process may create noise and dust impacts. These impacts and mitigation strategies are discussed in section 3.4.

Temporary (less than 90 days) onsite storage will be required for project components, building materials and excess fill. Turbine components will be delivered to the laydown areas as they are erected. Construction materials and stripped substrate will be stored within the project area at designated locations. Construction equipment and associated component parts will be stored at the Staging Area indicated in Figure 1. There will be no long term storage of hazardous materials, fuel and lubricants on site. Where fuel or lubricants are required on site they will be stored in a designated area within the construction staging area. The construction contractor will confirm locations of onsite storage prior to the commencement of construction.

2.1.1 Access Road Construction

Access roads will be constructed to provide access to each turbine site during construction and will remain for use by maintenance personnel during the operation stage of the project. Approximately 5 km of new access roads will be created on private land to facilitate site access. Figure 1 shows the location of each access road and stream crossings; environmental impacts relating to construction of access roads are discussed in Section 4.

Access roads will be approximately 5.5 m in width (wider at curves and turning areas) to allow delivery of the turbine components. Surface materials such as topsoil will be removed and stockpiled, with the intent to reuse these materials during post-construction rehabilitation processes. All access roads will be constructed to accommodate a minimum 12.5 tonne load. One km of an unmaintained municipal road allowance (known as the Jim Snow Drive Extension) will be upgraded to serve as an access road in agreement with the Loyalist Township.

The construction of some portions of the access roads may require blasting due to its location in the vicinity of a quarry site, the MOE blasting guideline (NPR-119) will be followed. Blasting requirements will be confirmed by the construction contractor prior to construction.

Completed access roads will consist of a compacted sand base topped with gravel as a support layer. A tear-proof fleece will be installed in between the foundation (sand) and the support layer (gravel), this measure would be used to prevent silting and displacement. Geotextile fabric will also be installed beneath the road surface to provide additional support. An estimate of material requirements is provided in the Activities Summary Table in Appendix 1.

Construction equipment will access the site using provincial highways and local municipal roads. Final confirmation of construction equipment will be provided by the construction contractor prior to initiation of construction. Section 3.6.1 discusses the development of a Traffic Management Plan.

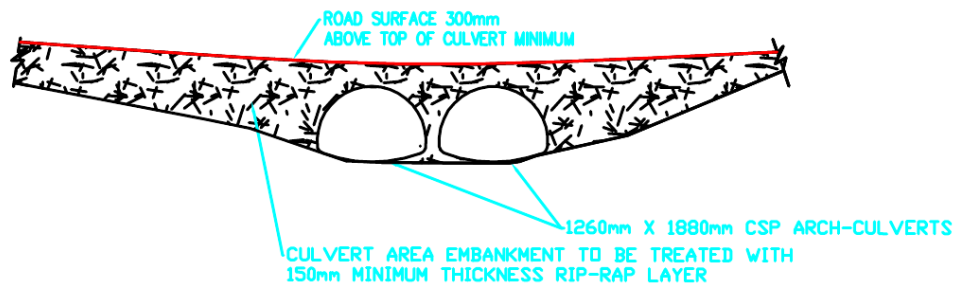
New Entrance: A new entrance and roadway from Milhaven Rd will be created. The entrance will be constructed to the same specifications as access roads and have an outer turning radius of 30m. In consultation with the County Lennox & Addington, it was determined that a maximum inner turning radius of 15m will be maintained post-construction. The entrance may be required to be paved and will be built to the satisfaction of both the county and the municipality.

Water Crossings: Access roads running north toward Turbine 1 and east toward the proposed meteorological station both require permanent stream crossings. A

third stream crossing involves stringing an above ground collector line across a shallow valley north of the quarry.

A hydrologic and hydraulic study of the streams was conducted and preliminary stream crossings were designed for a 10-year storm event in consultation with the Cataraqui Conservation Authority. Two 1.2m diameter corrugated steel pipe barrels will be installed at each access road crossing which can be seen in Figure 2 below. Approaches will be armoured with 6"x12" rip-rap material, a minimum of 300mm of cover will be used to prevent flow over the crossing and barrels will be spaced to permit full compaction of the granular fill material. To prevent erosion, a larger granular material will be used and embankments will be permitted to grow with grasses.

Figure 2: Watercrossing Cross Section



The conservation authority has expressed interest in the installation of the collector line crossing the stream and valley north of the quarry & south of the CN rail line. This crossing will involve maintaining a 3m wide cleared path through trees and the installation of wooden poles set back at least 30m to either side of the stream.

2.1.2 Roadway Upgrades

This project requires upgrading an unmaintained public road allowance at the western boundary of the site. The upgrade is initiated by the Township as part of its plans to develop industrial lands west of the Project and presents an opportunity for both parties to share development costs and to minimize overall impact. At this stage, the road will be upgraded to a granular surface.

The road allowance right of way will be cleared and grubbed using excavators and dozers. Deleterious material will be hauled off-site using dump trucks. Once clearing has been completed, dozers and excavators will excavate the existing granular and clay material to subgrade with a 3% crossfall including roughing in the ditches. Approximately 16,200 tonnes of granular 'B' will be placed and compacted on the subgrade using dozers, graders, dump trucks, and rollers. Once

the 'B' has been placed, approximately 6,000 tonnes of granular 'A' will be placed and compacted using the same methods as the granular 'B'. The final step is to finish grade the ditches and place topsoil and seed.

2.1.3 Foundation Construction, Crane Pads & Laydown Areas

Each wind turbine will require the construction of a concrete foundation. In preparation for the installation of foundations a 100m diameter area will be cleared of vegetation and topsoil around each tower site. Excavated material will be stockpiled at the site and used for future backfilling and grading. Foundation work will require excavation of substrate to a general depth of 3m to be confirmed after the completion of on-site geotechnical investigations. Preliminary field studies indicate excavations will not extend below the groundwater table. Each foundation will be designed according to the site conditions at each turbine location. The preferred foundation type will be a poured-in-place reinforced concrete foundation. Blasting may be required at turbine locations in order to facilitate excavation for foundation installation. The need to blast, and the required permits, blasting report and approvals will be confirmed and obtained by the construction contractor prior to the commencement of construction following detailed geotechnical work.

Each foundation will be comprised of concrete and reinforcing steel and will require 363 m³ of concrete and 43.5 tonnes of steel each. Only a circular base plate, extended 1m from the tower will be visible when the construction is complete.

Construction of foundations will require the delivery of ready-mix concrete from an offsite batch plant, and reinforcing steel. Concrete trucks, delivery trucks and excavators will access the site using municipal roads and public highways, as well as the access roads discussed above. There will be some onsite storage of components, particularly reinforcing steel. This will be stored at each turbine location and will be confirmed by the contractor prior to construction.

It is not anticipated that any dewatering will be required for turbine foundation excavations. Any dewatering that might occur would be well below the limit which would require a Permit to Take Water. The need for dewatering foundations will be limited to stormwater inflow and incidental ground water. Potential impacts related to sediment and run off will be mitigated through a sediment and erosion control plan.

Crane Pads & Laydown Areas: Crane pads will be installed along the side of the access road for each turbine, adjacent to the turbine foundations, access road and within the laydown areas. They will be constructed at the same time as the access

roads. This area will form the location where the crane will sit during turbine erection. These pads will be approximately 22 m x 40 m; they will consist of gravel on a compacted sand base. The crane pads will be maintained during site operations in order to facilitate periodic maintenance activities where a crane is required, such as blade replacement.

Turbine components will be delivered directly to a laydown area located at each individual turbine location using the newly constructed access roads. Each laydown area will run adjacent to the access road and connect to the crane pads, as shown in Figure 1 and will have a 100m radius.

The laydown areas will be cleared and covered with gravel and remain throughout the wind projects lifecycle for operation and maintenance activities at the site. The crane pads and laydown areas will be constructed at the same time as the access roads and using the same material and construction equipment as the access roads. Additionally the excavation process will be identical. Please refer to section 2.1.1.

2.1.4 Turbine Assembly

The delivery of turbine components will occur following the construction of turbine foundations. Each of the turbines comprising the Project will require delivery and assembly of a 98m tower in five (5) sections each section measuring approximately 20m, three 46.5m blades, a nacelle and rotor hub. The turbine components will be delivered just prior to their assembly and placed on the laydown areas. The nacelle will arrive completely assembled; however the blades will be attached to the hub on-site. Two cranes will be required for assembly of these components. A large lattice crane will be used to lift the components and a smaller crane will be used to stabilize the components as they are being lifted.

Following erection and prior to commissioning, a series of tests will be performed to confirm the grid connection compatibility. These tests will be commenced after each wind turbine installation and will lead to the connection with the on-site electrical cables. Interconnection with the Hydro One grid will be undertaken as a final test.

2.1.5 Step-up Transformer Installation

The Enercon E92 generates power at 400kV, in order to connect to the on site collector system the voltage must be transformed upwards to 44 kV by passing the current through a step-up transformer.

The transformer is located at the base of the turbine, the transformers will come preassembled, so no onsite assembly will be required prior to connection. Each

transformer is housed in the E-module with is placed inside the base of the concrete tower and mounted to the foundation. The transformer is installed at the foundation level of the module. It is approximately 2.1m x 1.8m x 2.4m (LxWxH) and weighs approximately 5.72 tonnes

2.1.6 Electrical Line Construction

Collector Line: An above ground collector line will deliver electricity at 44 kV from each turbine to a new switching station at Taylor Kidd Boulevard, where the project will connect to the HONI system. This line will require the installation of new wooden electrical poles with 60-100m spacing, an approximate height of 13.1 metres and a wire height of 7 metres. The installation of the poles will require one crane truck or backhoe and an augur which will create a hole 1-2 m deep. All substrate removed from the holes will be used as backfill and compacted in the holes in order to stabilize the poles following insertion. The collector lines will follow the new access roads.

2.1.7 Switching Station Yard Construction

The electrical collector lines will connect into a substation located west of turbine 5. Electrical current routed through the station will exit the station and travel south towards Taylor Kidd Boulevard in order to connect to the HONI distribution system (Figure 1). The substation incorporates disconnect and protection equipment, providing the ability to isolate the Project from the HONI distribution system. This will allow for manual disconnection for services and will automatically trip for over or under voltage situations.

The switching station yard will consist of a 12m x 24m area enclosed by a chain link fence, and a small driveway. Construction of this Yard will require clearing the area of vegetation with a backhoe or excavator. The area will be graded to ensure that it is level. An excavator, grader, and pole digging machine will be required for the installation of the yard. Additionally, concrete trucks will access the site to pour the foundation.

All substrate removed and cleared from the area will be stored at specifically designated places on site for reuse during final grading at the end of the construction phase.

2.1.8 Communications System

In order to maintain off site communications with the Project, a fibre optic communication line will be installed. This line will run above ground (Figure 1) and will connect to a SCADA Unit located within a selected turbine. The line will

be installed at the same time as the collector lines, using the same equipment and techniques.

2.2 Component Transportation

Provincial highways and municipal roads will be used to deliver turbine components to the site. It is likely that turbine component delivery will utilize Highway 401, Highway 4, Highway 6, Taylor Kidd Boulevard, and Milhaven Road or Caton Road, in order to access the site. No roadways will require upgrades. Further details can be found in the Ernestown Wind Park Transportation Plan Report located in Appendix B.

Transportation will be in compliance with all weight and access restrictions for component delivery oversized permits will be obtained.

2.2.1 Traffic Management Plan

The Traffic Management Plan will be developed in coordination with the local municipality. It will focus on Provincial and Municipal roads adjacent to the project site consisting of Municipal roads of Milhaven, Taylor-Kidd, Jim Snow Drive and Cantor Roads. The plan will seek to identify the current use of these roads by residences and businesses within the area and the interaction of the Project during construction. Operation of the Project is anticipated to have minor impacts on adjacent roads. Impacts related to decommissioning of the Project will be managed in a similar manner outlined in construction of the Project.

Along the identified roads the following key users are identified:

- Cruickshank Millhaven Quarry
- Kiley Paving
- Storage Rental Facility
- Coco Asphalt
- Bombardier Facility
- CoGen Kingston
- Invista
- Local Residents

Traffic Management: Construction

Prior to construction activities a meeting will be arranged with the municipality to develop the Traffic Management Plan for construction activities. The scope of this discussion will cover the use of municipal roads including preferred and alternate routes, road improvements, changes in access points, drain crossings and timing and duration of activities. A reporting system will be established to

communicate unexpected changes in transportation routes or timing delays. Additionally, the proponent will meet with Municipal representatives prior to construction to inspect the proposed access routes, confirm road conditions. Consultation with the provincial Ministry of Transportation will occur concurrently and be incorporated into the overall traffic management plan.

Delivery of materials to and from the Project site will conform to municipal by-laws and regulations. During construction activities traffic management controls including signage and signaling will conform with the guidance provided by the “Ontario Traffic Manual, Book 7: Temporary Conditions, March 2001” as updated from time to time.

Signage will be provided along municipal roads to notify residences and business of potential delays or closures during construction. Additional provisions will be provided along Taylor-Kidd Boulevard, Jim Snow Drive, Caton Road and Milhaven Road to ensure safe delivery of project components and to maintain traffic flow. Deliveries along these routes will be timed to avoid peak traffic periods.

Municipal roads adjacent to the project site will be inspected on a daily basis during construction to ensure the road is maintained and cleaned as needed in accordance with municipal and provincial standards. Pre and post-construction surveys of roads will be conducted and any observed damage to the road resulting from construction will be reported immediately. .

2.3 Land Surveying and Geotechnical Surveys

Detailed geotechnical work will be required for each turbine site prior to construction to determine foundation requirements for turbines and sub-base parameters. The geotechnical investigation will require the use of a mobile drill rig at the turbine foundation sites to extract underlying soil samples for analysis. A preliminary geotechnical study for all ground works will be completed prior to construction and the findings will be provided to the MOE prior to site construction.

2.4 Timing and Operational Plans

All construction activities will be conducted in accordance with the restrictions established in the Natural Heritage Assessment and Water Report. Table 2 provides a detailed conceptual construction timeline; it depicts sequence of events and duration of activities. All activities will occur during normal daytime hours wherever possible. This timeline will be confirmed by the construction contractor prior to construction.

2.5 Temporary Uses of Land

In support of construction activities a staging area will be required. This area will be a temporary area and is depicted in Figure 1. It will be 30 by 60 metres in total and it will be fenced off using temporary fencing. Topsoil will be stockpiled in a designated area on site, which will be confirmed by the construction contractor prior to construction, and reused during site rehabilitation. Portable toilets will also be located in this area which will be delivered, maintained and removed by a licensed carrier. The construction site office will be delivered by light weight truck and parked on site for the duration of the project. It is estimated that this area will be in use for 6 – 8 months and will be removed and the site rehabilitated immediately following construction. There will be no permanent office on site, all site monitoring will occur remotely.

All other infrastructure related to the project is intended to remain for the entire lifecycle of the project.

2.6 Materials Generated at, or Transported from, the Project Location

The construction of the Project will require the disposal of wastes brought onto the site such as equipment packaging and construction materials. These items will be disposed of at an MOE approved off-site facility.

Some of the construction activities will also produce wastes that will need to be removed, recycled or reused. Excessive construction materials (gravel, metal etc.) will be removed from the site and recycled whenever possible. Sanitary sewage from portable toilets will be disposed offsite by a licensed contractor.

During construction, topsoil and excavated substrate will be stored on site in a designated storage location, the location of which will be confirmed by the construction contractor prior to construction and will conform to recommendations provided within the Project's Environmental Impact Statement. This material will be reused in site rehabilitation following construction; where possible, wood waste will be provided to the participating landowners for personal uses. Excess wood waste will be disposed of in an appropriate MOE approved off-site facility.

Sanitary waste from portable toilets will be removed in an MOE approved disposal vehicle provided by the contractor. All fuels and lubricants will be transported to and from the site in pick-up trucks or in appropriate delivery vehicles.

3. DESCRIPTION OF ENVIRONMENTAL EFFECTS, MITIGATION & MONITORING

The table below summarizes environmental effects, mitigation and monitoring for the Project. Section 3.3 impacts to natural heritage can be found in Appendix C.

Table 3: Environmental Effects, Mitigation & Monitoring Table

Section	Criterion	Potential Effect without Mitigation		Mitigation Measure	Monitoring Proposed	Net Impacts	Residual Significance
		Activity/Description	Significance				
3.1	Ground Water & Water Takings	Construction activities may result in hazardous materials coming into contact with ground water.	SE	Spill contingency planning and equipment will be provided during duration of construction.	Construction staff will monitor operations to ensure that mitigation measures are employed throughout construction.	Proposed mitigation measures are well established and industry best practices will reduced the potential for impacts.	NE
3.2	Surface, Storm Water & Waterbodies	Encroachment onto Streams due to construction of the road and collection line could result in temporary fragmentation of fish habitat during construction. There is potential for changes in water temperature due to vegetation removal in riparian zone. There is potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks, and there is potential for small edge effect.	IE	<ul style="list-style-type: none"> Adherence to Department of Fisheries and Oceans' (DFO) <i>Ontario Operation Statement: Overhead Line Construction</i> and reference to <i>Operation Statement: Isolated Stream Crossing</i> Areas for construction will be demarcated. All workers will be notified of waterbody. Daily visual monitoring of work area to ensure compliance. Construction of stream crossing to take place when the stream bed is dry if possible Adherence to de-watering methods according to DFO <i>Operation Statement for Isolated Stream Crossing</i> if method deemed appropriate by Cataraqui Conservation Authority and DFO Entire disturbed riparian area will be re-vegetated with native species following the completion of any construction activities Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site. In the event of an accidental spill emergency spill procedures will be implemented immediately 	Ongoing discussions with DFO and Cataraqui Conservation Authority will be required	The potential for impacts will be limited to the period when construction activities are occurring plus the time required to establish new vegetation. Mitigation measures are well established and predictable.	NE

		There is potential impacts to Natural Ponds/Shallow Marsh and Spring areas due to construction of the collector lines and access road.	IE	<ul style="list-style-type: none"> • Areas for construction will be demarcated. All workers will be notified of waterbody. Daily visual monitoring of work area to ensure compliance. • Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site. • In the event of an accidental spill emergency spill procedures will be implemented immediately 	Site surveyors will measure distances from features and create boundaries on site which will delineate the 30 m boundary.	Mitigation measures are well established and predictable.	NE
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Section	Criterion	Potential Effect without Mitigation		Mitigation Measure	Monitoring Proposed	Net Impacts	Residual Significance
		Activity/Description	Significance				
3.3	Natural Heritage	Encroachment onto Raptor Wintering Area due to road, collector lines, turbine construction. There is the potential for some edge effects, a minimal risk of contamination of soils from spills and leaks, and the potential for wildlife displacement using habitat due to temporary construction noise and encroachment.	IE	<ul style="list-style-type: none"> • Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance, construction will only occur within demarcated area • Entire disturbed area will be re-vegetated with native species following the completion of any construction activities, at the discretion of the landowner • Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site. • In the event of an accidental spill emergency spill procedures will be implemented immediately 	Post construction habitat use monitoring will ensure ongoing use of habitat by birds following construction	Proposed mitigation measures are well established and industry best practices will reduced the potential for impacts.	IE

	Direct effects from construction could temporarily disturb wildlife in areas surrounding Bat Maternity Roosts in the short term	IE	<ul style="list-style-type: none"> • Areas for construction will be demarcated. All workers will be notified of habitat significance. • Daily visual monitoring of work area to ensure compliance • Construction within 120m of significant habitat will not occur during the month of June 	Pre-construction surveys are required to determine whether mitigation and monitoring are required. Should the habitat be determined to not be significant than mitigation measures will not be applied.	Proposed mitigation measures are well established and industry best practices will reduced the potential for impacts.	IE
	Encroachment onto the Migratory Butterfly Stopover Area due to the road, collector line and turbine construction. There is a potential for a small edge effect as well as a minimal risk of contamination to the habitat from spills and leaks. Displacement of wildlife inhabiting the area due to temporary construction noise is also possible.	IE	<ul style="list-style-type: none"> • Areas for construction will be demarcated. All workers will be notified of habitat significance. • Daily visual monitoring of work area to ensure compliance • Entire disturbed area will be re-vegetated with native species following the completion of any construction activities, at the discretion of the landowner • Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site. • In the event of an accidental spill emergency spill procedures will be implemented immediately 	Preconstruction survey will be carried out at this location	Proposed mitigation measures are well established and industry best practices will reduced the potential for impacts.	IE
	Encroachment on Landbird Migratory Stopover Habitat due to road and collector line construction; there is potential for small edge effect and minimal risk of contamination to soils from spills and leaks. Potential for displacement of wildlife using habitat due to temporary construction noise.	IE	<ul style="list-style-type: none"> • Construction will not occur within Significant Wildlife Habitat (SWH) during peak migration period (April-May and August-October). • Areas for construction will be demarcated. All workers will be notified of habitat significance. • Daily visual monitoring of work area to ensure compliance • Entire disturbed area will be re-vegetated with native species following the completion of any construction activities, at the discretion of the landowner • Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, 	Construction staff will ensure mitigation measures are constantly employed	Proposed mitigation measures are well established and industry best practices will reduced the potential for impacts.	IE

				<p>vehicle maintenance will be performed off site.</p> <ul style="list-style-type: none"> In the event of an accidental spill emergency spill procedures will be implemented immediately 			
		<p>Encroachment onto Waterfowl Nesting Area due to road, collector line construction; there is potential for small edge effect and minimal risk of contamination to soils from spills and leaks. Potential for displacement of wildlife using habitat due to temporary construction noise.</p>	IE	<ul style="list-style-type: none"> Construction will not occur within Significant Wildlife Habitat (SWH) during nesting season (April-June) Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance Entire disturbed area will be re-vegetated with native species following the completion of any construction activities, at the discretion of the landowner Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site. In the event of an accidental spill emergency spill procedures will be implemented immediately 	<p>Pre-construction surveys are required to determine whether mitigation and monitoring are required. Should the habitat be determined to not be significant than mitigation measures will not be applied.</p>	<p>Proposed mitigation measures are well established and industry best practices will reduced the potential for impacts.</p>	IE

	<p>Encroachment onto <i>woodland component</i> of the Amphibian Breeding Habitat. There is a potential for small edge effect in this feature as well as for erosion and or sedimentation from construction activities but these impacts will be short term and highly localized. There is a minimal risk of contamination from spills and leaks. There is the potential for localized displacement of amphibians using the habitat due to construction noise.</p>	IE	<ul style="list-style-type: none"> • Construction will not occur within Significant Wildlife Habitat (SWH) during nesting season (April-June) • Areas for construction will be demarcated. All workers will be notified of habitat significance. • Daily visual monitoring of work area to ensure compliance • Entire disturbed area will be re-vegetated with native species following the completion of any construction activities, at the discretion of the landowner • Silt barriers will be erected along the edge of the habitat boundary where required. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established • Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site. • In the event of an accidental spill emergency spill procedures will be implemented immediately 	<p>Construction staff will ensure mitigation measures are constantly employed. Preconstruction surveys will be completed on the woodland and wetland components.</p>	<p>Proposed mitigation measures are well established and industry best practices will reduced the potential for impacts.</p>	IE
	<p>There is potential for erosion and/or sedimentation from construction activities on Marsh Bird Breeding Areas. These impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks is anticipated, localized displacement of wildlife inhabiting SWH due to construction noise is anticipated.</p>		<ul style="list-style-type: none"> • Construction will not occur within Significant Wildlife Habitat (SWH) during nesting season (April-June) • Areas for construction will be demarcated. All workers will be notified of habitat significance. • Daily visual monitoring of work area to ensure compliance • Entire disturbed area will be re-vegetated with native species following the completion of any construction activities, at the discretion of the landowner • Silt barriers will be erected along the edge of 	<p>Pre-construction surveys are required to determine whether mitigation and monitoring are required. Should the habitat be determined to not be significant than mitigation measures will not be applied.</p>	<p>Proposed mitigation measures are well established and industry best practices will reduced the potential for impacts.</p>	IE

				<p>the habitat boundary where required. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established</p> <ul style="list-style-type: none"> • Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site. • In the event of an accidental spill emergency spill procedures will be implemented immediately 			
		<p>Encroachment onto Early Successional Bird Breeding Habitat due to road, collector line construction. There is potential for small edge effect, a minimal risk of containment to soils from spills and leaks and the potential for displacement of wildlife using habitat due to temporary construction noise.</p>		<ul style="list-style-type: none"> • Construction will not occur within Significant Wildlife Habitat (SWH) during nesting season (April-June) • Areas for construction will be demarcated. All workers will be notified of habitat significance. • Daily visual monitoring of work area to ensure compliance • Entire disturbed area will be re-vegetated with native species following the completion of any construction activities, at the discretion of the landowner • Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site. • In the event of an accidental spill emergency spill procedures will be implemented immediately 	<p>Pre-construction surveys are required to determine whether mitigation and monitoring are required. Should the habitat be determined to not be significant than mitigation measures will not be applied.</p>	<p>Proposed mitigation measures are well established and industry best practices will reduced the potential for impacts.</p>	<p>IE</p>

Section	Criterion	Potential Effect without Mitigation		Mitigation Measure	Monitoring Proposed	Net Impacts	Residual Significance
		Activity/Description	Significance				
3.4	Air Quality & Noise Emissions	Air quality impacts due to exhaust and fugitive dust emissions from construction vehicles and activities.	IE	<ul style="list-style-type: none"> Emissions from vehicles will occur for a relatively short period of time. All vehicles will be properly maintained. A vegetative cover over the agricultural lands not under construction will be maintained, access roads will be constructed using coarse gravel. Dust suppression will be provided along unpaved roads used to access construction site. 	Not Applicable	<ul style="list-style-type: none"> Fugitive dust emissions primarily along unpaved roads may impact local residents during construction. Exhaust emissions from construction equipment will occur away from receptors and are minor. 	IE
		Noise impacts from the operation of construction equipment, heavy vehicles and activities associated with construction of wind turbines, access roads and laydown areas.	IE	<ul style="list-style-type: none"> Construction activities will adhere to the municipal noise by-law. Operation of construction equipment will be not be scheduled between 9:00pm and 7:00am from Monday to Saturday, or on Sundays and Statutory Holidays. Noise emissions from construction activities will be in accordance with the MOE noise requirements for rural areas (MOE publication NPC-232). 	Not Applicable	Impacts will be limited to construction periods and will avoid evening and nighttime periods. Some impacts may occur during daytime periods as municipal noise by-laws permit.	IE
		Noise and vibration from Blasting Operations	NE	<ul style="list-style-type: none"> A Blasting Report will be prepared confirming conformance with the MOE Noise and Vibration Guidelines outlined in NPC-119 "Blasting" Blasting activities will be confirmed by the construction contractor and will employ best industry standards. 	Recommendations Monitoring activities will be carried out in accordance to Blasting Report.	Adjacent properties are currently subjected to periodic blasting operations from quarrying operations conducted at the project location. No new net impacts are anticipated.	NE
3.5	Land Use & Resources	18hectares of land will be taken out of production for the lifetime of the project.	NE	<ul style="list-style-type: none"> The size of these areas will be relatively small and these parcels of land will be returned to production at the end of the project lifecycle. Lease payments to landowners will supplement income previously derived from land. Turbine and access road layout has taken landowners comments and indented use of adjacent lands into consideration to minimize impacts on current practices. 	Not Applicable	None	NE

	Construction staff will rely on nearby resources such as food service, lodging, and retail. An increased demand for temporary resources would not be an undue strain on the local economy	IE (Positive)	Not Applicable	Not Applicable	Temporary Positive Benefit	IE (Positive)
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Section	Criterion	Potential Effect without Mitigation		Mitigation Measure	Monitoring Proposed	Net Impacts	Residual Significance
		Activity/Description	Significance				
3.6	Traffic Patterns & Flows	Increase of local traffic and or traffic delays due to delivery of the turbine components and construction activities at the site. Disruption of some traffic on and around this road may result.	IE	<ul style="list-style-type: none"> Signs will be placed along roads to give advance notification of traffic interruptions due to the delivery of construction equipment and turbine components. 	Not Applicable	The potential for impacts will be limited to the immediate delivery period	IE
3.7	Public Safety	Potential for work site related accidents which could impact members of the public or their property	IE	<ul style="list-style-type: none"> Construction and installation of the wind project infrastructure will occur on privately owned lands with some minor works occurring along the road right of way. Construction zones will be clearly identified. Construction activities will comply with all provincial Workplace Health and Safety laws, regarding hoarding and barriers. 	Not Applicable	<ul style="list-style-type: none"> Public access to construction locations will be limited to areas adjacent to road right of ways. Activities within these areas will employ barriers to prevent access. Construction activities along these routes will occur over the span of a few days. 	NE
		Unauthorized site access may occur	IE	<ul style="list-style-type: none"> Most of the construction works are proposed to occur on private land where recreational opportunities are limited, construction areas will be clearly marked and access to the site will be controlled through signage and restricted to authorized personnel only. 	Monitoring through cameras or a security company may be required. This need will be determined by the Site Contractor	Limited construction activity along road right of way occurring over the span of a few days.	NE
3.8	Waste Materials Disposal	Generation of waste construction materials (concrete, wood, steel, shipping materials).	NE	<ul style="list-style-type: none"> Provide recycling containers for source separation of materials on-site. 	Not Applicable	<ul style="list-style-type: none"> The potential for impacts is limited given the size of the project. Mitigation measures are well established. 	NE

		Management of excess fill and soils.	NE	<ul style="list-style-type: none"> Excess fill and soil will be kept on-site where possible for re-use during decommissioning. 	Not Applicable	<ul style="list-style-type: none"> The potential for impacts is limited given the size of the project. Mitigation measures are well established. 	NE
		Management of wood waste from land clearing	NE	<ul style="list-style-type: none"> Provide opportunities to beneficially re-use wood waste (home heating, mulch, compost facility). 	Not Applicable	<ul style="list-style-type: none"> The potential for impacts is limited given the size of the project. Mitigation measures are well established. 	NE
3.9	Heritage & Archaeological Resources	A Stage 2 Archaeological Review found no items of archaeological significance	NE	<ul style="list-style-type: none"> Construction contractor will be advised to notify appropriate stakeholders in the event archaeological resources are discovered. Notification procedures will be provided to the contractor. 	Not Applicable	Not applicable	NE
		A Cultural Heritage Assessment found no items of cultural significance	NE	Not Applicable	Not Applicable	Not Applicable	NE

Notes:

Negligible Effect (NE): A nearly zero or hardly discernible effect. A negligible effect would touch a population or specific group of individuals at a localized area and/or over a short period in such a way as to be similar in effect to random small changes in the population (or group) due to environmental irregularities, but would have no measurable effect on the population (or group) as a whole.

Insignificant Effect (IE): An effect that may exhibit one or more of the following characteristics: Not widespread. Recurring effect lasting for short periods of time during or after project implementation.

Significant Effect (SE): An effect that may exhibit one or more of the following characteristics: Widespread. Permanent reduction in species diversity or population of species. Permanent alteration to community characteristics or services, land use or established patterns.

4. CONCLUDING REMARKS

The Construction Plan Report is a mandatory component of an application for the Renewable Energy Approval for Class 4 wind facilities. This report has been prepared in accordance with the requirements of the Ontario Regulation 359/09 and Technical Bulletin Three Guidance for Preparing the Construction Plan Report (MOE, 2010).

Under the REA requirements a construction plan report must contain the following:

- details of any construction or installation activities including their location and timing;
- any negative environmental impacts that may result from these activities within a 300 m radius of the project location; and
- mitigation measures in respect of any negative environmental effects due to project construction

The Project can be constructed with minimal impacts to the environment following the proposed mitigation measures. Monitoring activities occurring during construction will seek to verify the effectiveness of mitigation measures and identify unforeseen events. Consultation with the municipality and local community will further seek to enhance project planning and community awareness to minimize disruptions to the community.

5. ACKNOWLEDGEMENTS & REFERENCES

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&

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**Appendix A: Activities Summary Table
(2 pages)**

Table 4: Activities Summary Table

Activities		Quantities and Type of materials transported on-site for construction	Method of Transporting materials, size and number of vehicles	Type, size and weight of construction equipment	Temporary storage of materials on-site including duration	Quantity and type of material generated
1	Access Road Construction	700-900 m ³ of sand and 9,800-11,000 m ³ of gravel (of varying sizes), 14,100-15,000 m ² of tear-proof fleece or geotextile fabric	700 - 800 truckloads with 2-3 dump trucks operating on-site	1-2 excavators, 1 grader, 1 scraper, 1 bulldozer, 1 compactor, 2-3 dump trucks	Topsoil will be stockpiled for duration and reused to rehabilitate site following construction activities, aggregate will be stock piled on site in designated areas if required, geotextile materials will be stored at the contractor parking area	Substrate, vegetation and topsoil, wood waste of 10-30 m ³ , waste geotextile fabric and tear-proof fleece, extra aggregate
2	Stream Crossings	Less than 30 m ³ of granular backfill material required to construct culverts. Corrugated steel culverts to be placed in streambed.	2-3 truckloads of material to be constructed in conjunction with access roads.	To be constructed in conjunction with access roads.	Temporary storage of granular material and corrugated steel culverts while awaiting installation.	Included in access road construction.
3	Foundation Construction, Laydown Areas & Crane Pads	Foundation: 363 m ³ ready-mix concrete, 43.5 tonnes of steel per foundation, plus an additional 6 m ³ of concrete for each step-up transformer Crane Pads: 2,800-3,000 m ³ of aggregate (gravel and compacted sand mixture) Crane Assembly Areas: 3,600 m ² of aggregate (gravel and compacted sand mixture)	120 concrete trucks, 5-7 steel delivery trucks, 200 dump trucks	1-2 excavators, 1 grader, 1 scraper, 1 bulldozer, 2 compactor, 2-3 dump trucks	Topsoil will be stockpiled for duration and reused to rehabilitate site following construction activities, aggregate will be stock piled on site in designated areas if required	Substrate, vegetation and topsoil, wood waste of 20 - 30 m ³ , excess aggregate
4	Turbine Assembly	98m tube tower in eight (8) concrete and two steel segments. Three (3) 49m blades, a nacelle, rotor hub, electrical wiring and various bolts, and fasteners	51 transport trucks (some oversized)	1 lattice boom crane, 1 stabilizer crane	Component parts will be stored on-site in designated laydown areas, electrical wiring will be stored at the contractor parking area	30 m ³ - Waste Packaging products, wiring and other metals

Activities		Quantities and Type of materials transported on-site for construction	Method of Transporting materials, size and number of vehicles	Type, size and weight of construction equipment	Temporary storage of materials on-site including duration	Quantity and type of material generated
5	Step-up Transformer Installation	five (5) step up transformers, electrical wiring, various bolts and fasteners	3 transport trucks, 1 concrete truck	1 lattice boom crane, 1 stabilizer crane	Component parts will be stored on-site in designated laydown areas, electrical wiring will be stored at the contractor parking area	10 m ³ - Waste Packaging products, electrical wiring
6	Electrical Line Construction	2km of electrical conduit, 2 km of underground electrical wire, 1.9 km of above ground electrical wire, wood electrical poles. Or 1.9 km of underground electrical line.	4 Transport trucks	1 back hoe, 1 auger, 1 pole truck,	topsoil will be stockpiled for duration and reused to rehabilitate site following construction activities, wiring will be stored in the designated contractor parking area	vegetation and topsoil, wood waste of 100 - 150 m ³ , some small wiring and plastic waste
7	Switching Station Construction	20 m ³ concrete, 55 m ³ of aggregate, 120m chain link fencing, switching station assembly, one wood pole,	1 transport truck, 4 dump trucks, 2 concrete trucks	1 excavator, 1 grader, 1 scraper, 1 bulldozer, 1 compactor, 1 pole truck, 1 auger	Component parts will be stored on-site at the contractor parking area, topsoil will be stockpiled for duration and reused to rehabilitate the site following construction	minor quantities of vegetation and topsoil, packaging waste
8	Communications System	3 km of conduit and fiber optic cable	1 transport truck	Placed during Electrical Line Construction (see 2.1.6)	Component parts will be stored on-site at the contractor parking area, topsoil will be stockpiled for duration and reused to rehabilitate the site following construction	Minor quantities of substrate, vegetation and topsoil

Note: Values provided in this table are based upon typical design and construction practices. Verification of values will occur prior to the commencement of construction activities.

**Appendix B: Ernestown Wind Park Transportation Plan Report
(11 pages)**

**Ernestown Wind Park
Transportation Plan Report**

Draft – Revised 2012-04-25

Prepared by:
Ernestown Wind Park Inc.
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Draft Transportation Plan Report
May 2012

Introduction

Ernestown Wind Park is a proposed wind power farm in Loyalist Township, County of Lennox & Addington, Ontario, Canada. The wind farm has a nameplate capacity of 10MW which equates to five (5) wind turbines. This plan outlines the transportation requirements and presents a preliminary analysis of transportation routes.

The turbine components will be transported along Highway 401 (Hwy 401) and through Loyalist Township to the site. The direction from which components will be transported from on Hwy 401 has yet to be determined. We consider two alternate exits from Hwy 401 and detail their respective routes to the site. A map of the study area and considered routes is given in Figure 1.

There are two site entrances to access lands to the north and to the south of the Canadian National (CN) railway. The main site entrance off of Millhaven Road provides access to farm lands to the north of the railway and to the construction site office, storage containers, parking, and washrooms. The second entrance will be off of Taylor Kidd Blvd, providing access the aggregate lands to the south of the CN railway where turbines will be erected on the periphery of an existing quarry.

We examine route safety, road construction, bridges, overhead utilities, intersection geometries, community disruption, seasonal weather, and traffic volumes. The Roads & Bridges division for the County of Lennox & Addington was consulted regarding local road restrictions and permitting requirements.

The final transportation plan will be developed in consultation with the local municipality. The plan will focus on identifying preferred and alternate routes, road improvements, and the timing and duration of activities. A reporting system will be established to communicate any unexpected changes, delays in timing, and emergency response. Prior to construction, the proponent will meet with the municipality and have a pre-condition survey completed along proposed delivery routes.

Delivery of materials to and from the project site will conform to municipal by-laws and regulations. Traffic management controls will conform to the guidance provided by the 'Ontario Traffic Manual: Book 7, Temporary Conditions, March 2001' as updated from time to time.

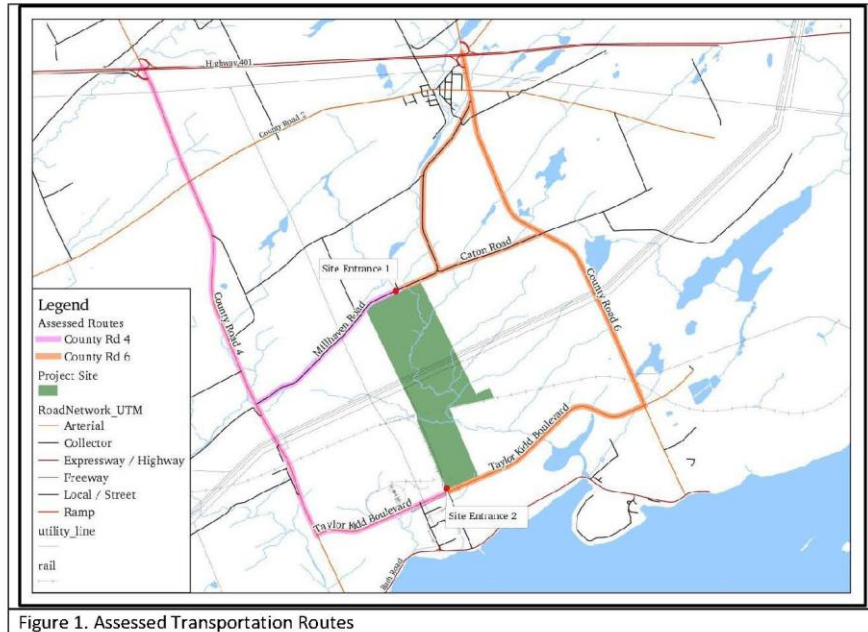


Figure 1. Assessed Transportation Routes

Transportation Requirements

At this time, the exact weight and dimensions of transport truck and trailers is unknown; however, typical weights and dimensions of turbine components are summarized in Table 1.

Table 1. Equipment Weights and Dimensions & Estimated Number of Transport Trucks Based on 5 Turbines

Item	Height (m)	Length (m)	Width (m)	Weight (metric ton)	Estimated Transports
Blade in Frame	3.56	43.8	2.44	8.9	15
Hub	4.27	3.99	3.99	22.7	5
Nacelle with Transformer	3.81	10.46	3.89	79.8	5
Bottom Section	4.20	15.78	15.78	70.5	5
Second Section	3.94	22.96	22.96	66	5
Third Section	3.38	24.36	24.36	46	5
Top Section	3.37	30.00	30.00	38.5	5
Cooling Unit	2.76	4.08	3.47	0.98	5



Based on the weights presented in table 1, 50 transports will be hauling an approximate total of 1750 metric tonnes of equipment to the site. The nacelle is the heaviest load at 79.8 tonnes and blades are the longest at 43.8m. There is the possibility to double-up on blade and nacelle transports which would reduce the number of transports to 41.

Proposed Transportation Routes

Multiple site visits, photographs, a review of road data using Google Maps, and analysis with geographic information software were used to identify and assess two (2) potential transportation routes from Hwy 401 as follows:

- County Road 6 (Wilton Road, Exit 599) at Odessa, Ontario
- County Road 4 (Exit 593) at Camden East, Ontario

County Road 6 is a two lane asphalt highway with moderate traffic volume. The following sections discuss roads and routing in detail.

Road Construction and Usage

A map of reduced load restricted roads is available online at http://www.lennox-addington.on.ca/component/docman/doc_download/64-reduced-load-south-updated-2010.html

A traffic volume map giving annual average daily traffic (AADT) is available online at http://www.lennox-addington.on.ca/component/docman/doc_download/68-traffic-volume-data-maps-south.html and the relevant volumes are given in Table 2. Note that each road was surveyed along individual road segments.

Table 2. Annual Average Daily Traffic Volume. Each count location is given.

Road	Station# – 2007 AADT Count	% Trucks
County Rd 4	92 - 1782	17
	94 - 2283	12
	108 - 2152	13
County Rd 6	107 - 8787	13
	19 - 2602	8
	16 - 3450	6
Millhaven Rd	140 - 752	7
	139 - 473	7
Taylor Kidd Blvd	14 - 2420	3
	13 - 1638	6

Highways

County Road 6, County Road 4 and Taylor Kidd Boulevard (County Rd 26) are two-lane highways in good condition that experience moderate traffic volume. County Rd 6 and Taylor Kidd Blvd are constructed using asphalt and County Rd 4 from concrete slab.



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Local Streets

Millhaven Rd (County Rd 28) and Caton Rd are asphalt or surface treated local roads that experience low traffic volume. Millhaven Rd has an annual reduced load restriction of 5 tonnes per axle in effect from March 1 to April 30. Following route analysis and feedback from the County of Lennox & Addington and Loyalist Township, Caton Rd. will not be used.

Permitting Requirements

The equipment supplier and hauling company are responsible for all permitting for transportation of equipment from the supplier and over provincial highway 401. The proponent is responsible for permitting on local roads which may be under the jurisdiction of the local county or municipality.

The County will review all plans relating to the site, grading, servicing, storm water, building, and landscaping plans associated with the Project that are near or on county roads. The proponent should provide a traffic impact report detailing the construction and operation stages of the project, address any impact on utilities and the installation or temporary removal of any fencing, lighting, or signing.

The following permits may apply:

- Entrance Permit (on a County Road)
- Excavation Permit (works within County Road Right of Way)
- Encroachment Permit (installation of privately owned features in a County Road Right of Way)
- Municipal Consent (authorizing works in a Country Road Right of Way)
- Excess Load Permit (movement with loads in excess of Highway Transportation Act (HTA) regulations or for roads with Reduced Load Restrictions). An excess load permit is required if the dimensions are greater than the following:
 - Width = 2.6m
 - Height = 4.15m
 - Length = 23m
 - HTA weight loadings will be adhered to by using appropriately designed transportation equipment.
- Annual Permit (over width up to 3.7m – e.g. heavy equipment such as excavators; \$50)
- Trip Specific Permit (excess loads; \$50)

An excess load permit will be required for blades, hub, nacelle and transformer with a single (1) private escort. A permit and two (2) police escorts will be required for tower sections. An annual permit will be required for general construction equipment.

County Road 6 / Wilton Road

Routes to entrance 1:

Route 1A (4.65km)

- Exit 599 County Rd 6 (Wilton Rd), Odessa, ON.



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- County Rd 6 for 800m.
- Millhaven Rd for 3.85km to site entrance.

Route 1B (7.5km)

- Exit 599 County Rd 6 (Wilton Rd), Odessa, ON.
- County Rd 6 for 3.5km.
- Caton Rd for 1.8km.
- Millhaven Rd for 750m to site entrance.

Obstacles

Overhead wires cross Millhaven Rd. at X locations. No overhead wires appear to be hazardously low.

Route to entrance 2 (11 km):

- Exit 599 County Rd 6 (Wilton Rd), Odessa, ON.
- County Rd 6 for 7km.
- Taylor Kidd for 4km to site entrance.

Obstacles

There are no major obstacles for this route. We note that this route crosses the CN railway that intersects with County Rd 6 (Photo A).



Photo A. CN Rail Crossing on County Rd 6, looking north.

County Road 4

Route to entrance 1 (9.4km):

- Exit 593 County Rd 4, Camden East, ON.
- County Rd 4 for 6.2km.
- Millhaven Rd for 3.2km (The turn onto Millhaven is shown in Photo B).



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Photo B. Turn onto Millhaven Rd from County Rd 4.

Route to entrance 2 (4.9km):

- Exit 593 County Rd 4, Camden East, ON.
- County Rd 4 for 2.5km.
- Taylor Kidd Blvd. for 2.4km (The turn onto Taylor-Kidd is shown in Photo C).



Photo C. Turn onto Taylor Kidd Blvd from County Rd 4.



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Obstacles

A roundabout at the intersection of County Rd 4 and Hwy 2 poses a problem along this route (Photo D). The turning radius and road shoulder may not provide enough room extended-length trailers and turbine blades to clear the central monument. Detailed survey and tractor-trailer specification will be required before choosing this route. If the roundabout is determined to be passable, traffic control measures will be required for traffic approaching the circle from the other three direction as transports will pass slowly.

Other points of interest are: a bridge on Millhaven Rd travelling east from County Rd 4 (Photo E), the bridge on County Rd 4 crossing the CN Railway on County Rd 6 (Photo F). Bridges will be should be surveyed for width and its bearing capacity determined. Rail spur lines must be crossed on Taylor Kidd Blvd (Photo G).



Photo D. Roundabout at the intersection of County Rd 4 and County Rd 2, looking south.

ORTECH Environmental

**Construction Plan Report
for Ernestown Wind Park**

*Appendix B
Project No. 91035*



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Besides the roundabout discussed in this plan, no major obstacles have been identified along the assessed transportation routes. Traffic control will be required at the intersection of County Rd 4 and County Rd 2 passing through the town of Odessa or at the roundabout at the intersection of County Rd 6 and County Rd 2. Due to the low traffic volume on the assessed routes and the relatively small distances travelled on local roads to access the site, further traffic control measures such as the construction of temporary lay-bys are not recommended.

The final transportation plan will be developed in consultation with the local municipality. The plan will focus on identifying preferred and alternate routes, road improvements, and the timing and duration of activities. A reporting system will be established to communicate any unexpected changes, delays in timing, and emergency response. Prior to construction, the proponent will meet with the municipality and have a third-party pre-condition survey completed along delivery routes.

Recommendations

1. As a precautionary measure, any signage, utility poles, or other structure close to the road will be surveyed and included on the final transportation plan. Local utilities will be contacted if infrastructure does not meet minimum height requirements.
2. The Proponent will meet with the Municipality to inspect road condition along proposed access routes prior to construction. Municipal roads adjacent to the site will be inspected on a daily basis and any damages resulting from construction will be reported immediately.
3. Prior to delivery and during negotiations of delivery terms with the equipment supplier a thorough road survey should be conducted to examine:
 - Road incline and decline gradients.
 - Radius and width of road at turns, bends, and roundabouts.
 - Width of road at bridges and other choke points.
 - Height under overhead utility lines.

Each of the above items should be considered in consultation with the equipment supplier and hauling company.

4. A survey of the roundabout at the intersection of County Rd 6 and County Rd 2, the turn from County Rd 6 to Millhaven Rd, the bridge on Millhaven Rd, and the turn onto Caton Rd are recommended. Residents should be contacted where road widening may need to make use of their property.



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Photo E. Bridge on Millhaven Rd. (looking West)



Photo F. Bridge on County Rd 4 crossing the CN Railway.



Photo G. Crossing the rail spur lines on Taylor Kidd Blvd.

Conclusion

This plan provided a preliminary transportation route assessment along local roads in Loyalist Township, County of Lennox and Addington, Ontario, Canada for the purpose of accessing two entranceways to lands used to install wind turbines. Road conditions, hazards, choke points, traffic volumes, overhead utilities and potential obstacles were considered.

Two routes from Hwy 401 were assessed. One route follows County Rd 6, the other County Rd 4. Both routes access the site entrances from opposite directions along Millhaven Rd and Taylor Kidd Blvd.