

BOW LAKE WIND FARM CONSTRUCTION PLAN REPORT

File No.: 160960374 January 2013

Prepared for:

Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership by its General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp 200, 4723 -1 Street SW Calgary AB T2G 4Y8

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Executive Summary

Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, by their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp., respectively (the "Proponent"), are proposing to develop Phase 1 and Phase 2 of the Bow Lake Wind Farm predominantly on Provincial Crown Land within the unorganized Townships of Smilsky and Peever, in the District of Algoma, Ontario (the "Project"). The Project is located approximately 80 km north of Sault Ste. Marie and roughly six kilometres east of Montreal River Harbour. The Project has three Feed-in Tariff ("FiT") Contracts with the Ontario Power Authority ("OPA") for the sale of electricity generated by the Project.

As part of the Project's design, construction, and operational activities, and understanding the Project falls within the territory of the Batchewana First Nation of Ojibways ("BFN"), the Proponent has engaged directly with the BFN. As a result of these efforts, the BFN:

- Has entered the Project as partner;
- Has entered into various business and relationship agreements with the Proponent to guide Project activities; and
- Has issued a Development and Power Generation Permit, which provides the BFN's approval to construct, operate, repower, and decommission the Project.

The English name of the Project is the *Bow Lake Wind Farm*, however, the BFN know and refer to the Project as *Chinodin Chigumi Nodin Kitagan*.

As proposed, the Project will include 36 wind turbines for a total maximum installed nameplate capacity of up to 58.32 MW. In addition, the Project will require 34.5 kV above and below ground electrical collector and communication lines, pad-mounted transformers, crane pads, two permanent meteorological towers, access roads, operations and maintenance building, welfare buildings, a transformer station, construction compounds and laydown yards, and other ancillary facilities. The Project will connect to the provincial power grid via existing 115 kV transmission lines located adjacent to the Project's transformer station location.

The Proponent has retained Stantec Consulting Ltd. to prepare a Renewable Energy Approval ("REA") Application, as required under Ontario Regulation 359/09 - Renewable Energy Approvals under Part V.0.1 of the *Environmental Protection Act* ("O. Reg. 359/09"). Based upon the criteria set out in subsection 6.(3) of O.Reg.359/09, the Project is classified as a Class 4 Wind Facility and will follow the requirements identified in O. Reg. 359/09 for such a facility.

This Construction Plan Report is one component of the REA application for the Project and has been prepared in accordance with O. Reg. 359/09, the Ontario Ministry of Natural Resources' *Approval and Permitting Requirements Document for Renewable Energy Projects* (September 2009), and the Ontario Ministry of the Environment's *Technical Guide to Renewable Energy Approvals*.

The following table summarizes the requirements of this Report as specified under O. Reg. 359/09:

| 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: | | | |
| 1. Details of any construction or installation activities. | ~ | 2.0 | |
| 2. The location and timing of any construction or installation activities for the duration of the construction or installation. | \checkmark | 2.0 and Attachment A | |
| 3. Any negative environmental effects that may result from construction or installation activities. | 1 | 3.0 | |
| 4. Mitigation measures in respect of any negative environmental effects mentioned in paragraph 3. | \checkmark | 3.0 | |

Provided the identified protective and mitigation measures are properly applied to the environmental features discussed herein, in conjunction with the monitoring plans and contingency measures, the construction phase of the Project is not predicted to cause significant net negative environmental effects.

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1.0 Overview

Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, by their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp., respectively (the "Proponent"), are proposing to develop Phase 1 and Phase 2 of the Bow Lake Wind Farm predominantly on Provincial Crown Land within the unorganized Townships of Smilsky and Peever, in the District of Algoma, Ontario (the "Project"). The Project is located approximately 80 km north of Sault Ste. Marie and roughly six kilometres east of Montreal River Harbour. The Project has three Feed-in Tariff ("FiT") Contracts with the Ontario Power Authority ("OPA") for the sale of electricity generated by the Project.

As part of the Project's design, construction, and operational activities, and understanding the Project falls within the territory of the Batchewana First Nation of Ojibways ("BFN"), the Proponent has engaged directly with the BFN. As a result of these efforts, the BFN:

- Has entered the Project as partner;
- Has entered into various business and relationship agreements with the Proponent to guide Project activities; and
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The English name of the Project is the *Bow Lake Wind Farm*, however, the BFN know and refer to the Project as *Chinodin Chigumi Nodin Kitagan*.

As proposed, the Project will include 36 wind turbines for a total maximum installed nameplate capacity of up to 58.32 MW. In addition, the Project will require 34.5 kV above and below ground electrical collector and communication lines, pad-mounted transformers, crane pads, two permanent meteorological towers, access roads, operations and maintenance building, welfare buildings, a transformer station (TS), construction compounds and laydown yards, and other ancillary facilities. The Project will connect to the provincial power grid via existing 115 kV transmission lines located adjacent to the Project's TS location. A full description of Project infrastructure is provided in the **Project Description Report**. The Project site plan is provided in **Appendix A**.

The selected model of wind turbine for the Project is the General Electric ("GE") 1.6-100; details of this wind turbine are outlined in **Table 1.1**. Further information is provided in the **Wind Turbine Specifications Report**.

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| Table 1.1: Wind Turbine Specifications | |
|--|------------------|
| Operating Data | Specification |
| General | |
| Make | General Electric |
| Model | GE 1.6-100 |
| Name plate capacity (MW) | 1.62 |
| Maximum Sound Power Level (dBA) | 105 |
| Rotor | |
| Rotor diameter (m) | 100 |
| Blade length (m) | 48.7 |
| Blade swept area (m ²) | 7,854 |
| Rotation Speed (RPM) | 9.75-15.33 |
| Tower | |
| Hub height above grade (m) | 96 |
| Tip height (m) | 146 |

The Project Location is defined in O. Reg. 359/09 to include all land and buildings/structures in, on or over which the Proponent proposes to engage in the Project and any air space in which the Proponent proposes to engage in the Project, including certain lands used on a temporary basis during construction ("temporary construction areas").

A "Zone of Investigation" has been identified based upon the requirements of Ontario Regulation 359/09 ("O. Reg. 359/09") and the Ontario Ministry of Natural Resources' ("MNR") *Approval and Permitting Requirements Document for Renewable Energy Projects*, September 2009 ("APRD"). In general, the Zone of Investigation encompasses the Project Location plus an additional 120 m surrounding the outer edges of the Project Location. This Report identifies natural features that are within the Zone of Investigation and assesses potential negative environmental effects that may result from construction activities. To the extent practical, identified natural features are avoided, however where appropriate mitigation measures are also identified to alleviate potential negative environmental effects.

According to subsection 6.(3) of O. Reg. 359/09, the Project is classified as a Class 4 Wind Facility. This Construction Plan Report is one component of the Renewable Energy Approval ("REA") application for the Project, and has been prepared in accordance with O. Reg. 359/09, the MNR's *APRD*, and the Ontario Ministry of the Environment's ("MOE") *Technical Guide to Renewable Energy Approvals*.

2.0 Construction and Installation Activities

Table 2.1 provides a detailed description of key activities that will occur as part of the construction phase of the Project. All Project components, including the temporary lands to be used for construction/installation purposes, are described and are shown on the figures provided in **Appendix A**. Post-installation activities such as restoration of vegetation and monitoring commitments are detailed in Section 3.0.

| Activity | Description of Activities | Construction Vehicle Types | Materials Required |
|------------------------|---|--|---|
| Project Delineation | The location of Project infrastructure will be flagged in the field in accordance with the Project design Temporary construction areas and the areas requiring tree clearing will be flagged to ensure that construction activities remain within designated areas. | General transport to site requirements | Flagging tape, stakes, and like materials |
| Site Clearing | • The area around each wind turbine, electrical collector lines, the TS, Operations and Maintenance building, construction compounds, access roads, and other Project infrastructure will be cleared of trees, shrubs, and other vegetation in preparation of component installation (the specific amount of cleared area required for each Project component is detailed under each activity). | Skidders Logging Trucks and truck loaders Grubbing Passenger vehicles | Gravel/fill Fire Control Equipment |
| | • The clearing and processing of trees will be in accordance with: i) Clergue Forest Management Inc.'s Forest Management Plan as set out in the Overlapping License Agreement with the Proponent; and ii) the Development and Power Generation Permit with the Batchewana First Nation of Ojibways ("BFN"). | | |
| | Tree clearing activities, including use of equipment, provision of fire extinguishers and fire control equipment, and maintenance and parking of equipment within Crown Lands will also be in accordance with provincial regulations. | | |
| | Any residual waste specifically from site clearing will be disposed of at the Montreal River Waste Disposal Site or other licensed waste disposal sites. | | |
| | Pending receipt of the necessary approvals, and local site and weather conditions, this activity will occur over a period of approximately three to five months, during which other construction activities will also be occurring. | | |

Table 2.1 : Key Construction and Installation Activities

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| Table 2.1 : Key Construction and Installation Activities | | | |
|--|---|--|--|
| Activity | Description of Activities | Construction Vehicle Types | Materials Required |
| Component Delivery | Components are delivered on specialized vehicles capable of safely transporting the respective sections. Wind turbine components will be unloaded with the use of cranes and/or boom trucks as appropriate. Components will either be delivered to construction compounds for temporary storage or directly to the staging areas. Component delivery will be undertaken over a period of approximately three months. | Heavy haul trucks Cranes Boom Trucks | Fuel supply |
| Wind Turbine Staging Areas | Wind turbine staging areas will be established around each wind turbine location. The staging area will be used for temporary storage of components as well as provide the necessary work areas to support foundation installation, component assembly, crane assembly, and wind turbine erection and commissioning activities. The staging areas will occupy the lands within approximately 70 m radius of the wind turbine location. Based upon the specific conditions at each wind turbine location, the total area cleared for the staging area may be reduced. The staging areas will be cleared and levelled. Depending on site conditions, portions of the areas may be gravelled if required, in which case geotextile will be installed to facilitate gravel removal following construction activities. Temporary areas affected by construction activities will be restored to a safe and clean condition using native materials and vegetation in accordance with MNR requirements. | Excavators Bulldozers Dump trucks | Gravel Geo-textile fabric |
| Wind Turbine Foundations | Foundations will be constructed of poured concrete and reinforcing steel rebar with an estimated 19 – 20 m diameter and to a depth of approximately 4 - 6 m. The foundations are anticipated to be octagonal in shape; however final foundation designs will be determined based on site-specific geotechnical conditions as determined during geotechnical investigations undertaken in the fall of 2012. The wind turbine pedestal is approximately 5 m in diameter and is anchored to the concrete foundation using large diameter | Excavators Dozers Dump trucks Ready-mix concrete trucks Piling Machines Blasting drills/rock drills | Concrete Grounding wire grid/ probes Rebar Anchor bolts Steel Piles Forming materials Rock anchors |

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| Table 2.1 : Key Construction and Installation Activities | | | |
|--|--|-------------------------------|---|
| Activity | Description of Activities | Construction Vehicle Types | Materials Required |
| | anchor bolts. Once poured, the foundation and pedestal are backfilled to grade and compacted with select fill and subsoil from the original excavation. | | |
| | Concrete will be transported to the foundation locations from temporary concrete batch plants and poured via Ready- mix trucks. Approximately 50 truck trips will be required per foundation and pedestal, depending on final foundation design. Pending weather conditions, each foundation will take approximately three to four days to complete. | | |
| | Blasting may be required during excavations as bedrock will be encountered. Blasting will only be undertaken where necessary for construction. | | |
| | Regular inspections will be required by qualified engineering personnel during excavation to confirm that site conditions and foundation construction is consistent with the foundation design requirements. | | |
| | Grounding for the wind turbine will be provided by a grounding system installed within and/or adjacent to the concrete foundation. | | |
| Water Taking | Water taking will be required during construction for mixing concrete, for foundation construction, and dust control along access roads. | Water trucks | Suction pumpsHoses and intakes |
| | • Three water extraction points have been identified at locations where there are surface water sources with sufficient capacity to provide water requirements without affecting waterbody flows or levels. An anticipated maximum of 650,000 L of water will be taken over the course of the construction phase. Daily withdrawals are not anticipated to exceed 50,000 L. | | |
| | Water withdrawal will be made by suction pump into appropriately sized water trucks for delivery to concrete batch plants and/or dust control purposes. Given the size of the water bodies from which the water is being taken, the rate at which water is withdrawn will not exceed that required for the natural functioning of the aquatic ecosystem. This will avoid disturbances to the natural variability of the flow and levels of the sources, and ensure that the minimum flow | | |

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| Table 2.1 : Key Construction and Installation Activities | | | |
|--|---|--|---|
| Activity | Description of Activities | Construction Vehicle Types | Materials Required |
| Wind Turbine and Met Tower Assembly | and water levels of the sources is maintained or exceeded during all takings. Water reducing admixtures or curing compounds may be used to reduce the volume of water required during concrete batching and curing as determined by the concrete suppliers and/or batch plant operators. The wind turbine tower sections are assembled using moderate and heavy lift cranes. The nacelle arrives on-site assembled and is lifted into place by the heavy-lift crane. The rotor consists of the hub and three blades and can be assembled on the ground. Once assembled the rotor is hoisted into place by two or more cranes: a large crane does the heavy lifting, while smaller cranes stabilize the components as they are being lifted. Alternatively, when wind speeds or site conditions would not permit the lifting of the entire rotor, the hub and blades can be lifted and attached to the nacelle individually. Assembly and erection of the wind turbines will be undertaken over a period of approximately four months. The movement of the cranes between wind turbine sites will take place along the access roads. Depending on crane type, local terrain, and movement distance, the cranes will either moved intact between turbine sites are fully discovered and and the place between turbine sites or fully discovered and and the set of the discovere the set of the cranes will either moved intact between turbine sites are fully discovered by and and the set of the cranes between turbine sites are fully discovered and and the set of the cranes between turbine sites are and movement distance, the cranes will either moved intact between turbine sites are the partially or fully discovered and and the set of the cranes between turbine sites are the partially or fully discovered and and the set of the cranes are and the set of the cranes between turbine sites are and the set of the cranes between turbine sites are and the set of the cranes between turbine sites are beauting and the set of the cranes | Heavy lift cranes – crawler and/or wheeled Stabilizing / tailing cranes and vehicles Passenger and support vehicles Portable generators and work area lighting Support vehicles for crane movement | Temporary crane mats Wooden, fiberglass, and/or metal cribbing for component support |
| | transported between wind turbine sites via trucks. Two permanent Met towers will be erected for use during the operation phase of the Project. Temporary hub height Met towers may be erected at selected wind turbine locations during the construction phase to collect baseline data to support power performance testing. | | |
| Access Roads | Access roads will have a travelled surface width of approximately 8-12 m. Road corridors of 60 m width are being assessed to allow for micro-siting of access road locations within the corridors based on site-specific conditions. Where required due to design considerations and/or natural features, road corridors have been reduced in specific locations. | Excavators Bulldozers Dump trucks Graders Compaction equipment | Aggregate Culverts Native materials obtained in-situ or obtained from nearby licensed aggregate sources Alternatively, a geotextile may be |

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| Table 2.1 : Key Construction and Installation Activities | | | |
|--|---|---|--|
| Activity | Description of Activities | Construction Vehicle Types | Materials Required |
| | Typically, an approximately 35 m cleared width is required to construct the access roads, associated ditches and embankments, and adjacent collector lines. Where required due to design considerations or natural features, cleared areas will be reduced where possible/required or additional cleared width may be required in localized areas. In all instances the actual cleared area within the work area will be 60 m or less and will be limited to the minimum width required for safe and efficient construction of the Project. Access roads will incorporate "hammerhead" | | employed with a reduced granular material depth or a cement/soil stabilizing agent |
| | (or similar) truck turnaround areas near the wind turbine sites. | | |
| | Access roads will include turnouts and temporary snow storage areas for winter snow clearing operations. | | |
| | Surface material will be stripped, stockpiled, and reused to the extent possible. | | |
| | • Access roads have been planned in a manner that reduces the amount of land required to access the wind turbine sites, thus reducing potential effects on the existing environment. | | |
| Crane Pads | • Crane pads will be constructed at the same time as the access roads and will be adjacent to wind turbine locations (within the wind turbine staging areas). | ExcavatorsDozersDump trucks | Geotextile and aggregate material Materials excavated for foundation |
| | • Crane pads are anticipated to be approximately 20 x 30 m in size; however final crane pad design will be based upon the specific requirements of the cranes utilized for turbine assembly and erection purposes. | Compaction equipment | construction will be used where possible |
| | Surface material will be stripped, stockpiled, and reused to the extent practicable during site restoration and landscaping activities. | | |
| | After construction, the crane pads will remain in place to support any crane activities during the operations, repowering, and/or decommissioning phases of the Project. | | |
| Pad-mount Transformers | A pad-mount transformer located at the base of each wind turbine is required to increase the voltage of the electricity generated in the nacelle of each wind turbine to the collection system line voltage (i.e. 690 V to 34.5 kV). Each pad-mount transformer is mounted on a precast concrete pad adjacent to the wind turbine tower. | ExcavatorDozersSmall crane | Pre-cast or poured in place concrete vaults and pads Copper wire & grounding rods Gravel Transformers |

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| Table 2.1 : Key | Construction and Installation Activities | | |
|-----------------|---|--|---|
| Activity | Description of Activities | Construction Vehicle Types | Materials Required |
| | A small crane is used to lift the pad-mount transformer into place.All power cables entering/leaving the pad- | | |
| | mount transformer are located underground along with a ground grid consisting of copper wire and ground rods | | |
| Collector Lines | wire and ground rods From each pad-mount transformer, a combination of 34.5 kV underground and overhead collector lines carry the electricity to the Project's TS. Collector lines will generally follow the access roads where practical to reduce the required construction area and minimize potential effects. Underground collector lines will be installed either immediately to one side of access roads, just off the graveled surface, or within the road itself (to a depth of approximately 1 m). Overhead lines, used where burying cables is impractical or technically not preferred, will be constructed on monopole structures. Collector lines within the corridors. Where required due to design considerations and/or natural features, collector line corridors have been reduced in certain locations. Where collector lines are located adjacent to a permanent access road will be located within an approximately 35m cleared width located inside the assessed 60m wide | Excavator Trencher Direct burial cable installer Utility bucket truck Auguring truck Pole trailer Reel stand vehicles Conductor puller vehicle Tensioner vehicle | Utility poles Concrete Sand Gravel |
| | Where a collector line segment is not located adjacent or within an access road, an approximately 20 m cleared width is required. Construction of collector lines that are not located adjacent to a permanent access road will require the construction of a temporary construction trail to support collector line installation during the construction period. The temporary construction trail will be approximately 6m wide (within the required 20 m cleared width) and designed for temporary construction use only. Temporary trail construction will be limited to grading along the trail route and will not require the installation of a permanent road base. If large spans are required to cross a water body, taller poles or | | |

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| Table 2.1 : Key | Construction and Installation Activities | | |
|-----------------|--|---|--|
| Activity | Description of Activities | Construction Vehicle Types | Materials Required |
| | multi-pole structures may be used. Where water crossings are required for collector lines, crossings will be either overhead or underground, depending on local terrain and geotechnical conditions. Depending upon ground conditions, depth of bedrock, and amount of natural overburden, underground cables may be direct buried or installed in high density polyethylene conduit. | | |
| Station | The power generated by the wind turbines will be delivered to the TS via the collector lines and then stepped-up from 34.5 kV to 115 kV and enter the existing Great Lakes Power Transmission LP ("GLPT") transmission system. The TS will be located on a prepared area of approximately 95 x 155 m located within the Construction Compound located in the northeast area of the Project. Surface material will be stripped, stockpiled and reused to the extent possible. The TS area will be graded to allow construction of concrete foundations and placement of gravel. An electrical grounding grid, consisting of a crisscross grid of copper wires buried approximately 0.5 m below finished grade, plus copper ground rods driven to about 6 m in depth, will be installed throughout the TS yard, to which the TS equipment will be grounded. The TS consists primarily of two (2) 50 MVA power transformers, 34.5 kV and 115 kV circuit breakers and disconnect switches, surge arrestors, instrument transformers, revenue meters, a protection and control building along with associated foundations to mount the afore mentioned equipment. A chain link fence with barbed wire top will be equipped with locked vehicle gates to maintain public safety and allow for maintenance access. The two power transformers as well as precipitation. | Tandem truck pole carrier equipped with integral crane Truck or track mounted pole auger Excavator Bulldozer Dump truck Gravel trucks Ready-mix concrete trucks Cranes | Engineered fill and crushed stone Concrete Chain link fence Grounding grid Electrical transformers & spill containment Wooden and steel gantry and pole structure |

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| Table 2.1 : Key | Construction and Installation Activities | | |
|---|--|---|--|
| Activity | Description of Activities | Construction Vehicle Types | Materials Required |
| | | | |
| Construction Compounds | Temporary construction compounds will be located at the sites shown on the Project Site Plan and include a construction compound surrounding the site of the TS, as well as a construction compounds associated with the location of Project welfare buildings for the purpose of: Contractor and Owner's, sanitary, and communication infrastructure; Parking areas for contractors; Portable generators and other small engine equipment; Water and rinsing facilities (water to be brought in by tanker); Equipment storage and maintenance area; Storage of approved temporary fuel tanks, in properly sized spill containment structures; Temporary waste and recycling collection containers; Temporary toilet facilities – self-contained with no on-site disposal (additional facilities will be located throughout the Project Location); Laydown areas for materials, equipment, wind turbine components, cabling. Temporary concrete batch plants and associated stockpiles of aggregates and materials required for the production of concrete during the construction period. | Excavators Dozers Dump trucks Gravel trucks Ready-mix concrete trucks Compaction equipment Personnel transport vehicles Cranes | • Engineered fill and crushed stone |
| Operations and Maintenance Building and Welfare Buildings | The Operations and Maintenance building will be constructed on the site of the construction compound adjacent to the TS. The building will permanently house offices, workshop, parts and vehicle storage, septic system, water well, storage yard, and other ancillary facilities. Two welfare buildings will be constructed within the Construction Compounds identified in the central and southern portions of the Project One welfare building will be located | Excavator Bulldozer Boom truck Passenger and delivery vehicles | Engineered fill and crushed stone Concrete Chain link fence Conventional building materials |

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| Table 2.1 : Key Construction and Installation Activities | | | | | | |
|--|---|-------------------------------|--------------------|--|--|--|
| Activity | Description of Activities | Construction Vehicle Types | Materials Required | | | |
| | at the intersection of Mile 67 Road and the road leading to Turbine 6 | | | | | |
| | The second building will be located east of Trim Lake Road, on the main access road to wind turbines 32-39 | | | | | |
| | The welfare buildings will serve as tool and small equipment storage and shelter areas during construction and operation. | | | | | |

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2.1 MATERIAL AND LABOUR REQUIREMENTS

The estimated materials brought on site or generated within the site for the construction and installation of the various Project components (e.g., access roads and foundations) are outlined below. Additional materials brought on site include Project infrastructure described above such as wind turbines and transformers and construction vehicles. It is anticipated that the following quantities of materials may be required for the construction of the Project:

- Granular Fill 100,000 m3
- Concrete 20,000 m3

Hazardous materials to be used during the course of construction include conventional fuels, lubricants, and fluids that are required for use in construction equipment. These materials will be stored in appropriate storage units during the construction phase of the Project by the Construction Contractor. Designated storage unit areas and the type of storage units will be confirmed by the Construction Contractor prior to construction. Fueling of construction vehicles will take place within designated fueling areas such as the construction compounds.

It is envisioned that a significant proportion of the peak labour force may be supplied through local and neighbouring communities and out of town workers can be housed and supported by existing local businesses and services. Consequently, no additional special housing, healthcare, or food facilities will be required as part of the Project's activities.

2.2 COMPONENT TRANSPORTATION TO THE GENERAL AREA

Transportation of the wind turbine components and related construction equipment to the Project site will be the responsibility of the wind turbine supplier, the Construction Contractor, or their designates. A transportation study will be completed to determine the route of the wind turbine components to the Project Location. Along the component transportation route, intersections may require road widening to accommodate the turning radius of the transport vehicles (to be determined as part of the transportation study). As appropriate, the Proponent, wind turbine supplier, and the Construction Contractor will acquire the key permits from local or provincial transportation agencies for any road upgrades or other uses required for component transportation.

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2.3 TIMING AND CONSTRUCTION PLANS

| Phase Details | Schedule | |
|---|---|--|
| Surveying and Flagging | June 2013 - August 2013 | |
| Delivery of construction materials, site preparation, construction of access roads and crane pads | August 2013 – December 2013 | |
| Installation of wind turbine foundations | April 2014 – August 2014 | |
| Wind turbine erection | June 2014 – Sept. 2014 | |
| Installation of electrical components | September 2013 – June 2014 | |
| Reclamation of temporary work areas, final grading, soil/vegetation replacement | Aug 2014 – Dec. 2014 | |
| Commercial Operation | Aug 2014 (Ph. 1), October 2014 (Ph. 2) | |

Note: Construction activities will generally take place during 07:00 and 21:00, six to seven days per week. In the event changes are required to the proposed construction schedule, updated construction milestones can be provided to the public through postings on the Project website (www.bluearthrenewables.com/bowlakewind). The construction schedule is based on current knowledge of process and timelines at the date of writing this report.

2.4 TEMPORARY USES OF LAND

As identified above in Table 2.1, lands to be temporarily used during the construction of the Project include: construction compounds; construction areas surrounding infrastructure (e.g. wind turbine staging areas) that are required to support installation works; concrete batch plants; and water extraction points. The MNR will issue a Land Use Permit during the construction phase for the Crown lands included in the footprint of the project construction including new access road and collector line corridors, turbine locations, TS area, operations and maintenance building and welfare building areas, and construction compounds. The requirements for these temporary areas including upgrades and restoration are described above.

Details on the disposition of Crown lands occupied by the permanent Project infrastructure is provided in **Appendix B**.

2.5 WASTE MATERIAL DISPOSAL

Waste materials brought to the site that will require removal include: equipment packaging, scrap materials as a by-product of construction (e.g., wood, metals, and plastics), fuels, and other lubricants. These materials will require reuse, recycling, and/or disposal at an appropriate MOE or MNR approved off-site facility.

Sanitary waste generated during the construction phase will be collected via portable toilets and wash stations supplied by a licensed third party who will be retained prior to the start of major construction activities.

Soil excavated for installation of infrastructure will be re-used on site as feasible. Although not anticipated, if soil disposal on-site is not feasible, the soil will be disposed of at an approved off-site facility to be determined by the Construction Contractor. In the very unlikely event that contaminated soil is encountered during the course of excavations, the contaminated material will be disposed of in accordance with the applicable provincial legislation (e.g. Ontario Regulation 347, General – Waste Management Regulation).

There will be no long-term on-site storage of waste during the construction of the Project and final disposal or recycling of waste will be conducted by a third-party contractor at an approved facility.

2.6 ACCIDENTAL SPILLS

Standard containment facilities and emergency response materials (i.e., spill kits) will be maintained on-site as required. Refuelling, equipment maintenance, and other potentially contaminating activities will occur only in designated areas such as construction compounds and will not occur within 30 metres of watercourses.

In the event of an accidental discharge of fluids associated with Project construction, the Construction Contractor will immediately stop work in the immediate area and rectify the accidental discharge. Once the discharge is stopped and contained, the Contractor will assess the extent of the contamination and remove contaminated soil and dispose of it in accordance with the current appropriate provincial legislation. In the event of a spill reaching a waterbody, containment booms will be deployed and the contained fluids will be removed from the water surface by vacuum truck or other appropriate method. Any contaminated shoreline soils or sediments will be removed and disposed of in accordance with applicable provincial legislation and as determined in consultation with the MNR and DFO as required.

The Emergency Response Plan will contain procedures for spill contingency and response plans, spill response training, notification procedures, and necessary clean-up materials and equipment. As per s.13, 15 and 92 of the *Environmental Protection Act*, all releases that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels, will be reported to the MOE's Spills Action Centre in accordance with MOE requirements.

3.0 Potential Effects and Mitigation Measures

The following construction-specific potential effects, mitigation measures, monitoring, and contingency plans have been analyzed to determine the potential for net negative environmental effects that may result from construction/installation activities within the Zone of Investigation (**Table 3.1**).

A description of the existing natural environment is provided within the **Natural Heritage Assessment/Environmental Impact Study** ("NHA/EIS"), **Heritage and Archaeological Report**, and **Water Assessment and Water Body Report**. Where a significant natural feature is located within the Zone of Investigation (as mapped within the reports referenced above), a detailed analysis of the potential effects is provided in the **NHA/EIS** and **Water Assessment and Water Body Report**.

Unless otherwise designated to a qualified third party, the Construction Contractor will be the primary party responsible for the implementation of construction effects monitoring. Implementation of these measures would be undertaken in compliance with applicable provincial and federal standards and guidelines and arrangements with the BFN. Potential effects associated with accidental spills will be mitigated and responded to in accordance with the information contained above in Section 2.6.

| Table 3.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction | | | | | | |
|--|---|--|---|---|--|--|
| Environmental Feature | Potential Effect | Performance Objective | Mitigation Strategy | Monitoring Plan and Contingency Measures | Net Effects | |
| Heritage and Archaeological Res | ources | | | | | |
| Protected Properties and Heritage Resources | No direct or indirect potential effects are anticipated. No heritage resources are known to occur in the Project Location, including those associated with the Group of Seven. Therefore no negative effect is anticipated to occur related to construction of the Project. | Minimize potential effects to protected properties and heritage resources. | Cluster wind turbines and locate wind turbines away from immediate Lake Superior coastline area. The Project Location is not on, or adjacent to, any designated heritage properties. Completion of cultural ceremonies by the BFN | No additional measures are warranted in addition to the identified mitigation measures. | No net effects are anticipated. | |
| Archaeological Resources | Encountering non-documented archaeological resources. | Document and/or remove (as appropriate) archaeological resources from the Project Location prior to construction. | A pre-construction Stage II Archaeological Assessment was conducted. The assessment revealed no archaeological resources within the Project Location. In the event that archaeological resources are encountered during construction, all work within the vicinity of an archaeological find will be temporarily suspended. The BFN and the Ministry of Tourism, Culture, and Sport archaeologist would be contacted and the appropriate protocols implemented. | In the event that human remains are encountered before or during construction, all work would stop immediately. Notification would then be made to the Ontario Provincial Police or local police and the BFN. | No net effects to known archaeological resources are anticipated during construction. | |
| Natural Heritage Resources | | | | | | |
| Provincially Significant Wetlands | Degradation of wetland through changes in water flow or surface water contamination. Degradation of wetland through sedimentation. | Prevent contamination via surface flow during construction activities. Maintain existing surface water flow patterns. Prevent contamination by sediment and erosion. | No Project components are located within the boundaries of Provincially Significant Wetlands Vehicle refueling or washing and chemical storage will be located more than 30m from wetlands. Maintain vegetative buffers around wetlands. Where construction activity occurs within 30 m of a wetland, the construction area should be clearly delineated with protective fencing. Re-vegetate disturbed areas with fast growing native species as soon as practicable after construction activity within the disturbed areas is complete. Minimize grading activities to maintain existing drainage patterns as much as possible. Maintain surface flow patterns to wetlands by installing properly designed and located culverts under access roads and other areas as required. Implement Sediment and Erosion control measures (described in the NHA/EIS). Stockpile materials >30m from wetland edge. Where this is not possible, stockpiles will be covered when not in use, especially during rain events or high wind events. | Maintain emergency spill kits on site. Implement MOE spill action plan if necessary. Dispose of waste material by authorized and approved off-site vendors. Seeded areas will be monitored to ensure that seed establishes in areas of disturbance within one growing season. Monitor seeded areas in late spring of year two. Reseed areas where seed does not adequately establish to ensure stabilizing vegetative cover is achieved within the growing season. Construction Supervisor to regularly monitor locations with erosion and sediment control measures have been installed, particularly when inclement weather events anticipated (i.e., high winds/rain events). Sediment will be removed if it is found to accumulate. Construction Supervisor to regularly monitor culvert installations to ensure flow conveyance, with no restrictions or ponding. If covers over stockpile material are found not to be effectively preventing sediment transport, additional erosion control measures will be employed as necessary. | No significant net effects are anticipated. | |
| Areas of Natural and Scientific | As no Areas of Natural and Scientific Interest were identified, there are no anticipated offects | • N/A | Not required | Not required | None | |
| Significant Valleylands | Significant Valleylands have development prohibitions only on lands that are located south and east of the Canadian Shield. The Project location is situated on the Canadian Shield, therefore this environmental feature is not applicable to the Project. Significant Woodlands have development | • NA • NA | Not required Not required | Not required Not required | None None | |

| Table 3.1: Potential Environme | ntal Effects and the Environmental Effects Monitoring | Plan during Construction | | L | 1 |
|--|---|---|--|---|--|
| Environmental Feature | Potential Effect | Performance Objective | Mitigation Strategy | Monitoring Plan and Contingency Measures | Net Effects |
| | prohibitions only on lands that are located south and east of the Canadian Shield. The Project location is situated on the Canadian Shield, therefore this environmental feature is not applicable to the Project. | | | | |
| Provincial Parks and Conservation Reserves | Lake Superior Provincial Park is located north of the Project Location (on the north side of the Montreal River). The Project will be visible from select vantage points within the Park. An addition (P292) to Lake Superior Provincial Park (LSPP) is located within 120 m of the Project Location. P292 is located west of Highway 17, and across the highway from the entrance to Dump Road. | No Project infrastructure within a Provincial Park or Conservation Reserve. | The Project Location is not within any Provincial Park or Conservation Reserve. An addition to Lake Superior Provincial Park is located outside the Project Location, but within the ZOI. Site Investigation and consultation with the Park Superintendent confirmed that there are no potential indirect impacts. Cluster wind turbines south of the Montreal River and minimize vegetation clearing to help retain viewscape. | Not required | • None |
| Significant Wildlife Habitat (includes seasonal concentration areas, specialized habitat for wildlife, and habitat for species of special concern) | Disturbance and/or mortality to wildlife. Habitat avoidance/disturbance caused by construction activities, (noise and dust). Loss and/or degradation of habitat through clearing and surface flow contamination. Loss of rare plants and rare plant habitat. Changes in surface water flow patterns may effects composition of upland and wetland vegetation. | Minimize habitat avoidance/disturbance caused by noise and dust generation. Prevent contamination via surface flow during construction activities. Minimize the likelihood of construction vehicle strikes to wildlife Minimize clearing and degradation of significant wildlife habitat. Minimize removal of rare plants and clearing in forest in identified habitat. | Implement Sediment and Erosion control measures (described in the NHA/EIS). Implement dewatering measures as described in the NHA/EIS. Vehicle refueling or washing and chemical storage will be located more than 30m from significant wildlife habitat. Restrict vehicle traffic to daytime hours, and limit speeds to 30 km or less on roads near sensitive habitat such as amphibian breeding ponds (including signage). Where construction activity occurs within 30 m of a naturally vegetated feature, the construction area should be clearly delineated with protective fencing. Re-vegetate disturbed areas with fast growing native species as soon as practicable after construction activity within the disturbed areas is complete. Conduct tree/brush clearing outside the core waterfowl nesting season and bird nesting season (May 5-August 8). Conduct nest searches if vegetation removal will occur during the breeding bird season. Mark in the field, and fence as appropriate, amphibian breeding ponds within 30 m of construction areas. Minimize site disturbance and alterations to surface drainage patterns in vicinity of amphibian breeding ponds. Utilize restricted construction timing when feasible in the vicinity of significant wildlife habitat areas, to minimize impacts during critical life cycles. Use exclusionary fencing and animal handling protocols when construction occurs during critical life cycle periods. Maintain surface flow patterns to wetlands by installing properly designed and located culverts under access roads and other areas as required. Mark in the field, and fence as appropriate habitat for Ovel loaved hiberry. Perced bedetry and provide protocols when construction occurs during critical life cycle | Maintain emergency spill kits on site. Implement MOE spill action plan if necessary. Dispose of waste material by authorized and approved off-site vendors. Seeded areas will be checked to ensure that seed grows in areas of disturbance within one growing season. Replant areas where seed does not grow to ensure vegetation establishes within the growing season. Locations with erosion and sediment control measures will be checked when inclement weather events anticipated (i.e., high winds/rain events). Sediment will be removed if it is found to accumulate. Implementation of monitoring as prescribed in the Vegetation Monitoring Plan (see NHA/EIS): Monitoring will be for one full season, postmanagement, or until no additional effort is required to achieve management objectives. Construction Supervisor to regularly monitor culvert installations to ensure flow conveyance, with no restrictions or ponding. | No significant net effects are anticipated. |

| Table 3.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction | | | | | | |
|--|---|--|--|---|---|--|
| Environmental Feature | Potential Effect | Performance Objective | Mitigation Strategy | Monitoring Plan and Contingency Measures | Net Effects | |
| | | | Braun's holly fern within/adjacent to construction areas. Minimize construction in habitats of rare plants and avoid core areas as identified in the NHA. Minimize site disturbance and alterations to surface drainage patterns in vicinity of rare plant habitats. Implement Natural Areas Management Strategy (described in the NHA/EIS) | | | |
| Water Bodies and Aquatic Reso | urces | 1 | | | | |
| Groundwater | Groundwater encountered during excavation resulting in high pumping/removal requirements | Minimize groundwater withdrawal requirements No net effects on groundwater quality or quantity. | Seepage and runoff into excavated areas is anticipated to be nominal and controllable with standard sump pumps. Any water pumped from excavated areas will be directed away from natural features, including wetlands in a diffuse manner that prevents erosion. Withdrawal amounts are anticipated to be below the MOE Permit to Take Water threshold of 50,000 L/day and are not anticipated to have an effect on local groundwater levels. | No additional measures are warranted in addition to the identified mitigation measures. | It is anticipated any potential effects would be short term in nature and have little to no effect on groundwater quality and quantity. | |
| Surface Water, Fish, and Fish Habitat | Surface water extraction in amounts that would negatively affect base flow conditions. General construction related impacts to water bodies may include the following: Short-term increase in turbidity from runoff and soil erosion during construction; Loss of shade; Reduced bank stability; Reduced allochthonous inputs; and Water quality and habitat disturbance effects to aquatic habitat. Component -specific potential impacts are presented in Section 4.0 of the Water Assessment and Water Body Report. | Minimize the amount of water takings required. Minimize the amount of inwater work. Minimize effects to fish and fish habitat. | No wind turbines have been located within 30 m of the average annual high water mark of a lake or a permanent or intermittent watercourse. Water extraction points will be located at static water sources (lakes) or the Montreal River where there are sufficient volumes to provide water requirements without affecting waterbody flows or levels or fish and fish habitat. No more than 50,000 L/day will be extracted from surface water sources. Water takings related to dust suppression to take place only during excessively dry periods when construction traffic is high. Additional mitigation measures related to each Project component are presented in Section 5.0 of the Water Assessment Report and Water Body Report. | If it is determined that the total water takings for the Project will exceed 50,000 L/day, additional consultation with the MOE will be undertaken. It is anticipated that in such a case, water takings would be divided between the proposed water taking locations, such that no more than 50,000 L/day would be taken from an individual water source. Environmental monitoring will occur as necessary during construction. Specific monitoring activities are presented in Section 6.0 of the Water Assessment and Water Body Report (e.g. ensure installation and maintenance of silt/sediment control measures through regular monitoring) | Any net effects are expected to be short-term in duration and highly localized. | |
| Air Quality and Environmental N | loise | l | | | | |
| Air Quality | Emissions from construction equipment. Short-term nuisance dust effects. | Minimize duration and magnitude of emissions. | Operate vehicles in a manner that reduces air emissions to the extent practical, including: Using multi-passenger vehicles wherever possible; Avoid idling vehicles; and Equipment and vehicles will be maintained in a manner that reduces air emissions. Protect stockpiles of friable material with a barrier or windscreen and in the event of dry conditions and excessive dust. Monitor road conditions and apply dust suppressant (e.g., water or calcium) along access roads. | Any vehicles identified by the Construction Contractor that require maintenance to ensure appropriate exhaust emissions will be repaired immediately or replaced as soon as practical. The Construction Contractor will be responsible for monitoring dust conditions as part of on- going construction monitoring and inspection. Where dust emissions related to vehicle operation result in reduced visibility conditions, thus resulting in a safety concern for workers and other vehicle operators, or where excessive amounts of dust have the potential to drift to adjacent potential receptors, the Construction Contractor will ensure dust control measures are implemented. | Any net effects are expected to be short-term in duration and highly localized. | |

| Table 3.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction | | | | | |
|--|--|---|---|---|--|
| Environmental Feature | Potential Effect | Performance Objective | Mitigation Strategy | Monitoring Plan and Contingency Measures | Net Effects |
| Environmental Noise | Noise emitted from construction equipment. | Minimize noise emissions to a reasonable extent. Noise levels arising from equipment to be compliant with sound levels established by the MOE. | All engines associated with construction equipment will be equipped with mufflers and/or silencers in accordance with MOE and/or Ministry of Transportation ("MTO") guidelines and regulations. Routine maintenance will be undertaken as required to ensure equipment is operating properly and efficiently. | Any vehicles identified by the Construction Contractor, which require maintenance to the exhaust or other noise abatement systems, will be repaired immediately or replaced/updated as soon as practicable. | Any net effects are expected to be limited to short-term, intermittent noise increases at the work areas and/or along the haul routes. As the nearest noise receptor is located a considerable distance from the Project, noise emissions associated with the construction of the Project are not expected to result in significant effects on local receptors. |
| Land Use and Socio-Economic R | lesources | | | | |
| Agricultural Lands | As no agricultural lands are present within or near the Project Location, there are no anticipated effects. | • N/A | Not required | Not required | • None |
| Mineral, Aggregate, and Petroleum Resources | Depletion/misuse of local aggregate supplies. No active mining claims are known to exist within the Project Location. As there are no known petroleum resources within the Project Location, there are no anticipated potential effects. | Utilize aggregate resources in accordance with the <i>Aggregate Resources Act.</i> | Aggregate material for Project construction will be extracted from three pits and one quarry, all permitted under <i>the Aggregate Resources Act</i>. One pit (Radon Pit) is located on private land (Aggregate License #625256). Two other pits have Crown Permits (Permit #'s 625249, and #625250). The quarry also has a Crown Permit (#625248). Additional supplies may be obtained from off-site locations depending upon the quality and quantity of resources available on-site. | Not required | • None |
| Game And Fishery Resources | Disturbance to game and fishery resources from construction activities. Creating access to previously inaccessible areas. Temporarily limiting access to lands for hunting and fishing purposes. | Minimize disturbance to game and fishery resources. Minimize effects of access improvements or restrictions. | Hunting and other recreational uses will not be permitted adjacent to work sites during construction as it would be unsafe due to the large construction equipment on-site and safety of the workers. Minimize the length of time required to construct the Project, thus limiting the temporal effects of construction disturbance and restrictions to previously accessible areas. Routine maintenance to ensure equipment is operating properly and efficiently, thus limiting potential noise disturbance to game resources. Access to previously inaccessible areas has been minimized to the extent practical through the use of existing roads and trails for Project access (e.g., Dump Road). | None required. | The net effect of limiting access to land due to safety concerns and potential disturbance to game resources will be temporary and spatially limited. |
| Provincial Plans, Policies, and Recreation Areas | The Project complies with the MNR's Crown Land Use Policy Atlas for the area. There are no designated recreation areas within the Project Location. | • N/A | None required | None required | • None |
| Local Traffic | Increase in traffic along Highway 17. Increase in traffic along existing and new roads on Crown land. | Minimize disturbance to local traffic. | There may be instances where oversized loads (e.g., turbine components) will require special traffic planning. As appropriate, the Construction Contractor will | • None | A limited, short term effect on local traffic is anticipated, but will be managed through the |

| Table 3.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction | | | | | |
|--|--|---|---|---|--|
| Environmental Feature | Potential Effect | Performance Objective | Mitigation Strategy | Monitoring Plan and Contingency Measures | Net Effects |
| | | | implement a Traffic Management Plan. Contractors will abide by local traffic laws and speed limits, employ any required traffic safety measures for oversized loads, and will use safe, defensive driving practices. | | implementation of a Traffic Management Plan. |
| Local Economy | Increase in direct, indirect, and induced employment. Local economic benefits from local expenditures including, but not limited to materials, labour, equipment, lodging, meals, and other services. | Create positive effects on local economy. | The FiT contracts held by the Project require that the Project meet minimum requirements for investment in Ontario goods and services providers. To the extent possible, the Proponent will source required goods and services from qualified local suppliers provided they are competitively priced, available in the appropriate quality and quantity, and with the necessary experience. | None required. | A positive net effect is anticipated on the local economy during construction of the Project. It is expected that on average 60-80 persons may be directly employed during the construction period. |
| Viewscape | Viewscape from areas surrounding the Project Location will be altered due to the presence of construction equipment and personnel along with changes to the physical landscape. | Minimize potential for visual disturbance. | Wind turbines are set back from the Lake Superior shoreline, reducing their visibility from local vantage points along Highway 17. The forested nature of the local landscape effectively assists the screening of the Project from view from many potential vantage points. | • None | There will be a net effect (positive or negative - based on individual perceptions) due to the change in viewscape of the surrounding area. |
| Existing Infrastructure | | | | | |
| Provincial and Municipal Infrastructure | Wear on local roads due to additional traffic. | Minimize effects to local roads. | The MTO will be consulted regarding any necessary agreements related to use of roads under their jurisdiction for transportation of Project materials, in addition to obtaining the required permits for use of provincial highways. Where possible, higher capacity roads (e.g., provincial highways) will be used for heavy loads. Upgrades to existing public accesses as required to support construction activities. Installation of new access roads on Crown land as required to support construction activities. | To be determined in consultation with the MTO and MNR. | Wear on local roads is anticipated to be minimal; however any excessive road damage will be repaired by the Proponent in consultation with the MTO and MNR. Project will result in the creation of and upgrades to public road infrastructure on Crown lands. |
| Navigable Waters | Project is likely to cross potentially navigable waterways (via electrical collector lines) | Minimize effects on navigable waterways | Confirmation of the presence of navigable waterways will be obtained from Transport Canada/Ministry of Natural Resources and permits (if required) will be obtained prior to construction. | To be identified as part of any permits (if required). | Following the implementation of any required measures identified by MNR or Transport Canada, no net effects on Navigable Waters are anticipated. |
| Telecommunication and Radar Systems | Potential to interfere with telecommunication and radar systems. | Minimize interference with telecommunication and radar systems. | The Proponent has and will continue to consult with relevant agencies to identify anticipated effects to telecommunication and radar systems including Environment Canada with respect to the Montreal River Weather Radar Station. In the event that substantive signal disruption is experienced, the Proponent will meet with the owner of the system to discuss reasonable potential options for mitigation. | The Proponent will review potential incidents of telecommunications and radar interference on a case by case basis. | During the construction phase of the Project, no anticipated significant net effects to telecommunication/ radar systems are anticipated. |
| Aeronautical Systems | Aeronautical obstruction. | Minimize potential hazard to low flying aircraft. | Once the turbines are erected (and prior to operation), turbine lighting will conform to Transport Canada standards. | • None | No significant net effects to aeronautical systems are anticipated. |

| Table 3.1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction | | | | | |
|--|--|---|---|---|--|
| Environmental Feature | Potential Effect | Performance Objective | Mitigation Strategy | Monitoring Plan and Contingency Measures | Net Effects |
| | | | Nav Canada will be responsible for updating all aeronautical charts with the turbine locations. | | |
| Public Health and Safety | | | | | |
| Public Health and Safety | Potential traffic safety hazards. Safety hazards due to accidents and malfunctions. | Minimize traffic safety hazards. Minimize potential for accidents or malfunctions. | As required by MTO, certain non-conventional loads will require front and rear escort or "pilot" vehicles to accompany oversize load movements on public roads. MTO notification of non-conventional load movements will be provided as required by MTO. Implementation of a Traffic Management Plan and a Health and Safety/Emergency Response Plan. Construction Contractor will adhere to the Proponent's safety policies. The Construction Contractor will employ good site safety practices. Safety signage will be installed along roads leading into the site to advise members of the public of the associated dangers of the construction activities, which are similar to those experienced at any typical construction site. For safety reasons members of the public will be temporarily prohibited from entering areas where construction work is underway. | Design of the Emergency Response Plan with local emergency services personnel. If required, the Proponent would participate in a training session for local emergency services personnel workers. In order to allow continued access for members of the public to Crown lands, alternate, existing access routes may be described in the signage where practical. | With adherence to safety policies and procedures, significant net effects to public health and safety are not anticipated. |

4.0 Construction Environmental Management Plan

Although not a requirement of O. Reg. 359/09, the Proponent in consultation with the Construction Contractor will prepare a Construction Environmental Management Plan ("CEMP"), or similar, prior to the initiation of any substantive on-site construction works the CEMP would apply to all construction activities, and would be designed to prevent environmental incidents and minimize potential adverse environmental effects, while enhancing the Project's benefits.

The CEMP would be based upon the potential environmental effects, mitigation measures, and monitoring plans identified in this Construction Plan Report, and related reports to be submitted as part of the REA application. In addition, the Construction Contractor and contractors would be made aware of the environmental commitments contained in this Report and supporting studies to ensure the commitments are implemented.

The Project CEMP is anticipated to include the following plans:

- Fire Prevention and Preparedness Plan
- Hazardous and Non-Hazardous Waste Management Plan
- Health and Safety Plan
- Emergency Response and Communications Plan
- Training Plan and
- Complaint Response Protocol.

5.0 Closure

This Construction Plan Report for the Project has been prepared by Stantec for the Proponent in accordance with Item 1, Table 1 of O. Reg. 359/09, the MNR's *APRD*, and the MOE's *Technical Guide to Renewable Energy Approvals*.

This Report has been prepared by Stantec for the sole benefit of the Proponent and may not be used by any third party without the express written consent of the Proponent. The data presented in this Report are in accordance with Stantec's understanding of the Project as it was presented at the time of reporting.

STANTEC CONSULTING LTD.

Mark Kozak Project Manager

Rob Nadolny Project Director

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6.0 References

- Ontario Ministry of the Environment. As amended. Technical Guide to Renewable Energy Approvals.
- Ontario Ministry of Natural Resources. 2009. Approval and Permitting Requirements Document for Renewable Energy Projects. Available online at: http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@renewable/documents/doc ument/277097.pdf
- O. Reg. 359/09. 2012. Ontario Regulation 359/09 made under the Environmental Protection Act Renewable Energy Approvals Under Part V.0.1 of the Act.

Stantec BOW LAKE WIND FARM CONSTRUCTION PLAN REPORT

Appendix A

Figures



| 1.11 | | d | |
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| mil | Legen | | |
| | 1 | Study Area | |
| | Lj | 120m Zone of Investigation | |
| | Projec | t Components | |
| S N D C | 22360(| Turbine Location | |
| 2 AS | | Gate Location | |
| 51200 | | Meteorological Tower | |
| | • | Proposed Water Extraction Locatio | n |
| SK PP | I — | Access Road (New) | |
| 3 32 | I — | Access Road (Upgrade) | |
| 276 | | Overhead/Underground Collector L | ine |
| SALLY COVA | | Access Road Corridor | |
| | 8 | Collector Line Corridor | |
| NUKMI (C) | 23400 | Construction Compound | |
| | | Construction Compound & Welfare | Building |
| | | Construction Compound & Transfor Station/Operations & Maintenance | rmer Building |
| | Existi | ng Features | |
| 1 Paleilla | | Expressway / Highway | |
| Carlos Carlos | | Road | |
| 1205 | | Elevation Contour | |
| | | Existing Transmission Line | |
| | 32000 | Watercourse | |
| De Star | 23 | Waterbody | |
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| OR | Limited | d Partnership, through their General | Partners |
| | Shong | wish Nodin Kitagan GP Corp. and S | hongwish |
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| 00 2 | ° Proj | ect Location & Study A | Area - |
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120m Zone of Investigation Project Components Turbine Location Gate Location \bigcirc Meteorological Tower Proposed Water Extraction Location Access Road (New) Access Road (Upgrade) ----- Overhead/Underground Collector Line Access Road Corridor Collector Line Corridor Turbine Sweep Area Turbine Laydown Area Construction Compound Construction Compound & Welfare Building Construction Compound & Transformer Station/Operations & Maintenance Building Existing Features Expressway / Highway ----- Road Elevation Contour — Existing Transmission Line Watercourse Waterbody Patent Land Vegetation Community Boundary Wetlands (delineated by Stantec - SWET) Previously Significant Wetland - PSW Previously Evaluated Wetland - Non-PSW Previously Unidentified Wetland ZZ Previously Unidentified Wetland Recommended for Inclusion in PSW Wildlife Habitat – Seasonal Concentration Areas Snake Hibernaculum (SH) Turtle Overwintering Area (TWA) Wildlife Habitat – Rare Vegetation Communities or Specialized Habitat for Wildlife Moose Aquatic Feeding Area (MAFA) Waterfowl Nesting Area (WNA) Canada Warbler Habitat (CWH) Olive-sided Flycatcher Habitat (OFH) Attributes Supporting Significant Wildlife Habitat ▲ Seep Boreal Bedstraw Braun's Holly Fern Oval-leaved Bilberry Amphibian Breeding Habitat – Woodlands (ABHW) Species of Conservation Concern or Rare Birds Marsh Bird Breeding Habitat (MBBH) ABHW-1 Black text, white halo = Confirmed Significant Feature White text, grey halo = Assumed Significant Feature Notes es Coordinate System: NAD 1983 UTM Zone 16N Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013. Orthographic imagery provided by © USGS, 2013. Imagery taken in 2008. Breeding ponds in woodland habitats assumed throughout Zone of Investigation (not il Foresited breeding habitats throughout Zone of Investigation (not illustrated) Stantec January 2013 160960771 Client/Project Bow Lake Wind Farm Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, through their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp. igure No. 2.3 Significant Natural Heritage **Features and Attributes**





Significant Natural Heritage **Features and Attributes**





Legend

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Turbine Location Gate Location \bigcirc Meteorological Tower Proposed Water Extraction Location Access Road (New) Access Road (Upgrade) ----- Overhead/Underground Collector Line Access Road Corridor Collector Line Corridor Turbine Sweep Area Turbine Laydown Area Construction Compound Construction Compound & Welfare Building Construction Compound & Transformer Station/Operations & Maintenance Building Existing Features Expressway / Highway ----- Road Elevation Contour Existing Transmission Line Watercourse Waterbody Patent Land Vegetation Community Boundary Wetlands (delineated by Stantec - SWET) Previously Significant Wetland - PSW Previously Evaluated Wetland - Non-PSW Previously Unidentified Wetland ZZ Previously Unidentified Wetland Recommended for Inclusion in PSW Wildlife Habitat – Seasonal Concentration Areas Snake Hibernaculum (SH) Turtle Overwintering Area (TWA) Wildlife Habitat – Rare Vegetation Communities or Specialized Habitat for Wildlife Moose Aquatic Feeding Area (MAFA) Waterfowl Nesting Area (WNA) Canada Warbler Habitat (CWH) Olive-sided Flycatcher Habitat (OFH) Attributes Supporting Significant Wildlife Habitat ▲ Seep Boreal Bedstraw Braun's Holly Fern Oval-leaved Bilberry Amphibian Breeding Habitat – Woodlands (ABHW) Species of Conservation Concern or Rare Birds Marsh Bird Breeding Habitat (MBBH) ABHW-1 Black text, white halo = Confirmed Significant Feature CWA-1 White text, grey halo = Assumed Significant Feature IS Coordinate System: NAD 1983 UTM Zone 16N Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013. Orthographic imagery provided by © USGS, 2013. Imagery taken in 2008. Breeding ponds in woodland habitats assumed throughout Zone of Investigation (not I Forested breeding habitats throughout Zone of Investigation (not Illustrated) Stantec January 2013 160960771 Client/Project Bow Lake Wind Farm Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, through their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp. igure No. 2.9 Significant Natural Heritage **Features and Attributes**

- Legend — Access Road Corridor — Cleared Area for Construction
 - Cleared Area for
 Access Road
 - ---- Collector Line

based on site conditions.

Notes Not to Scale. For visual purposed only. This is a 'typical' Construction Corridor, which will be modified as required

Client\Project

Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, through their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp.

Bow Lake Wind Farm

Figure No.

Title

Typical Access Road and Collector Line Construction Corridor

Stantec

Legend

Notes

- ----- Collector Line Corridor
 - Cleared Area for Construction
 - Temporary Construction Trail
 - Collector Line

Not to Scale. For visual purposed only. This is a 'typical' Construction Corridor, which will be modified as required based on site conditions.

Client\Projec

Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, through their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp.

Bow Lake Wind Farm

Title

Collector Line Construction Corridor

Legend

Turbine Foundation

Staging Area ~ 3736 m²

Notes

This is a 'typical' layout, which will be modified as required based on site conditions. ClientProject BluEarth Renewables Inc. Bow Lake Wind Project

Figure No. 5.0

Title

Typical Turbine Staging Area

Stantec BOW LAKE WIND FARM CONSTRUCTION PLAN REPORT

Appendix B

Crown Land Disposition

Crown Land Disposition

As part of Project development activities the Applicant of Record Status was issued by MNR to the Project in 2007. The Project has obtained all applicable Land Use Permits and Work Permits to install and maintain the development Met Towers and to complete the required pre development studies.

During construction the MNR will issue work permits and a Land Use Permit for all Project work areas including temporary construction areas such as construction laydown areas, and construction areas of permanent infrastructure such as turbine locations, road and collector line cooridoors and transformer station area.

Once construction is complete a survey will be completed of the final Project area and the following tenure instruments will be issued for the Project components listed below;

- 25 year Crown Leases will be issued by MNR for and approximate 320x320m area around each Turbine location with the possibility of a 15 year extension.
- 25 Year Crown Leases will be issued for site operations and maintenance building and welfare building locations with the possibility of a 15 year extention
- Transformer station lands will be purchased by NKLP from the Crown and become patent lands.
- Access Roads, including areas where Access Roads and electrical collector lines run adjacent to each other, will be issued an easement or Land Use Permit for the road right of way (typically 35 m wide) for the life of the Project.
- Electrical collector lines (with no access road) will be issued an easement or Land Use Permit for 20 m wide right of way for the life of the Project.

The anticipated Crown Land disposition for the Project area is depicted in Figure B1.

| | | Legend |
|-----------------|-------|---|
| AM | | Project Components |
| (E) | | Turbine Location |
| | | Gate Location |
| | 6000 | Meteorological Tower |
| | 523 | —— Access Road (New) |
| | | Access Road (Upgrade) |
| 54 4 119 | | Overhead/Underground Collector Line |
| | | Access Road Corridor (60m Easement) |
| 7545 | | Collector Line Corridor (60m Easement) |
| PC | | Construction Compound |
| | | Construction Compound & Welfare Building |
| | | Construction Compound & Transformer Station |
| | 34000 | Turbine Lease Area |
| | 52 | Met Tower Lease/Land Use Permit |
| | | Operations and Maintenance Lease Area |
| | | Existing Features |
| | | Crown Land Tenure Location (Lease or LUP) |
| | | Access Point |
| | | Expressway / Highway |
| 12628 | | — Road |
| | | |
| | 23200 | Existing Transmission Line |
| | Ω. | |
| mala | | Waterbody |
| | | Patent Land |
| <u>SSSC</u> | | Aggregate Site |
| | | Brookfield Power Lease Area |
| | | |
| | | |
| | 8 | |
| | 52300 | Notes |
| | | 1. Coordinate System: NAD 1983 UTM Zone 16N |
| 35000 | | 2. Base features produced under license with the |
| | | Ontario Ministry of Natural Resources © Queen's Printer for Ontario. 2013. |
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