



BOW LAKE WIND FARM
PROJECT DESCRIPTION REPORT

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Prepared for:

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Nodin Kitagan 2 Limited Partnership**
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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 Contracts with the Ontario Power Authority 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 operation of 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.

According to subsection 6.(3) of Ontario Regulation 359/09, the proposed Project is classified as a Class 4 Wind Facility. This Project Description Report is one component of the Renewable Energy Approval application for the proposed Project, and has been prepared in accordance with Item 10, Table 1 of O. Reg. 359/09 and the Ministry of the Environments *Technical Guide to Renewable Energy Approvals*.

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

Project Description 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. Any energy sources to be used to generate electricity at the renewable energy generation facility.	✓	2.1
2. The facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity.	✓	3.0
3. If applicable, the class of the renewable energy generation facility.	✓	2.1
4. The activities that will be engaged in as part of the renewable energy project.	✓	4.0
5. The name plate capacity of the renewable energy generation facility.	✓	1.1
6. The ownership of the land on which the project location is to be situated.	✓	2.2
7. If the person proposing to engage in the project does not own the land on which the project location is to be situated, a description of the permissions that are required to access the land and whether they have been obtained.	✓	2.2
8. Any negative environmental effects that may result from engaging in the project.	✓	6.0
9. If the project is in respect of a Class 2 wind facility and it is determined that the project location is not on a property described in Column 1 of the Table to section 19, a summary of the matters addressed in making the determination.	N/A	N/A
10. If the project is in respect of a Class 2 wind facility in respect of which section 20 applies and it is determined that the project location does not meet one of the descriptions set out in subsection 20 (2) or that the project location is not in an area described in subsection 20(3), a summary of the matters addressed in making the determination.	N/A	N/A
11. An unbound, well-marked, legible and reproducible map that is an appropriate size to fit on a 215 millimetre by 280 millimetre page, showing the project location and the land within 300 metres of the project location.	✓	Appendix A

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1.0 Introduction

1.1 PROJECT 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
- 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 (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 transformer station location. The Project site plan is provided in **Appendix A**.

According to subsection 6.(3) of O. Reg. 359/09, the Project is classified as a Class 4 Wind Facility. This Project Description Report is one component of the Renewable Energy Approval (“REA”) application for the Project, and has been prepared in accordance with Ontario Regulation 359/09 (“O. Reg. 359/09”), the Ontario Ministry of Natural Resources (“MNR”) *Approval and Permitting Requirements Document for Renewable Energy Projects*, September 2009 (“APRD”), and the Ontario Ministry of the Environment’s (“MOE”) *Technical Guide to Renewable Energy Approvals*.

1.2 BOW LAKE PROJECT HISTORY

Environmental studies, wind resource studies, consultation, and regulatory approvals works have been on-going since 2007. As per the then applicable requirements of O. Reg. 359/09, the Project was previously proceeding through the REA application process in with a REA as per the requirements of O. Reg. 359/09 in two phases: Phase 1 - 20 MW, Phase 2 - 40 MW. Public meetings were undertaken for these REA approval processes on April 4 and 5, 2011 (for Phase 1) and on April 28, 2011 (for Phase 2).

Proposed changes to the O. Reg. 359/09 were posted to the Environmental Bill of Rights Registry ("EBR") in April 2012. These changes, which related in part to the requirements for public notice, were formally amended and came into force on July 1June 29, 2012. As a result of this amendment, the Proponent was required to reissue its public notices and restart its public meetings. To do so efficiently, the Proponent has combined both phases of the Project under one REA application. The Proponent is now submitting this REA application for the combined Project as described herein, including natural heritage reporting and the consultation program.

2.0 General Information

2.1 KEY PROJECT INFORMATION

The following table provides key project information.

Table 2.1: Key Project Information		
Name of the Project	Bow Lake Wind Farm	
Proponent	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")	
Project Location	Townships of Smilsky and Peever, in the District of Algoma, Ontario	
Land Ownership	Primarily Provincial Crown Land with some infrastructure on patent land	
Legal Description of Land Parcel	Townships of Smilsky and Peever, in the District of Algoma, Ontario. More information is provided in the Crown Land Interests Report as part of the REA Application.	
Energy Source	Wind energy. No supplementary fuel sources will be used to generate electricity.	
Nameplate Capacity	Up to 58.32 MW.	
Class of Facility	Class 4 Wind Facility.	
Proponent Contact Information	Bryan Tripp Regulatory Lead 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. c/o BluEarth Renewables Inc. 34 Harvard Rd. Guelph, ON N1G 4V8 Tel: (519) 821-7319 Email: bowlakewind@bluearth.ca	
Consultant Contact Information	Mark Kozak Project Manager Stantec Consulting Ltd. 70 Southgate Drive, Suite 1 Guelph, ON N1G 4P5 Telephone: (519) 836-6050 Fax: (519) 836-2493	Rob Nadolny Project Director Stantec Consulting Ltd. 70 Southgate Drive, Suite 1 Guelph, ON N1G 4P5 Telephone: (519) 836-6050 Fax: (519) 836-2493
Project Contact Information	Phone: (519) 821-7319 Email: bowlakewind@bluearth.ca Web: www.blueearthrenewables.com/bowlakewind	

2.2 PROJECT LOCATION

The Project will be located predominantly on Provincial Crown Land with the exception of a small portion of Project infrastructure that will be located on patent land. As required by the Crown, the Project will apply for a Land Use Permit ("LUP") from the MNR for the necessary land tenure during the construction phase of the Project. The LUP will be issued by the MNR once the Project obtains the necessary regulatory approvals, including the REA. Additional information related to Project Crown Land disposition is provided in the *Crown Land Interests Report* (provided under separate cover).

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 associated with the Project and any air space in which the Proponent proposes to engage in the Project. This includes structures such as:

- Permanent infrastructure, including:
 - Wind turbines and transformers
 - Collector and communications lines (overhead and underground)
 - Transformer station
 - Access roads (new/upgraded public multi-use and/or Project-specific roads)
 - Crane pads
 - Operations and Maintenance building
 - Welfare buildings
 - Permanent meteorological ("Met") towers
 - Any area cleared (e.g., cleared of trees or scrub) which will be kept clear during operations
 - Access road gates (on Project-specific road alignments only)
- Temporary components, including:
 - Construction compounds and laydown yards
 - Construction areas surrounding Project infrastructure (e.g. wind turbine staging areas) that are required for installation activities
 - Concrete batch plants
 - Water extraction points
 - Temporary Met towers

Descriptions of the above components including wind turbine coordinates are provided in **Section 3** and are also depicted in the Site Plan in **Appendix A**.

Excluded from the Project Location are:

- Existing and approved Forest Management Plan (“FMP”) road corridors, including upgrades to existing FMP roads. Existing, modified, and new FMP roads have been evaluated under the existing FMP regulatory process for the area.
- Existing public multi-use roads that do not require upgrades.
- Aggregate pits and quarries required for Project construction. Two Category 9 Aggregate pits (Permits # 625249, 625250), one Category 3 Class A licenced pit (Permit #625256) and one Category 11 quarry (Permit # 625248) have been evaluated and licenced under the *Aggregate Resources Act*.

The Project is not located in any areas protected under provincial plans and policies described in O. Reg. 359/09, including the Greenbelt Plan, Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, and the Lake Simcoe Protection Plan.

A “Zone of Investigation” has been identified based upon the requirements of O. Reg. 359/09 and the MNR’s APRD. The Zone of Investigation encompasses the Project Location plus an additional 120 m surrounding the outer edges of the Project Location.

2.3 OTHER REQUIRED APPROVALS

At the federal, provincial and municipal level multiple permits, licenses and authorizations may be required to facilitate the development of the proposed Project, in addition to the REA. The ultimate applicability of all permits, licenses and authorizations will be determined and be based on the Project’s design.

2.3.1 Federal

A Federal Screening report will not be required for the proposed Project, as the Project does not include a ‘trigger’ under the *Canadian Environmental Assessment Act* (“CEAA”), 2012.

Nonetheless, the agency consultation program for the Project has included federal departments and agencies typically interested in wind power projects (e.g., NAV Canada, Transport Canada, etc.). All required federal permits and approvals required for the proposed Project will be determined during the development of the Project but may and are likely to include those listed below.

Table 2.2: Key Federal Permits and Authorizations

Permit / Authorization	Administering Agency	Rationale
Aeronautical Obstruction Clearance	Transport Canada – Aviation Division	Wind turbine lighting and marking
Land Use Clearance	NAV Canada	Aeronautical safety mapping and designations

Transport Canada and NAV Canada have been consulted regarding aeronautical approvals for the wind turbines and permanent met tower, and wind turbine aeronautical lighting. Required approvals will be obtained from both agencies. Fisheries and Oceans Canada ("DFO") is being consulted regarding the crossings of watercourses by Project components. A Letter of Advice from DFO may be provided to the proponent to inform design of these watercourse crossings. Alternatively, if DFO Operational Statements are followed for the proposed crossings, no Letters of Advice will be required, and the DFO will be notified of the intention to follow the Operational Statements.

2.3.2 Provincial

The following is a list of key permits and approvals that may be required at the provincial level; however additional permits may also be required. The ultimate applicability of each permit will be determined through the REA process based on the proposed Project design and discussions with provincial agencies.

Table 2.3: Key Provincial Permits and Authorizations

Key Permit / Authorization	Administering Agency	Rationale
Customer Impact Assessment / System Impact Assessment	Great Lakes Power Transmission (GLPT) and Independent Electrical System Operator (IESO)	Integration of project with GLP and potential effect to customers. Integration of project with IESO-controlled transmission system. Both have been completed and based upon these studies, GLPT will be providing a Connection Agreement to facilitate the Project's interconnection with the provincial electricity grid.
Connection Cost Recovery Agreement (CCRA)	GLPT	Recovery of costs to grid operator associated with connection to the GLP system.
System Impact Assessment	Independent Electrical System Operator (IESO)	Integration of project with IESO-controlled transmission system.
Approval of Connection	IESO	Electrical interconnect with IESO regulated network.
Notice of Project	Ministry of Labour	Notify the Ministry of Labour before construction begins.
Overall Benefit Permit under the <i>Endangered Species Act</i>	Ministry of Natural Resources (MNR)	Permit to potentially impact habitat of Species at Risk. Conditions of the permit results in an overall benefit of the species.
Forest Resource License	MNR	Tree clearing within proposed Project Location. Clergue Forest Management currently holds the Sustainable Forest License for the area encompassing the Project. An Overlapping Agreement between Clergue and Bow Lake has been signed.
<i>Forest Fires Prevention Act</i> (FFPA) regulations	MNR	Forestry activities and construction will be required within a Crown forest. Tree clearing, use of power saws, fire extinguishers and fire control equipment requirements, and maintenance and parking of heavy equipment will need to be in accordance with provincial regulations.

Table 2.3: Key Provincial Permits and Authorizations

Key Permit / Authorization	Administering Agency	Rationale
Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses Permit	As applicable, MNR/ Fisheries and Oceans Canada (DFO)/Local Conservation Authority	Work within floodplains, water crossings, river or stream valleys, hazardous lands and within or adjacent to wetlands. Projects requiring federal review or, <i>Fisheries Act</i> authorization, and/or assessment under the <i>Canadian Environmental Assessment Act</i> are forwarded to DFO.
Certificate of Inspection	Electrical Safety Authority (ESA)	A record that electrical work complies with the requirements of the Ontario Electrical Safety Code.
Generator's License	Ontario Energy Board (OEB)	Generation of electrical power for sale to grid.
Special vehicle configuration permit	Ministry of Transportation (MTO)	Use of non-standard vehicles to transport large components.
Transportation Plan	MTO	Adherence to road safety and suitability
Change of Access and Heavy/Oversize Load Transportation Permit	MTO	Compliance with provincial highway traffic and road safety regulations to construct a turn-out lane off Highway 17 to safely access an existing public road ("the Dump Road").

The MNR, Sault Ste. Marie District office, granted Applicant of Record status to Vortex Wind Power, now the Proponent, in December 2007, allowing investigation of the wind energy potential of the Crown lands on which the Project is situated. Work permits have been obtained from the MNR as required to support installation of temporary met towers at the Project Location.

2.4 LOCAL AND MUNICIPAL

Any required municipal permits, licenses and authorizations required for the Project will have been determined during the REA consultation application process. No *Planning Act* authorizations are required for this Project. There are also no municipal bodies such as Local Services Boards with relevant jurisdiction directly in the Project Location. Nevertheless, the Algoma District Services Administration Board and the Sault Ste. Marie North Planning Board are being consulted with regards to the Project.

3.0 Project Components

The following provides a description of the various permanent and temporary Project components that make up the Project Location. Details related to the construction/installation and operation/maintenance of these components is provided in the **Construction Plan Report** and **Design and Operations Report** respectively.

3.1 WIND TURBINES AND FOUNDATIONS

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 3.1**. Further information is provided in the **Wind Turbine Specifications Report**.

Table 3.1: 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

Table 3.2 identifies the approximate coordinates of the proposed wind turbine and met tower locations.

Table 3.2: Wind Turbine and Met Tower Coordinates		
Wind Turbine ID	UTM Northing	UTM Easting
1	5233678	684408
2	5233361	684204
3	5233022	684367
4	5232578	684670
5	5232251	684320
6	5231855	684974
7	5232018	685580
8	5232291	685174
9	5232843	685576
10	5233315	685051
11	5233567	685448

Table 3.2: Wind Turbine and Met Tower Coordinates

Wind Turbine ID	UTM Northing	UTM Easting
12	5233896	685433
13	5233118	686134
15	5232323	686649
17	5232842	687439
18	5233680	687513
19	5234468	687810
20	5234108	688421
21	5233775	688579
22	5233976	689396
23	5233410	689097
24	5233127	689550
25	5233201	690322
26	5232514	689951
27	5232305	690404
28	5232331	689420
29	5232049	689790
30	5231684	690076
32	5228923	688269
33	5229174	688539
34	5229415	689006
35	5229683	689617
36	5228426	688771
37	5228919	689017
38	5229175	689353
39	5228538	689303
Met Tower ID	UTM Northing	UTM Easting
1	5231551	684952
2	5231734	689828

The wind turbine foundations are made of poured in place reinforced concrete. Foundation design will vary based upon a site specific geotechnical assessment and could be either a gravity spread type foundation or pile-type foundation with or without rock anchors. Rock anchors may be required at some locations should geotechnical conditions require. Gravity spread type footings are typically octagonal in shape with an approximate diameter of 18 - 25 m and range from 3 - 6 m deep. The foundation will also include conduits for electrical power cables along with a grounding grid consisting of copper wire and ground rods.

3.2 WIND TURBINE TRANSFORMERS AND COLLECTOR LINES

A pad-mount transformer located at the base of each wind turbine is required to increase the voltage of the electricity generated by 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 or poured in place concrete pad adjacent to the wind turbine tower. All power cables entering/leaving the pad-mount transformer are located underground along with a grounding grid consisting of copper wire and ground rods.

From each pad-mount transformer, 34.5 kV collector lines carry the electricity from the wind turbines to the Project's TS and are accompanied by the installation of a fibre optic communications line. The collector lines will include both underground and overhead sections depending upon the ground conditions, depth of bedrock, the amount of natural overburden, and environmental conditions. The underground cables may be direct buried or installed in high density polyethylene conduit approximately 1.0 m below finished grade. Some sections of the collector system will be installed overhead where burying cables is impractical or technically not preferred. In these cases, the overhead lines will be constructed on single pole structures.

The collector lines will follow the route of the access roads where practical to reduce the area required for construction and minimize potential construction effects. The cables will be installed either to one side of the access road, just off the graveled surface, or within the road itself.

Where water crossings will be required for collector lines, the crossings will be either overhead or underground, depending on local terrain and geotechnical conditions. All crossings will be conducted according to MNR and the Fisheries and Oceans Canada ("DFO") requirements.

3.3 TRANSFORMER STATION

The TS is required to step up the 34.5 kV power of the collector lines to the 115 kV voltage required by the transmitter, Great Lakes Power Transmission LP ("GLPT"). The TS consists primarily of two 50 MVA power transformers, grounding transformers, 34.5 kV and 115 kV circuit breakers and disconnect switches, surge arrestors, instrument transformers, meters, a protection and control building, along with associated concrete foundations to mount the aforementioned equipment. The TS will likely have four 34.5 kV collector circuits entering the low voltage section and two 115 kV circuits leaving the high voltage section. GLPT is responsible for the high voltage infrastructure between the TS fenceline and the GLPT transmission lines.

The TS will be located on a graded area of approximately 95 m x 155 m. The TS will be fenced and secured to prevent unauthorized entry and maintain public safety. All non-current conducting metal components within the fenced area of the TS will be connected to a grounding grid installed below finished grade.

The two power transformers will be mounted on foundations that have a secondary liquid containment storage area designed to capture the insulating fluid in the unlikely event of a leak. The liquid containment system is designed to hold all of the liquid from the transformers as well as any precipitation that may accumulate.

The TS will be operated in accordance with all applicable codes and standards including the Canadian Electrical Code and the Ontario Electrical Safety Code.

3.4 ACCESS ROADS

Public multi-use roads approved under the Forest Management Planning process (“FMP roads”) will be used to access Project infrastructure and where necessary, will be upgraded to support construction and operations activities. The FMP roads include existing FMP roads which have been constructed to support forestry operations within the Project Location, as well as approved FMP roads that have not yet been constructed, but are approved and included in the Annual Work Schedule of the Forest Management Plan applicable to the Project Location. Construction and upgrading of both existing and approved FMP roads have been evaluated under an existing FMP regulatory process for the area, will be constructed in accordance with FMP requirements.

The construction of new public multi-use and Project-specific roads will also be necessary to access some Project infrastructure, and will be designed to minimize the effects on natural features. Where gates are currently located on the existing roads, they will remain in place. Project-specific roads such as those connecting public multi-use roads to wind turbine sites will likely be equipped with locked access gates for public safety and security reasons. Existing public roads and new/upgraded FMP roads will not be gated and will remain open for public use. One section of Project-specific roads extending between turbine 2 and turbine 4 is located on Patent lands and may be gated.

The drivable surface of access roads will be approximately 8 - 12 m wide. Access roads will be constructed of gravel, native materials, and/or engineered fill. In some instances a woven geotextile may also be utilized with a reduced granular material depth or a cement/soil stabilizing agent.

3.5 CRANE PADS

Crane pads will be constructed adjacent to wind turbine locations (within the wind turbine staging areas). 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. Following the construction of the Project, the crane pads will remain in place to support any crane activities during the operations, repowering, and/or decommissioning phases of the Project.

3.6 OPERATIONS AND MAINTENANCE BUILDING AND WELFARE BUILDINGS

An Operations and Maintenance (“O&M”) building will be used to monitor the day-to-day operations of the Project and provide an area for storage of spare parts and maintenance equipment. It is envisioned the O&M building will be constructed on the site of the construction compound adjacent to the TS. The building will house offices, workshop, parts and vehicle storage, septic system, water well, storage yard, and other ancillary facilities.

Two welfare buildings will be constructed as part of the Project; one in the central portion of the Project and the second in the southern portion of the Project (**Appendix A**). The welfare

buildings will be used to store tools and small equipment, as well as provide shelter for Project maintenance staff. Each of the welfare buildings will be approximately 100 square metres in size, of modular or conventional framed construction, with a concrete floor. Fencing will be installed surrounding the building for security purposes. Water wells are not anticipated to be required for the welfare buildings. Portable generators will be used to supply power to the buildings and a propane forced air furnace used for heating.

3.7 METEOROLOGICAL TOWERS

Two permanent Met towers will be erected for use during the operation phase of the Project. These towers will be installed as per the requirements of the Independent Electrical System Operator (“IESO”) and the Canadian Standards Association (“CSA”) protocol for power performance measurements. The Met towers will be used to validate the performance of the wind turbines during operations and to provide meteorological data to the IESO to support their wind forecasting activities and operations of the provincial electrical system. The Met towers will remain and be maintained for the duration of the Project’s operating life. In addition to the two permanent Met towers, 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.

The Met towers will consist of a steel lattice or monopole type structure approximately 100 m high. The tower foundations, depending on ground conditions, are typically a steel reinforced concrete-filled tubular pile. The Met towers will be equipped with guy wires for lateral support. Guy wires will be mounted on steel anchors embedded into concrete pads or anchored directly to bedrock.

3.8 TEMPORARY COMPONENTS

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. Any temporary office facilities used during construction will not require installation of permanent services (e.g. sewer, electrical), and will be placed within the delineated construction compounds. In all instances, temporary cleared areas will be minimized to the extent possible and will be limited to the minimum area required to safely support construction activities.

Following construction activities, temporary construction locations not required for operational infrastructure such as welfare buildings will be restored to a safe and clean condition. Restoration work will start following completion of work activities at each temporary construction location and will involve removal of all construction materials and equipment.

3.8.1 Construction Compounds

Temporary construction compounds will be cleared at the sites shown on the site plan (**Appendix A**) to support general construction activities and for temporary storage of turbine components, construction materials, containers, vehicles, equipment, office trailers, concrete batch plants and portable toilets. These areas will be cleared and graded with geotextile and aggregate fill. Temporary storage of materials in these areas will conform to applicable codes and any fuel storage will be within an area equipped with secondary containment.

3.8.2 Wind Turbine Staging Areas

A staging area will be cleared around each wind turbine location to support assembly of the wind turbine components, placement of construction equipment, and storage of earthen materials excavated for foundation construction. The staging areas will occupy the lands within an approximately 70 m radius of the wind turbine location and will be cleared, levelled, and may be gravelled if required depending on site conditions. If placement of gravel materials is required, geotextile will be installed to facilitate removal of the gravel following construction activities. Portions of the staging areas will be reduced on a site-by-site basis to avoid natural features, where required.

Wind turbine components will be delivered either to the construction compounds first for temporary storage or directly to the wind turbine staging areas for assembly.

3.8.3 Access Road Construction Areas

The access roads will be located within a 60 m wide road corridor and will be micro-sited within the corridors based on site-specific conditions. Typically, a 35 m cleared width is required to construct the access roads, associated ditches and embankments, and adjacent collector line. However, the cleared area for the access roads will be minimized to the extent possible and will be reduced in size where natural constraints exist such as wetlands or water bodies. In all cases the construction area will be limited to the amount of area required to support safe construction activities.

3.8.4 Concrete Batch Plants

Temporary concrete batch plants will be located within each of the construction compounds shown on the site plan (**Appendix A**), and will produce the concrete necessary to meet the requirements of the Project. The batch plant sites will be established following site preparation which will consist of clearing, grading and leveling activities. Concrete batching activities will be carried out in parallel with the construction of roads and wind turbine foundations.

Aggregate materials required for concrete are anticipated to be obtained from licenced aggregate sources in the vicinity of the Project Location (as described in Section 2.2). If the

aggregate materials from these sources are not suitable for concrete production, some or all of the aggregate will be sourced from local suppliers.

3.8.5 Water Extraction Points

Water taking will be required during construction for batching of concrete for foundation construction and dust control along access roads. Three water extraction points will be used 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 construction. Daily water withdrawals during construction are not anticipated to exceed 50,000 L.

4.0 Project Activities

4.1 OVERVIEW OF ACTIVITIES AND SCHEDULE

A general overview of the activities that will be engaged in during construction, operation, and decommissioning of the Project are provided in **Table 4.1**. More detailed descriptions of these activities are provided in the **Construction Plan Report**, **Design and Operations Report**, and **Decommissioning Plan Report**.

Table 4.1: Key Project Activities

Project Phase	Activities
Construction (Q3 2013 to Q4 2014)	Staking of site work area and significant natural features, and installation of erosion and runoff controls
	Vegetation clearing, trimming of trees, and site grading
	Delineation of temporary work areas and installation of temporary facilities, including batch plants
	Construction/upgrading of access roads
	Installation of crane pads
	Installation of wind turbine foundations and pedestals
	Installation of pad-mount transformers and grounding grid
	Wind turbine and met tower erection
	Installation of collector lines
	Construction of transformer station
	Restoration of the site and removal of temporary construction areas
Operation (Q4 2014)	Preventative and routine maintenance
	Unplanned maintenance
	Meter calibrations
	Grounds keeping
	Remote wind plant condition monitoring
	Operation and maintenance building maintenance
Decommissioning (Beyond 2034)	Removal of above-ground wind turbine and met tower components
	Possible removal of access roads dependent upon agreement with the Crown
	Possible removal of collector lines depending upon depth and agreement with the Crown
	Removal of transformer station
	Site restoration

The specific schedule for decommissioning will be determined at the time it is undertaken. The wind turbines used for the Project can be expected to be in service for the term of the 20 year FiT contracts. Following the term of the contracts, a decision will be made regarding whether to extend the life of the facility or to decommission. With the exception of routine scheduled maintenance, the wind turbines are expected to be operational 24 hours a day, 7 days a week, assuming appropriate wind conditions.

4.2 KEY PROCESS ACTIVITIES

The following sections provide information relating to key process features as identified in O. Reg. 359/09 and MOE's guidance document *Technical Guide to Renewable Energy Approvals*. Additional information is also provided in the the **Construction Plan Report** and **Design and Operations Report**.

4.2.1 Waste Generation

4.2.1.1 Construction and Decommissioning

During construction and decommissioning, waste material will be generated at and transported from the Project Location. Waste materials 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 shipment offsite for reuse, recycling, and/or disposal at an appropriate approved off-site facility.

Soil excavated for installation of Project infrastructure will be re-used on site as feasible. Although not anticipated, if reuse of all the excavated soil on-site is not feasible, the soil will be transported for disposal or for use as topcover at an approved off-site facility to be determined by the Construction Contractor.

4.2.1.2 Operation

Waste lubricating and hydraulic oils will be generated during standard operation and maintenance activities. Waste fluids may be stored temporarily within a designated area designed and maintained in accordance with applicable legislation. These waste materials will be picked up and hauled by a MOE licenced contractor and disposed of or recycled at an appropriate MOE or MNR approved off-site facility. There will be no on-site disposal of waste during the operation of the facility. A minor amount of domestic solid waste (i.e. garbage, recycling, and organics) will be generated during standard operation and maintenance activities.

4.2.2 Air Emissions and Dust Generation

4.2.2.1 Construction and Decommissioning

Construction and decommissioning activities use a wide range of mobile equipment, such as bulldozers, dump trucks, and cranes. The engine exhaust from these vehicles represents a source of combustion-related particulate emissions.

Construction related traffic and various construction activities (e.g. excavation, grading, and exposed areas) have the potential to create dust, however the effects are expected to be short term, localized and readily addressed through conventional dust control measures.

4.2.2.2 Operation

Wind turbines are a clean source of renewable energy and do not emit any harmful air emissions or particulate matter. During operations there will be minor localized air emissions resulting from the periodic use of maintenance equipment over the life of the Project. In addition, personnel vehicles and service providers will travel to and from the substation site during regular business hours. Operations related traffic has the potential to create dust in the immediate vicinity of the facility however; effects are anticipated to be intermittent, short-term in duration and highly localized.

4.2.3 Noise Emissions

4.2.3.1 Construction and Decommissioning

During construction of the Project, noise will be generated by the operation of heavy equipment at each of the work areas and associated vehicular traffic on-site and on haul routes. Construction related noise will be mitigated to the extent practical.

4.2.3.2 Operation

Mechanical and aerodynamic noise will be emitted from the wind turbines in addition to environmental noise from the transformers located at the substation. A Noise Assessment Report has been undertaken for the Project in accordance with the MOE *Noise Guidelines for Wind Farms* and O. Reg. 359/09 (provided within the **Design and Operations Report**), and concludes that the Project meets the applicable MOE sound level limits at all surrounding noise sensitive receptors for a Class 3 rural area. Due to the location of the Project, there is very limited number noise receptors located in the vicinity of the Project.

4.2.4 Hazardous Materials

4.2.4.1 Construction and Decommissioning

Hazardous materials are limited to fuels and lubricants that will be on-site for use in equipment. These materials will be stored in appropriate storage containers (within construction compounds) during the construction phase by the construction contractor and refueling activities will be limited to designated areas. Usage and storage of hazardous materials will be in accordance with applicable regulations.

4.2.4.2 Operation

Hazardous materials to be used during the course of Project operation are limited to lubricants and fluids for the operation and maintenance of the wind turbines, the transformer station, and other equipment. These materials will be brought to the Project Location by the facility operator in accordance with applicable regulations. During operation wind turbines do not generate any other hazardous materials or by-products.

4.2.5 Sewage

4.2.5.1 Construction and Decommissioning

Sanitary waste generated by the construction and decommissioning crews will be collected via portable toilets and wash stations supplied by a contracted third party. Disposal of these wastes will be the responsibility of the contracted party and will be done in accordance with regulatory requirements.

4.2.5.2 Operation

A septic system will be utilized to service the O&M building during the Project's operational phase. The septic system will be designed in accordance with MOE and Ontario Building Code requirements and the local site characteristics (e.g., topographic conditions and soil properties). During operation, on-going maintenance of the septic system will include periodic cleaning, inspections, and as necessary repairs, as recommended by the equipment manufacturers.

The septic system will have effluent flow rates less than 10,000 L/day and is anticipated to consist of a septic tank, distribution box (or drop box), and absorption field. In the event that a high water table renders a septic system unsuitable, a holding tank will be utilized and pumped out as required by a licensed, third party sewage hauler.

4.2.6 Stormwater Management

4.2.6.1 Construction and Decommissioning

During construction and decommissioning, proper grading will be conducted and mitigation measures implemented to reduce potential for runoff at the work areas. These mitigation measures may include minimizing the cleared areas, installation of erosion control fencing, check dam structures in ditches/swales, or installation of erosion control matting as appropriate.

4.2.6.2 Operation

As per the MOE *Stormwater Management Planning and Design Guidelines Manual* (2003) the total drainage area associated with the transformer station and access road "hard" surfaces is less than 2 ha and therefore a "wet" water quality control pond is not required.

4.2.7 Water-taking Activities

4.2.7.1 Construction and Decommissioning

There is a limited potential for groundwater to be encountered during the installation of the Project components. Further, rainwater may collect in the open excavations during construction; and therefore some excavation dewatering activities will be required. Where pumping of water from excavations is required, the water will be discharged to a vegetated area away from watercourses to reduce the potential for erosion and sedimentation.

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 construction. Daily withdrawals are not anticipated to exceed 50,000 L.

4.2.7.2 Operation

The O&M building will include the installation of a water well for washing and human consumption. If necessary, a simple filter system with activated carbon (i.e., for the removal of organic compounds) and fibre filters (i.e., for the removal of suspended sediment/turbidity) combined with an ultraviolet system for disinfection will be utilized. The well will be installed by a licensed well driller and water withdrawals during operation will not exceed the 50,000 L/day.

In the event that the well water is not suitable for drinking with treatment, drinking water will be delivered to the site.

4.2.8 Accidental Spills

Standard containment facilities and emergency response materials (i.e., spill kits) will be maintained on-site as required. Vehicle refuelling, equipment maintenance, and other potentially contaminating activities will occur 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 or operation, the Construction Contractor or Operation and Maintenance personnel 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 and dispose of the contaminated soil 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 spills 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.

5.0 Project Related Setbacks

A key component of the REA process is the establishment of standard setbacks for all renewable energy facilities in the Province. Where Project related infrastructure will be located within the 120 m setback from natural features, additional analysis (i.e., Environmental Impact Study) has been provided. Key setbacks that have been applied throughout the design of the proposed Project are as follows:

Table 5.1: Project Related Setbacks

Feature	Setback Distance	Study Alternative When Within Setback
Non-participating receptor	550 m (from wind turbine base)	An Environmental Noise Impact Assessment will be completed for the Project according to MOE Noise Guidelines.
Public road right-of-way	Wind turbine blade length + 10 m (from the centre of the wind turbine base)	N/A
Provincially significant wetland	120 m	Development not permitted within feature. Development and site alteration may be possible within setback area; EIS required.
Significant wildlife habitat	120 m	Development and site alteration may be possible within natural feature and setback area; EIS required.
Lake	120 m from the average annual high water mark	Development and site alteration may be possible within setback area; additional report required. No wind turbine or transformer located within a lake or within 30 m of the average annual high water mark.
Permanent or intermittent stream	120 m from the average annual high water mark	Development and site alteration may be possible within setback area; additional report required. No wind turbine or transformer located within a permanent or intermittent stream or within 30 m of the average annual high water mark.
Seepage area	120 m	Development and site alteration may be possible within setback area; additional report required. No wind turbine or transformer located within 30 m of a seepage area.

6.0 Description of Potential Environmental Effects

The effects of constructing, operating, and maintaining a wind energy facility such as the Project are well understood and can be typically mitigated through well-known, effective and accepted techniques and practices.

The following potential effects, mitigation measures, monitoring plans, and contingency plans have been identified and developed to address potential negative environmental effects that may result from the construction and operation of the Project within the Zone of Investigation (see **Table 6.1** and **6.2** below).

Descriptions of the existing natural heritage, water, archaeological, and heritage environments in the Project Location and/or the Zone of Investigation can be found within the **Natural Heritage Assessment & Environmental Impact Study** ("NHA/EIS"), **Water Body and Water Assessment Report**, and **Archaeological and Heritage Report**. These reports form part of the REA application and are provided under separate cover.

Where a significant natural feature is located within the Zone of Investigation, a detailed analysis of the potential effects is provided in the **NHA/EIS** and/or **Water Assessment and Water Body Report**. The Project Site Plan (**Appendix A**) clearly identifies all natural features within the Zone of Investigation and the Project Location in relation to the natural feature.

The environmental effects monitoring plans for the Project have been designed to monitor implementation of the proposed protection and mitigation measures and to verify compliance of the Project with O. Reg. 359/09. Implementation of these measures would be undertaken in compliance with applicable provincial and federal standards and guidelines as well as the requirements of the BFN.

Potential effects associated with accidental spills will be mitigated and responded to in accordance with the information contained above in Section 4.3.8 and thus is not referenced within the tables below.

Table 6.1: 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 Resources					
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 Interest	As no Areas of Natural and Scientific Interest were identified, there are no anticipated effects.	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	NA	Not required	Not required	None

Table 6.1: 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
	location is situated on the Canadian Shield, therefore this environmental feature is not applicable to the Project.				
Significant Woodlands	Significant Woodlands 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.	NA	Not required	Not required	None
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 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, post-management, 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 6.1: 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
			- 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 Oval-leaved bilberry, Boreal bedstraw and 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 Resources					
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 in-water 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 Noise					
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	- 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	Any net effects are expected to be short-term in duration and highly localized.

Table 6.1: 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
			(e.g., water or calcium) along access roads.	drift to adjacent potential receptors, the Construction Contractor will ensure dust control measures are implemented.	
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 Resources					
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.	Minimize disturbance to local	There may be instances where oversized loads	None	A limited, short term

Table 6.1: 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
	Increase in traffic along existing and new roads on Crown land.	traffic.	(e.g., turbine components) will require special traffic planning. - As appropriate, the Construction Contractor will 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.		effect on local traffic is anticipated, but will be managed through the 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.

Table 6.1: 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
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. - Nav Canada will be responsible for updating all aeronautical charts with the turbine locations.	None	No significant net effects to aeronautical systems are anticipated.
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.

Table 6.2 : Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
Heritage and Archaeological Resources					
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 effects are anticipated to occur related to operation 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.	No additional measures are warranted in addition to the identified mitigation measures.	No direct or indirect net effects are anticipated.
Archaeological Resources	It is anticipated that all excavations associated with operation of the Project will occur within previously disturbed areas, and therefore there is limited potential for potential effects on Archaeological Resources.	Minimize potential effects to Archaeological Resources	- In the event that archaeological resources are encountered during operations, all work within the vicinity of an archaeological find will be suspended. - The BFN and the Ministry of Tourism, Culture and Sport archaeologist would be contacted.	In the event that human remains are encountered during operations, 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 archaeological resources during operations are anticipated.
Natural Heritage Resources					
Provincially Significant Wetlands	- Degradation of wetland through changes in water flow or surface water contamination. - Degradation of wetland through sedimentation during maintenance activities.	Minimize potential effects to provincially significant wetlands.	- No Project infrastructure within Provincially Significant Wetland boundaries. - All maintenance activities, vehicle refueling or washing and chemical storage will be located more than 30m from wetlands. - Implement Sediment and Erosion control measures during major maintenance activities (described in the NHA/EIS). - During major maintenance activities, 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. - 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. - 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 Interest	As no Areas of Natural and Scientific Interest were identified, there are no anticipated effects.	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.	N/A	Not required	Not required	None
Significant Woodlands	Significant Woodlands 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.	N/A	Not required	Not required	None
Provincial Parks and Conservation Reserves	Lake Superior Provincial Park is located north of the Project Location (on the north	No Project infrastructure within a Provincial Park	The Project Location is not within any Provincial Park or Conservation Reserve.	Not required	None

Table 6.2 : Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
	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.	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.		
Significant Wildlife Habitat (includes seasonal concentration areas, specialized habitat for wildlife, and habitat for species of special concern)	- Disturbance and/or mortality through collisions with turbines. - Habitat avoidance/disturbance caused by maintenance activities.	Minimize the likelihood of direct mortality and disturbance	- Avoidance of natural features such as migratory corridors, migratory stopover areas, and late winter moose habitat. - Turbine lighting to conform to Transport Canada standards. - Restrict maintenance 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).	- Post-construction mortality monitoring at 10 turbines. Twice weekly from May 1-Oct. 31, for a period of three years. - In the event of mortality to birds/bats above MNR established thresholds, contingency measures will be implemented which may include operational controls, such as periodic shut-down and/or blade feathering (see EEMP for additional details). - Post-construction disturbance monitoring in waterfowl nesting areas. Once a year during the breeding season, for a period of three years. - Post-construction disturbance monitoring in forested ecosites that were surveyed during pre-construction surveys. Once a year during the breeding season, for a period of three years.	No significant net effects are anticipated given the required implementation of contingency measures associated with the EEMP.
Water Bodies and Aquatic Resources					
Groundwater	Minimal amounts of groundwater will be required via the O&M building water well and thus no potential effects are anticipated.	Minimize groundwater withdrawal requirements	Water withdrawal amounts for the O&M building will be minimal and well below 50,000 L/day. Therefore no water taking permit is required under the <i>Water Resources Act</i> from MOE.	None required	None
Surface Water, Fish, and Fish Habitat	No potential impacts are anticipated as a result of operational activities with the exception of impacts associated with accidental spills and/or leaks.	Minimize potential effects to surface water, fish, and fish habitat by minimizing likelihood of spills and leaks.	- 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. - Spills and leaks can be minimized through proper storage of materials (e.g. maintenance fluids) at off-site storage containers or in facilities located more than 30 m from a water body. - Spill containment kit will be stored on-site so that any minor spills or leaks can be stopped and cleaned up efficiently.	DFO Authorizations (if required) would likely include conditions of approval such as monitoring activities. However, it is expected that DFO Authorization will not be required; therefore no post-construction monitoring is anticipated. In the event that agencies mandate post-construction monitoring, it may include monitoring to ensure that sites are re-vegetating as expected, and that there is no sedimentation or erosion occurring as a result of Project maintenance activities.	None
Air Quality and Environmental Noise					
Air Quality	Emissions from equipment and vehicles during maintenance activities.	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; and, - Avoid idling vehicles. - Equipment and vehicles will be maintained in a manner that reduces air emissions.	All vehicles used in the operations phase of the Project will be properly maintained and undergo regular emissions testing as required by provincial legislation. Operations vehicles will be repaired immediately if required.	Any net effects are expected to be short-term in duration and highly localized.

Table 6.2 : Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			• Monitor road conditions and apply dust suppressant (e.g. water or calcium) to access roads as required.		
Environmental Noise	• Noise emitted from a turbine and/or transformers.	• Noise at all non-participating receptors to meet MOE Noise Guidelines.	• The wind farm was designed to be compliant with the applicable MOE environmental noise guidelines. • A regular maintenance program would largely mitigate potential effects related to noise. • The closest wind turbine to a receptor is about 840 m, well beyond the MOE requirement of 550 m.	• Noise monitoring (if required) would be conducted in accordance with the REA for the Project • In cases where there is a malfunction of the unit, the wind turbine would be shut down until such time as the malfunction is corrected. • Turbine maintenance to ensure turbines are running properly and efficiently.	• No significant net effects are anticipated due to the Project being designed in compliance with the MOE noise guidelines and REA setbacks, as well as due to the distance from receptors.
Land Use and Socio-Economic Resources					
Agricultural Lands	• None – No agricultural lands occur within the Project Location.	• N/A	• Not required	• Not required	• None
Mineral, Aggregate, and Petroleum Resources	• Aggregate extraction from Project pits used to help maintain the roads • As there are no known petroleum resources within the Project Location, there are no anticipated potential effects.	• N/A	• Not required	• Not required	• None
Game And Fishery Resources	• Disturbance to game species from operations activities. • No effects identified to fishery resources.	• Minimize disturbance to game resources. • Minimize effects of access improvements or restrictions.	• Routine maintenance to ensure equipment is operating properly and efficiently, thus limiting potential noise disturbance to game resources. • Game species occurring in the Project Location currently experience human activity associated with logging, recreational, and hunting activities, so it is anticipated that game will adapt to the limited number of operations staff. As identified by Arnett et. Al., (2007) the game species located in the Project Location are anticipated to adapt to the presence of operational turbines ¹ Hunting will continue to be permitted in the area during operation. • 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). Project specific roads may be gated for public safety concerns; however public multi-use roads will remain un-gated as per the request of the MNR.	• During the operations phase of the Project any monitoring requirements specified in MNR or DFO watercrossing permits will be undertaken. • The Project will also undertake reporting and monitoring activities as required by the BFN.	• No significant net effects are anticipated to game or fishery resources.
Provincial Plans, Policies, and Recreation Areas	• None	• N/A	• Not required	• Not required	• None
Local Traffic	• Short-term disruption to local traffic as a result of excess loads during maintenance events.	• Minimize disturbance to local traffic.	• There may be instances where maintenance activities require excess loads (e.g., cranes) and will require special traffic planning. • The Proponent and/or the Operations and Maintenance Contractor will implement a Traffic Management Plan (or similar) during instances of large scale equipment transport that have the potential to significantly affect local traffic patterns or transportation infrastructure.	• As necessary, permits will be obtained from the MTO and/or MNR.	• A limited, short term effect on local traffic during large scale maintenance activities, but will be managed through the implementation of a Traffic Management Plan.
Local Economy	• Increase in direct employment. • Local economic benefits from local expenditures, including but not limited to parts and materials, contracting services (e.g., road maintenance, tree trimming and	• 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	• None required.	• A positive net effect is anticipated on the local economy during operation of the Project. • On average, it is estimated that 4 to 6 persons may be directly

¹ Arnett, E. B., D. B. Inkley, D. H. Johnson, R. P. Larkin, S. Manes, A. M. Manville, R. Mason, M. Morrison, M. D. Strickland and R. Thresher. 2007. Impacts of Wind Energy Facilities on Wildlife and Wildlife Habitat. Wildlife Society Technical Review 07-2. The Wildlife Society, Bethesda, Maryland, USA

Table 6.2 : Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
	collector line vegetation control), equipment, lodging, meals and other services.		suppliers provided they are competitively priced, available in the appropriate quality and quantity, and with the necessary experience.		employed during operation.
Viewscape	Viewscape from areas surrounding the Project Location will be altered due to the presence of wind turbines.	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 and Lake Superior Provincial Park. - The forested nature of the local landscape assists in screening the Project 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	No potential impacts are anticipated as the Project will not require the use of provincial and/or municipal infrastructure such as municipal servicing.	N/A	None required.	None required.	None
Navigable Waters	Project infrastructure may be located across potentially navigable waterways (via electrical collector lines).	Minimize effects on navigable waterways	Implement any design mitigation measures that may be required to address conditions of any permits obtained from TC or the MNR related to navigable waters including adherence to applicable Operational Policy Statements.	Will be identified as part of any required permits.	None
Telecommunication and Radar Systems	Potential to interfere with telecommunication and radar systems.	Minimize interference with telecommunication and radar systems.	- The Proponent has been and will continue to consult with relevant agencies and licensed providers to identify any likely effects to telecommunication and radar systems including Environment Canada with respect to the Montreal River Weather Radar Station. - In the event that signal disruption is experienced, mitigation measures will be discussed with the relevant agencies and licensed providers.	- Adherence to Complaint Response Protocol. - The Proponent would review potential incidents of telecommunications interference on a case by case basis.	No anticipated significant effects to telecommunication/ radar systems.
Aeronautical Systems	Aeronautical obstruction.	Minimize potential hazard to low flying aircraft.	- It is anticipated that approximately 23 turbines will be equipped with aviation warning lights to reduce the night time lighting effect. - Nav Canada will be responsible for updating all aeronautical charts with the turbine locations. - Low-level aircraft are to be familiar with the area they are flying over.	None	No anticipated significant effects to aeronautical systems.
Public Health and Safety					
Public Health and Safety	- Potential traffic safety hazards. - Safety hazards due to accidents and malfunctions. - Safety hazards due to ice throw.	Operational performance target of zero (0) reportable instances on an annual basis.	- As appropriate, all non-conventional loads would have front and rear escort or "pilot" vehicles accompany the truck movement on public roads. May provide notification to MTO of non-conventional load movements. - Implementation of a Traffic Management Plan and a Health and Safety/Emergency Response Plan. - The wind turbines will be maintained and operated according to applicable industry standards/certifications. - Project components have been designed to withstand the effects of extreme weather events. - All turbines have been located more than the required setback distance from all non-participating dwellings as per O. Reg. 359/09. As proposed the wind turbines are	- Adherence to Complaint Response Protocol (Section 6.3) - On-going dialogue with local emergency services personnel to address any concerns, confirm alignment between local agency protocols and Project operational protocols (e.g., emergency response, 911 notifications). If required, the Proponent would participate in a training session/orientation for local emergency services managers regarding the Project. - Failsafe devices integrated into the wind turbine design are capable of shutting down the turbine operation in the event of excessive wind conditions, rotor imbalance, or malfunction of other turbine components. - Wind turbines will be monitored electronically twenty-four hours a day, seven-days a week, to ensure wind	With adherence to safety policies and procedures identified herein, and the mitigation measures proposed, there is minimal increased or new risk to public health and safety

Table 6.2 : Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

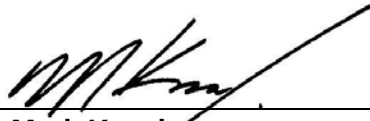
Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			at least 840 m from nearby receptors. All personnel operating the wind farm will be provided with all necessary training and personal protective equipment to work safely and in accordance with applicable provincial and federal health and safety regulations.	turbine operational are adhered to and any mechanical concerns are addressed quickly. - Inspections of turbines will occur after extreme weather events which may have resulted in mechanical loads beyond turbine design specifications. - Annual safety reporting will be undertaken in accordance with applicable regulations.	

7.0 Closure

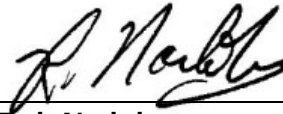
This Project Description Report for the Project has been prepared by Stantec for the Proponent in accordance with O. Reg. 359/09, the MOE's REA Technical Guide, and the MNR's APRD.

This Report has been prepared by Stantec for the sole benefit of the Proponent, and it 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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8.0 References

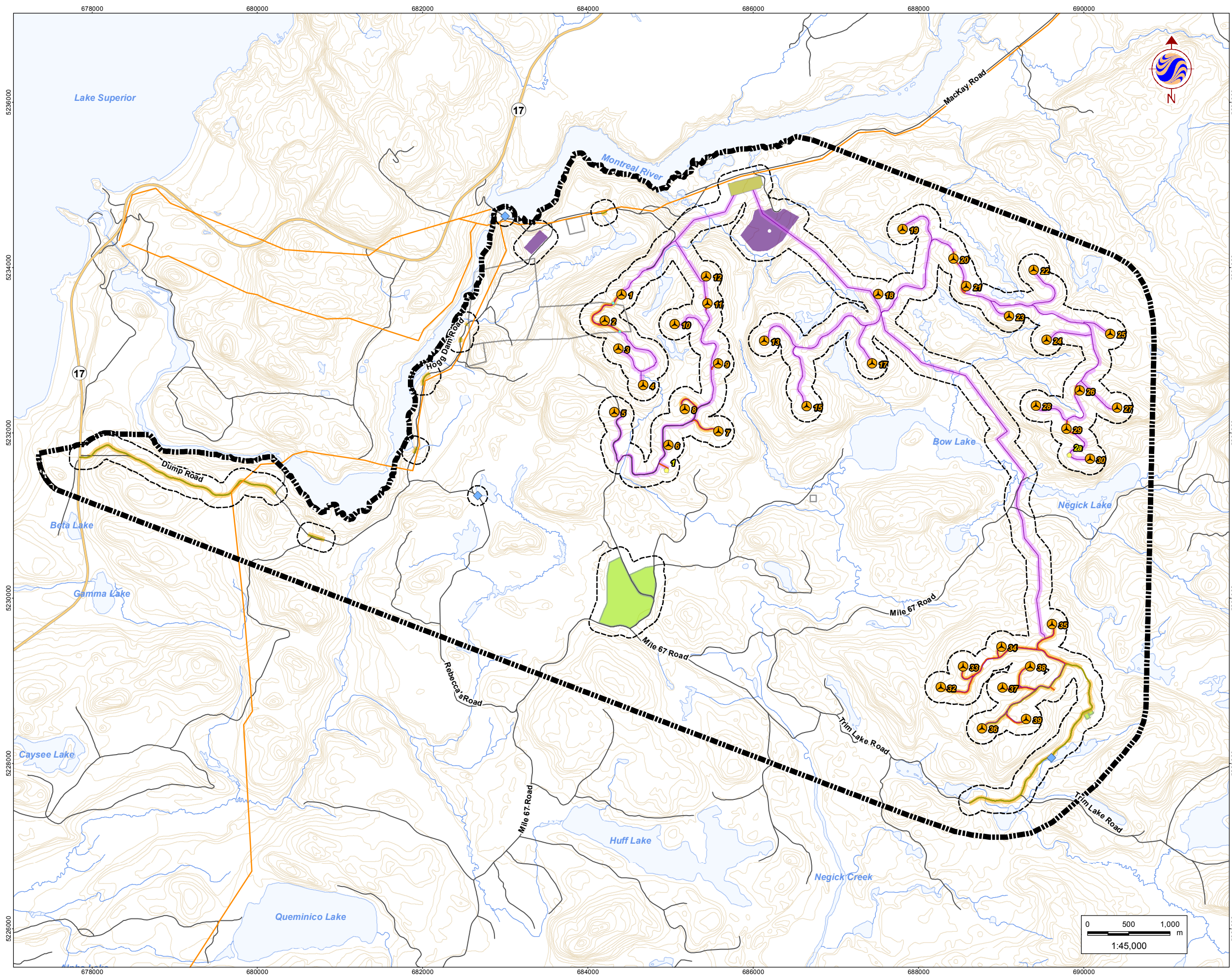
Ontario Ministry of Natural Resources. September 2009. Approval and Permitting Requirements Document for Renewable Energy Projects

Ontario Ministry of the Environment. Technical Guide to Renewable Energy Approvals, as amended.

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.

Appendix A

Figures



Legend

Study Area

120m Zone of Investigation

Project Components

Turbine Location

Gate Location

Meteorological Tower

Proposed Water Extraction Location

Access Road (New)

Access Road (Upgrade)

Overhead/Underground Collector Line

Access Road Corridor

Collector Line Corridor

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

- Notes**
1. Coordinate System: NAD 1983 UTM Zone 16N

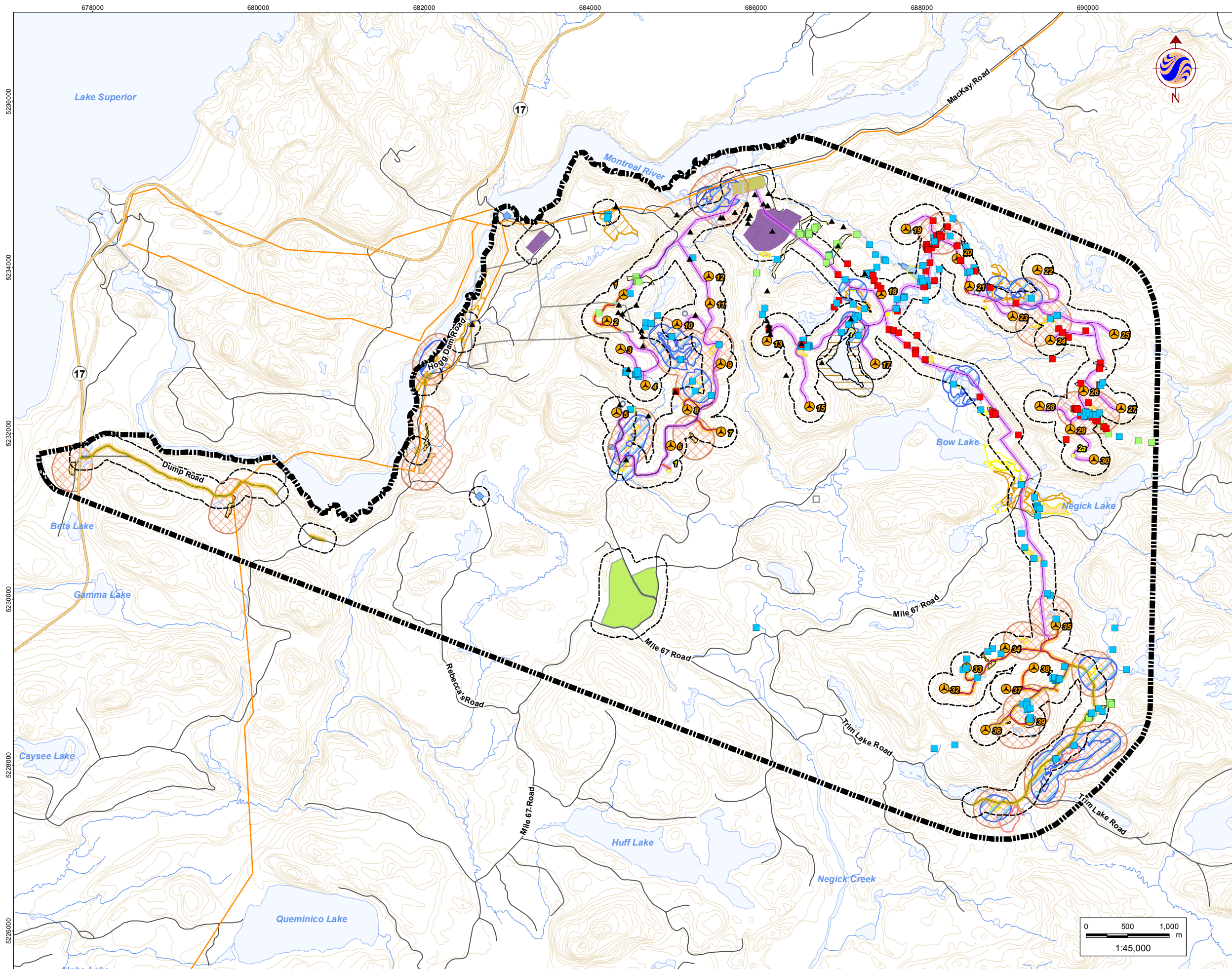
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

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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.

Figure No.
1.0

Title
Project Location & Study Area - Overview



Legend

- Study Area
- 120m Zone of Investigation
- Project Components**
 - Turbine Location
 - Gate Location
 - Meteorological Tower
 - Proposed Water Extraction Location
 - Access Road (New)
 - Access Road (Upgrade)
 - Overhead/Underground Collector Line
 - Access Road Corridor
 - Collector Line Corridor
 - 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
 - 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)
 - Boreal Bedstraw Habitat (BBH)
 - Braun's Holly Fern Habitat (BHFH)
 - Oval-leaved Bilberry Habitat (OBH)
- 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)

Notes

- 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.
- * Breeding ponds in woodland habitats assumed throughout Zone of Investigation (not illustrated).
- ** Forested breeding habitats throughout Zone of Investigation (not illustrated).



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

Figure No.
2.0

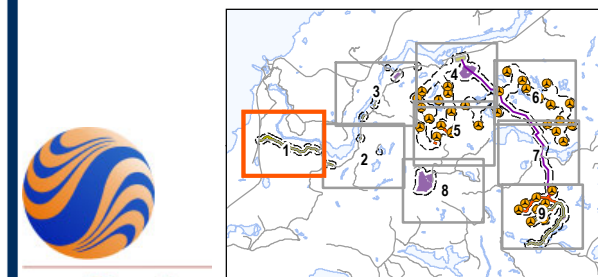
Title
**Significant Natural Heritage
Features and Attributes - Overview**



Legend

- 120m Zone of Investigation
- Project Components**
- Turbine Location
 - Gate Location
 - 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
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- Marsh Bird Breeding Habitat (MBBH)

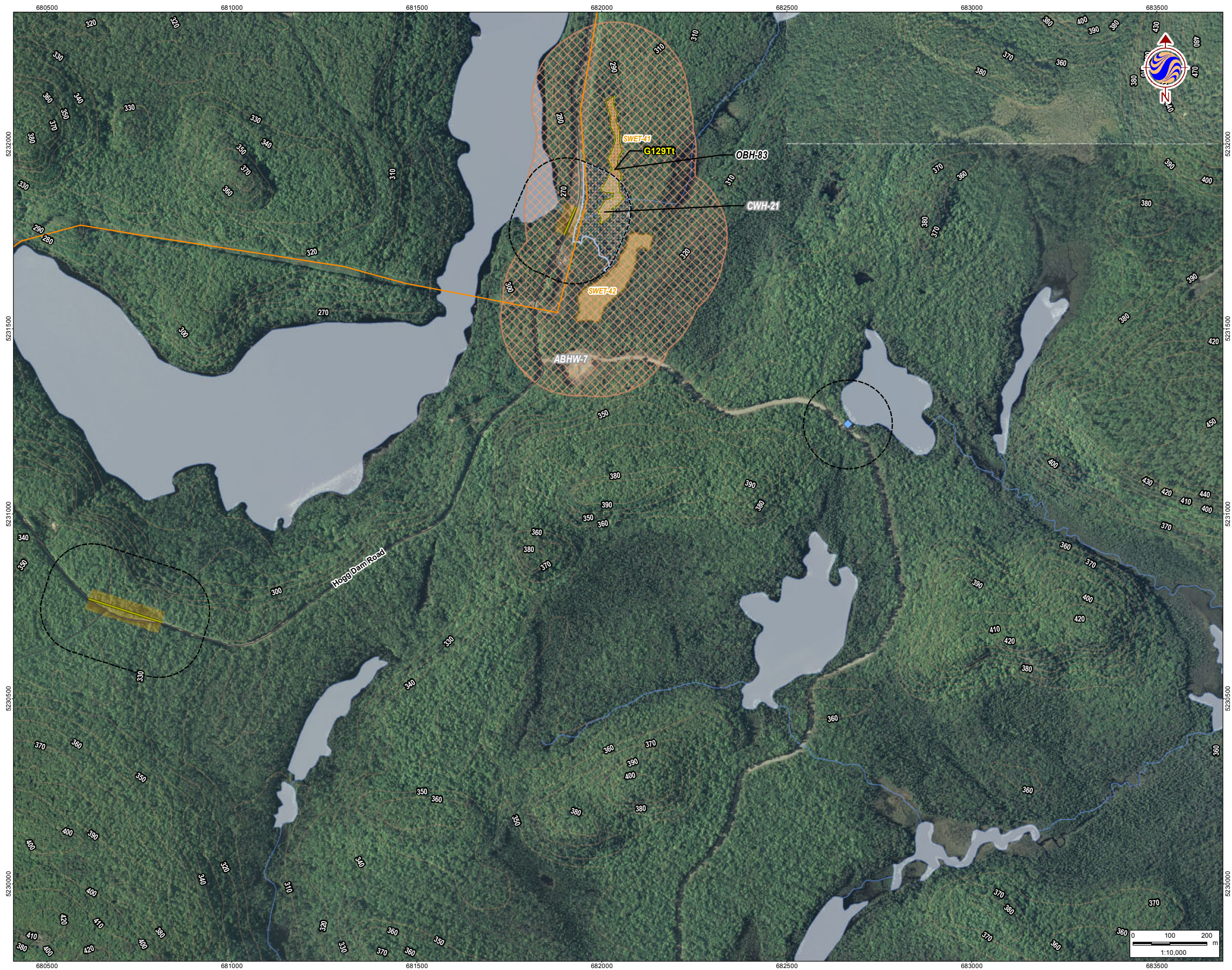
- ABHW-1** Black text, white halo = Confirmed Significant Feature
- CWH-1** White text, grey halo = Assumed Significant Feature
- Notes**
1. Coordinate System: NAD 1983 UTM Zone 16N
 2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.
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 - * Breeding ponds in woodland habitats assumed throughout Zone of Investigation (not illustrated).
 - ** Forested breeding habitats throughout Zone of Investigation (not illustrated)



Client/Project
Bow Lake Wind Farm
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Figure No.
2.1

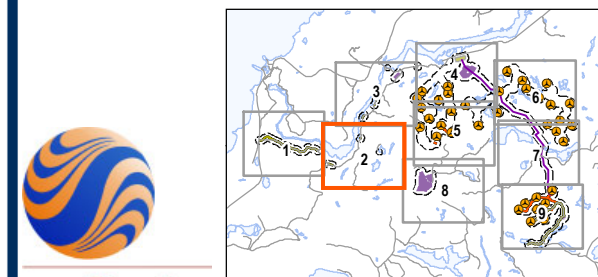
Title
Significant Natural Heritage Features and Attributes



Legend

- 120m Zone of Investigation
- Project Components**
- Turbine Location
 - Gate Location
 - Meteorological Tower
 - Proposed Water Extraction Location
 - Access Road (New)
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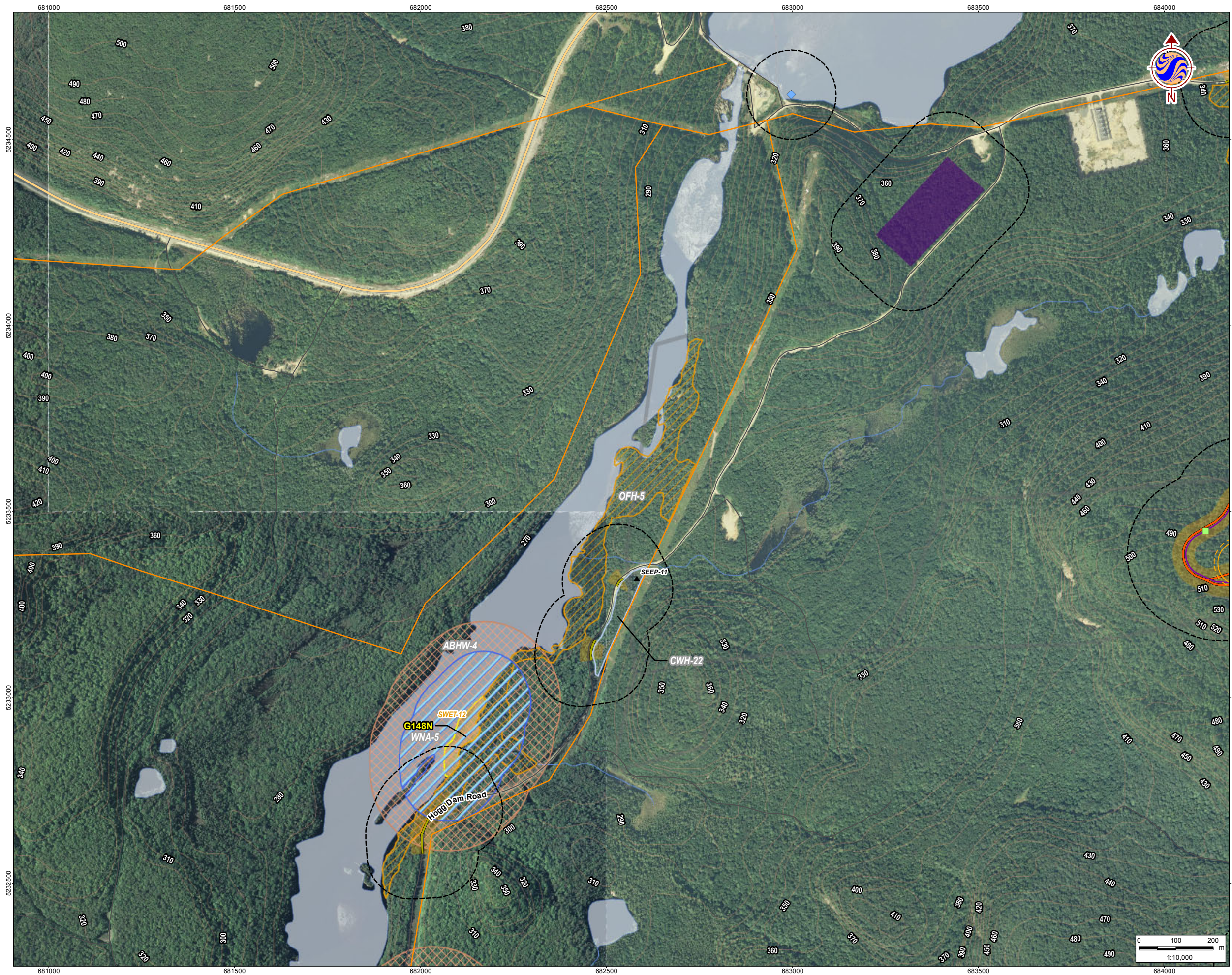
Client/Project

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.

Figure No.
2.2

Title

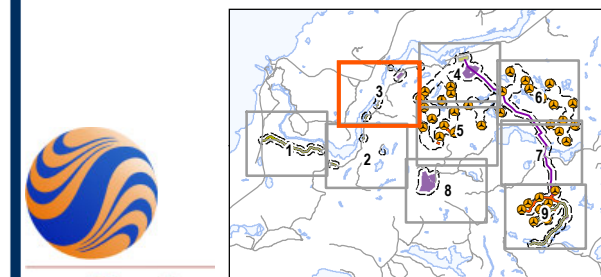
Significant Natural Heritage Features and Attributes



Legend

- 120m Zone of Investigation
- Project Components**
- Turbine Location
 - Gate Location
 - 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
 - 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
- CWH-1** White text, grey halo = Assumed Significant Feature

- Notes**
- Coordinate System: NAD 1983 UTM Zone 16N
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 - Forested breeding habitats throughout Zone of Investigation (not illustrated).



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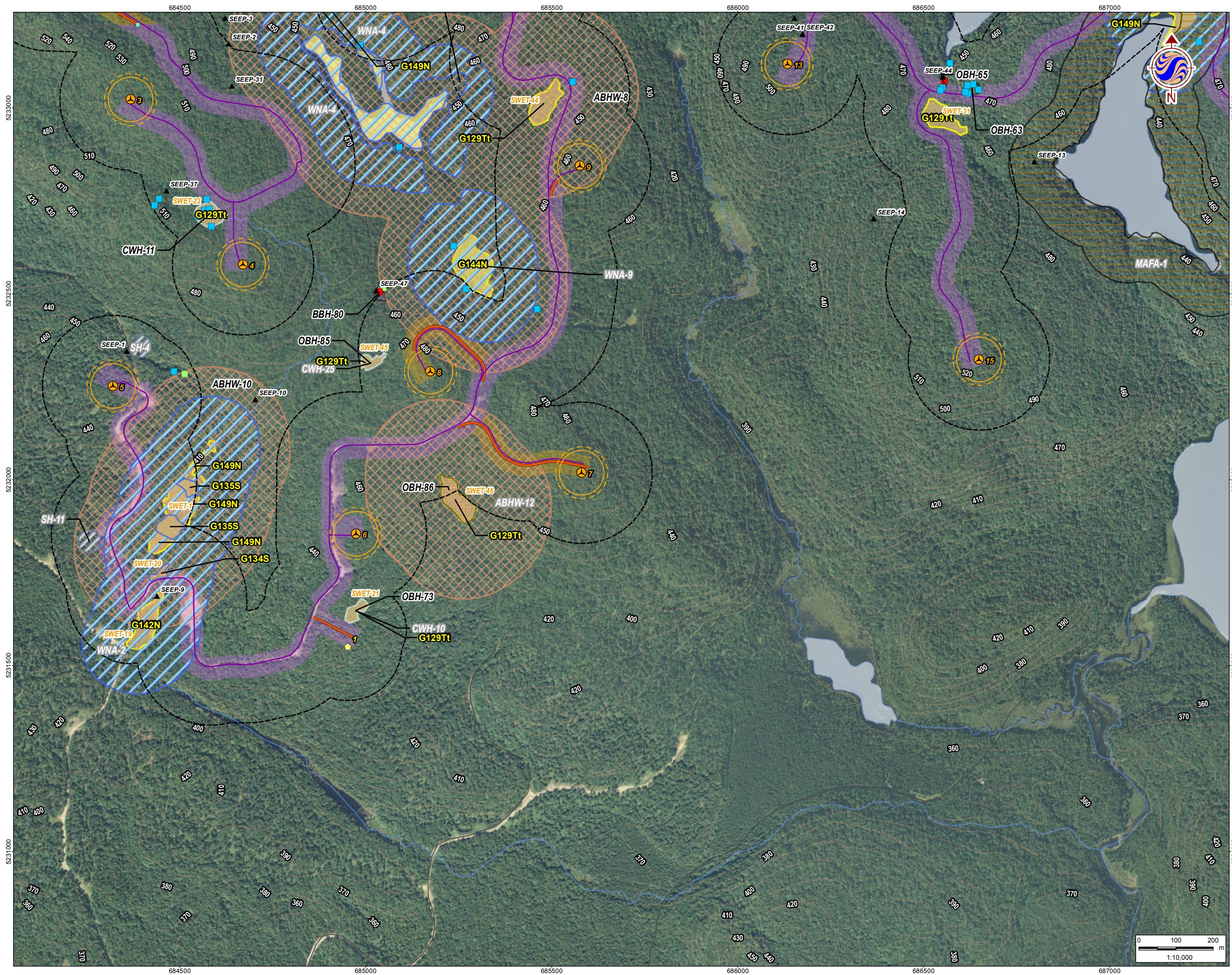
Client/Project

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.

Figure No.
2.3

Title

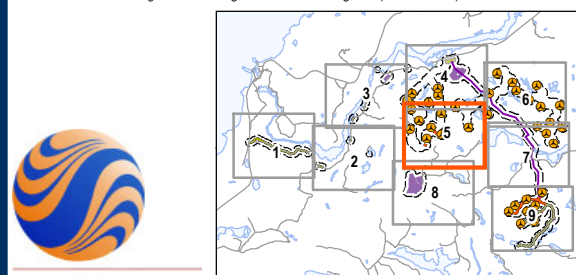
Significant Natural Heritage Features and Attributes



Legend

- 120m Zone of Investigation
- Project Components**
- Turbine Location
 - Gate Location
 - 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
 - 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
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- Notes**
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 6. Forested breeding habitats throughout Zone of Investigation (not illustrated).



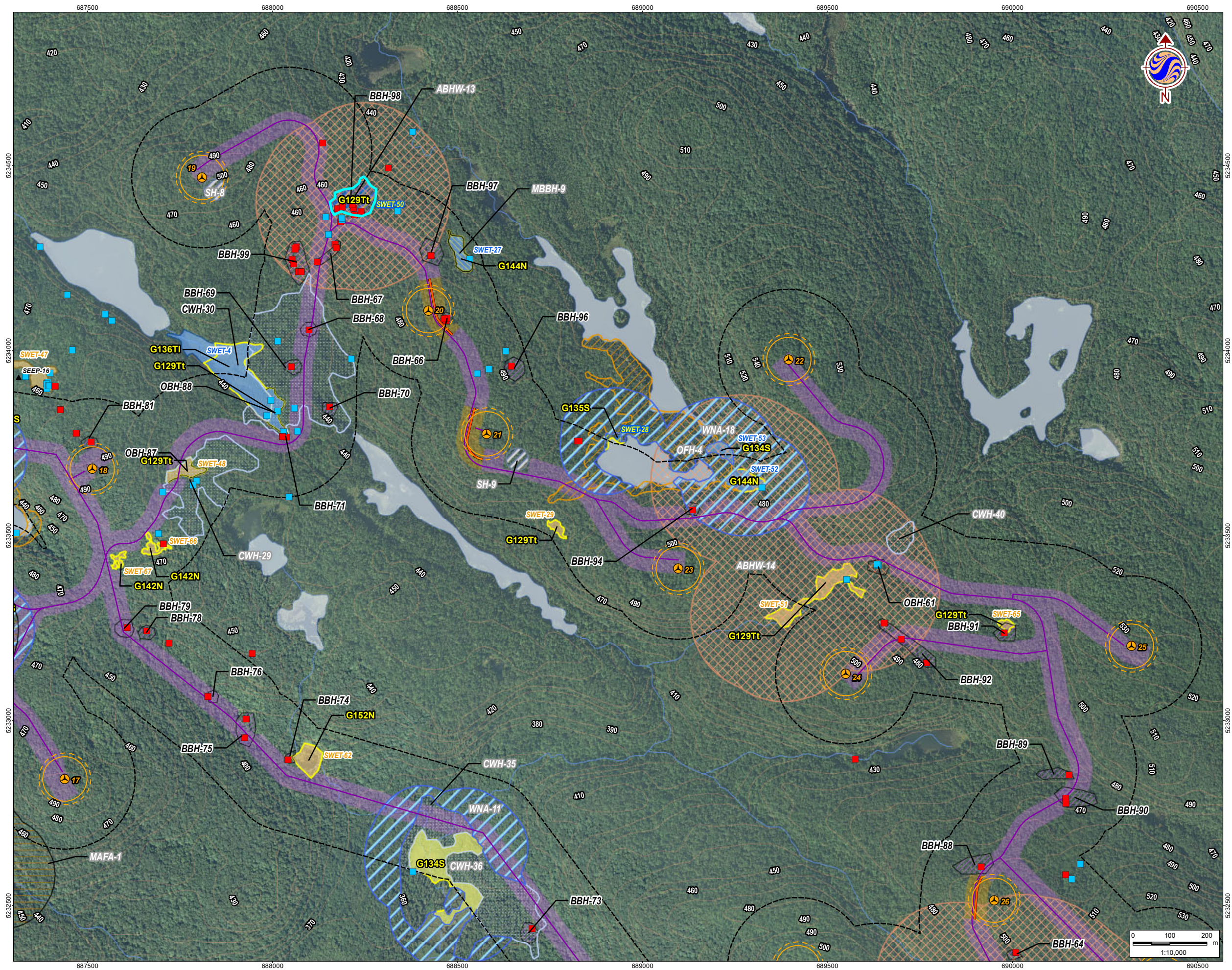
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Client/Project
Bow Lake Wind Farm
Nodin Kitagan Limited Partnership and Nodin Kitagan 2
Limited Partnership, through their General Partners
Shongwish Nodin Kitagan GP Corp. and Shongwish
Nodin Kitagan 2 GP Corp.

Figure No.
2.5

Title
**Significant Natural Heritage
Features and Attributes**



Legend

120m Zone of Investigation

Project Components

- Turbine Location
- Gate Location
- 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
 - 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

CWH-1 White text, grey halo = Assumed Significant Feature

Notes

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- Forested breeding habitats throughout Zone of Investigation (not illustrated)



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Client/Project

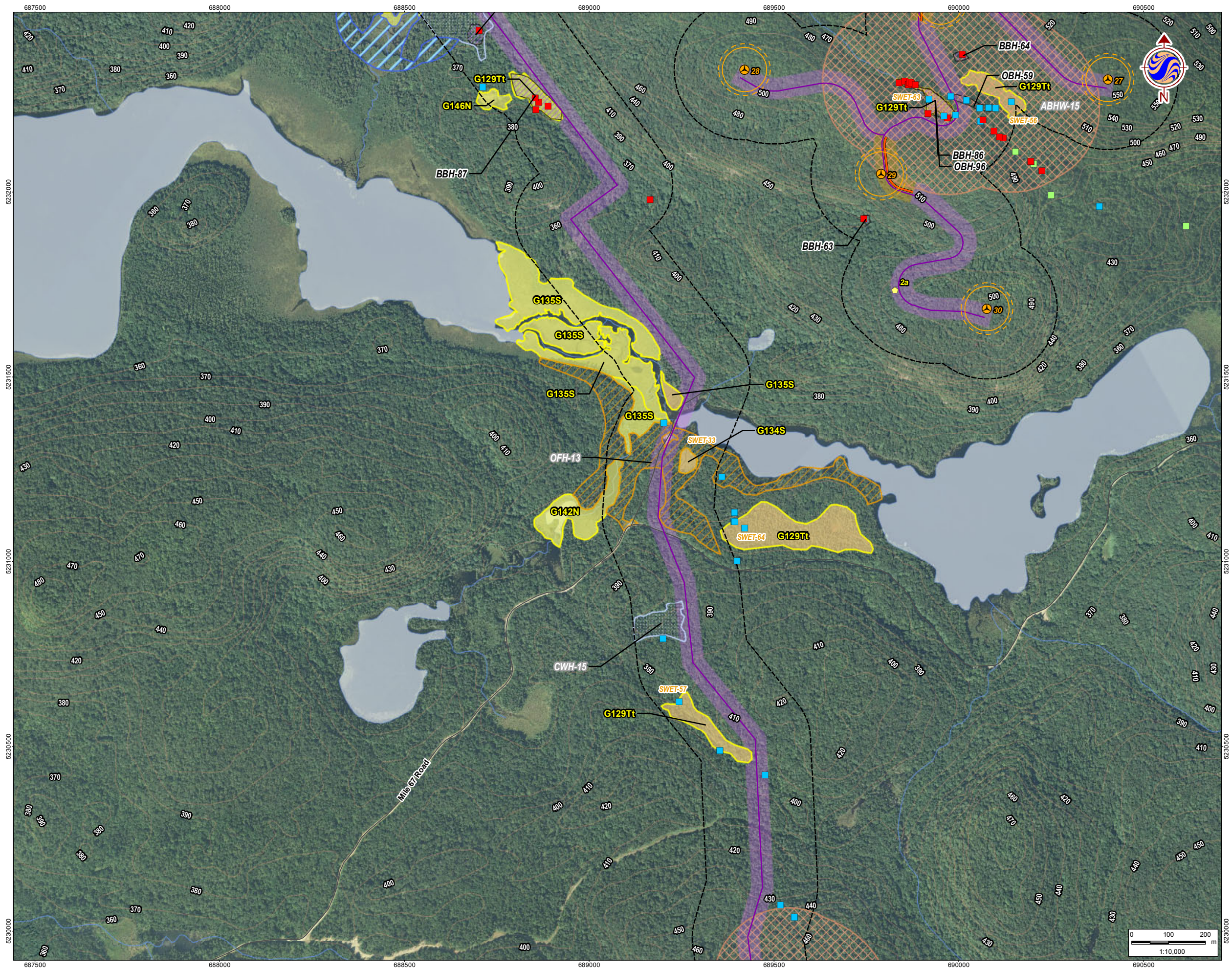
Bow Lake Wind Farm
Nodin Kitagan Limited Partnership and Nodin Kitagan 2
Limited Partnership, through their General Partners
Shongwish Nodin Kitagan GP Corp. and Shongwish
Nodin Kitagan 2 GP Corp.

Figure No.

2.6

Title

**Significant Natural Heritage
Features and Attributes**



Legend

120m Zone of Investigation

Project Components

- Turbine Location
- Gate Location
- 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
- 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

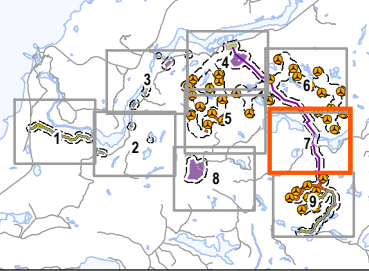
CWH-1 White text, grey halo = Assumed Significant Feature

Notes

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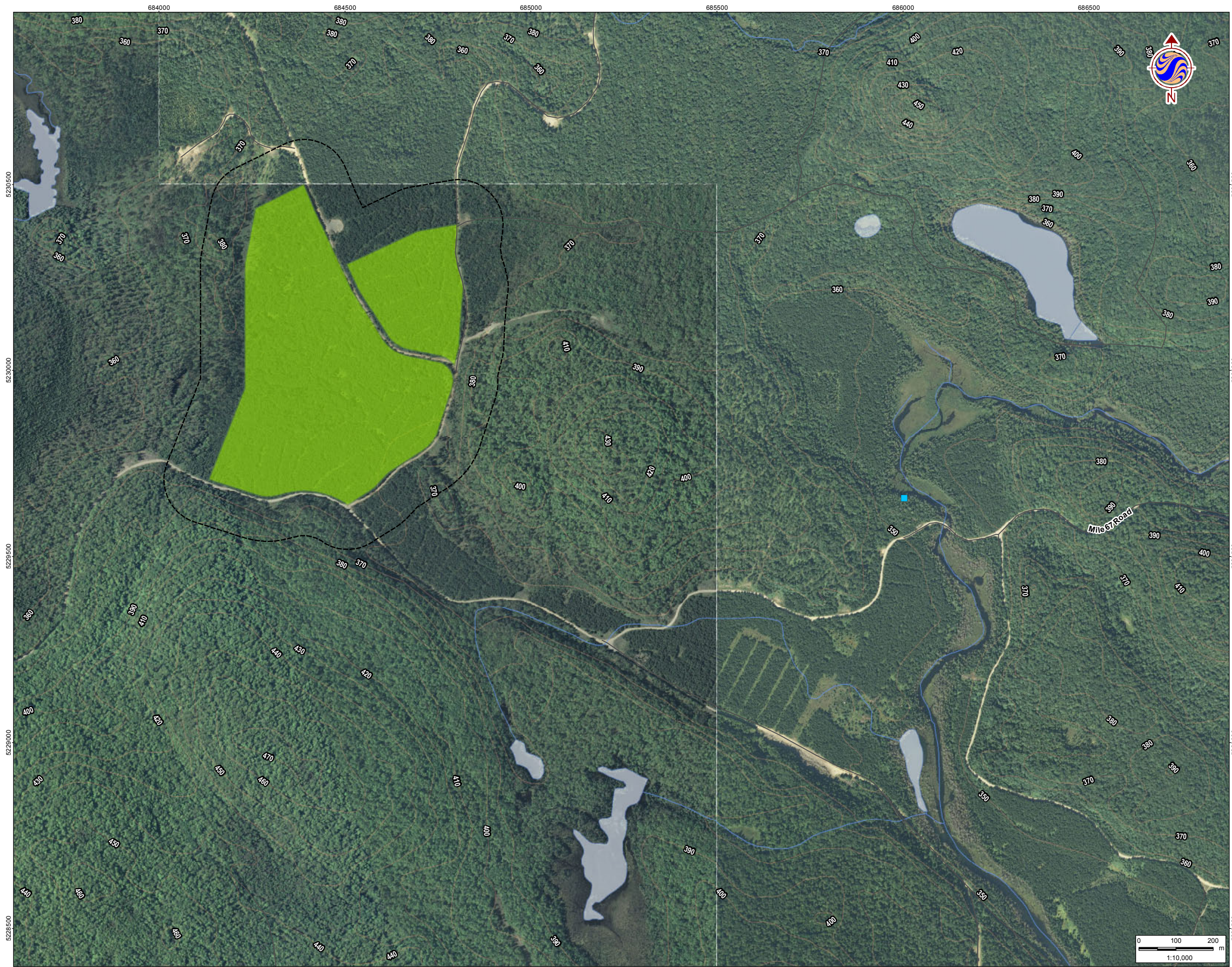
Bow Lake Wind Farm
Nodin Kitagan Limited Partnership and Nodin Kitagan 2
Limited Partnership, through their General Partners
Shongwish Nodin Kitagan GP Corp. and Shongwish
Nodin Kitagan 2 GP Corp.

Figure No.

2.7

Title

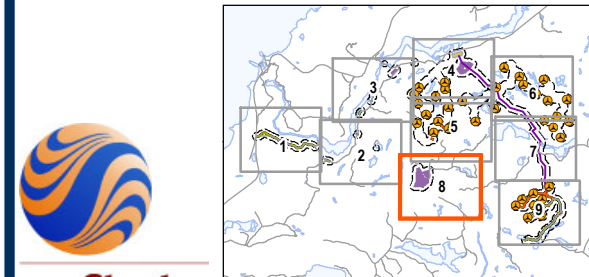
**Significant Natural Heritage
Features and Attributes**



Legend

- 120m Zone of Investigation
- Project Components**
- Turbine Location
 - Gate Location
 - 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
 - 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)
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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.

Figure No.
2.8

Title

Significant Natural Heritage Features and Attributes

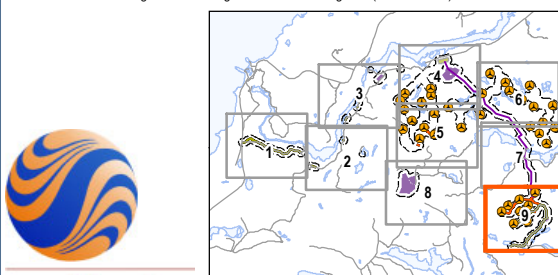


Legend

- 120m Zone of Investigation**
- Project Components**
- Turbine Location
 - Gate Location
 - 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
 - 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)
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- 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**
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ABHW-1 Black text, white halo = Confirmed Significant Feature
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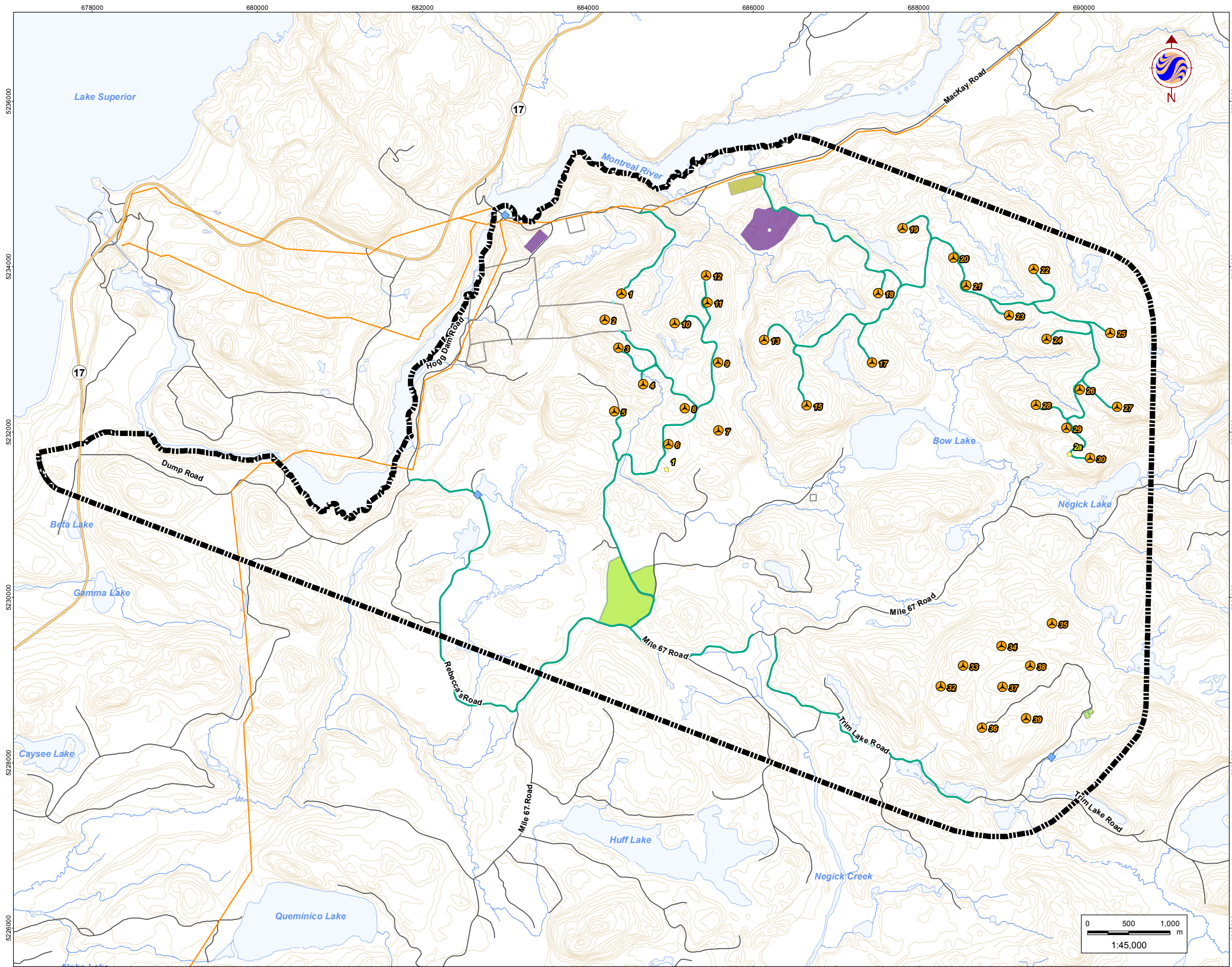


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Client/Project
Bow Lake Wind Farm
Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, through their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp.

Figure No.
2.9

Title
Significant Natural Heritage Features and Attributes



Legend

Study Area

Project Components

- Turbine Location
- Gate Location
- Meteorological Tower
- Proposed Water Extraction Location
- Construction Compound
- Construction Compound & Welfare Building
- Construction Compound & Transformer Station/Operations & Maintenance Building

Existing Features

- Expressway / Highway
- Road
- Existing & Approved FMP Road
- Elevation Contour
- Existing Transmission Line
- Watercourse
- Waterbody
- Patent Land

- ### Notes
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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.

Figure No.
3.0

Title
Existing & Approved FMP Roads