

July 2011



NORTHLAND POWER

McLean's Mountain Wind Farm

Water Assessment Records Review Report



Submitted by:



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1. Introduction

Northland Power Inc. (Northland Power) and Mnidoo Mnising Power (MMP) propose to develop a wind facility with a maximum name plate capacity of 60 megawatts (MW) located south of Little Current in the Municipality of Northeastern Manitoulin and the Islands, Ontario (Figure 1). The renewable energy facility will be known as the McLean's Mountain Wind Farm and will be rated as a Class 4 wind facility. Northland Power has received a contract from the Ontario Power Authority (OPA) for the purchase of electricity generated by wind turbines from this renewable facility through the Province's Feed-in-Tariff (FIT) program (enabled by the Green Energy and Green Economy Act). The project will require approval under *Ontario Regulation 359/09 – Renewable Energy Approval (REA or Ontario Regulation 359/09)* under Section V.0.1 of the *Ontario Environmental Protection Act*.

Ontario Regulation 359/09 requires that all renewable energy projects conduct a records review of water bodies (REA Section 30). This report was completed to address the regulatory requirements for the REA process. It is intended that this report will be submitted to the Ministry of the Environment (MOE) for review and comment as required in Ontario Regulation 359/09.

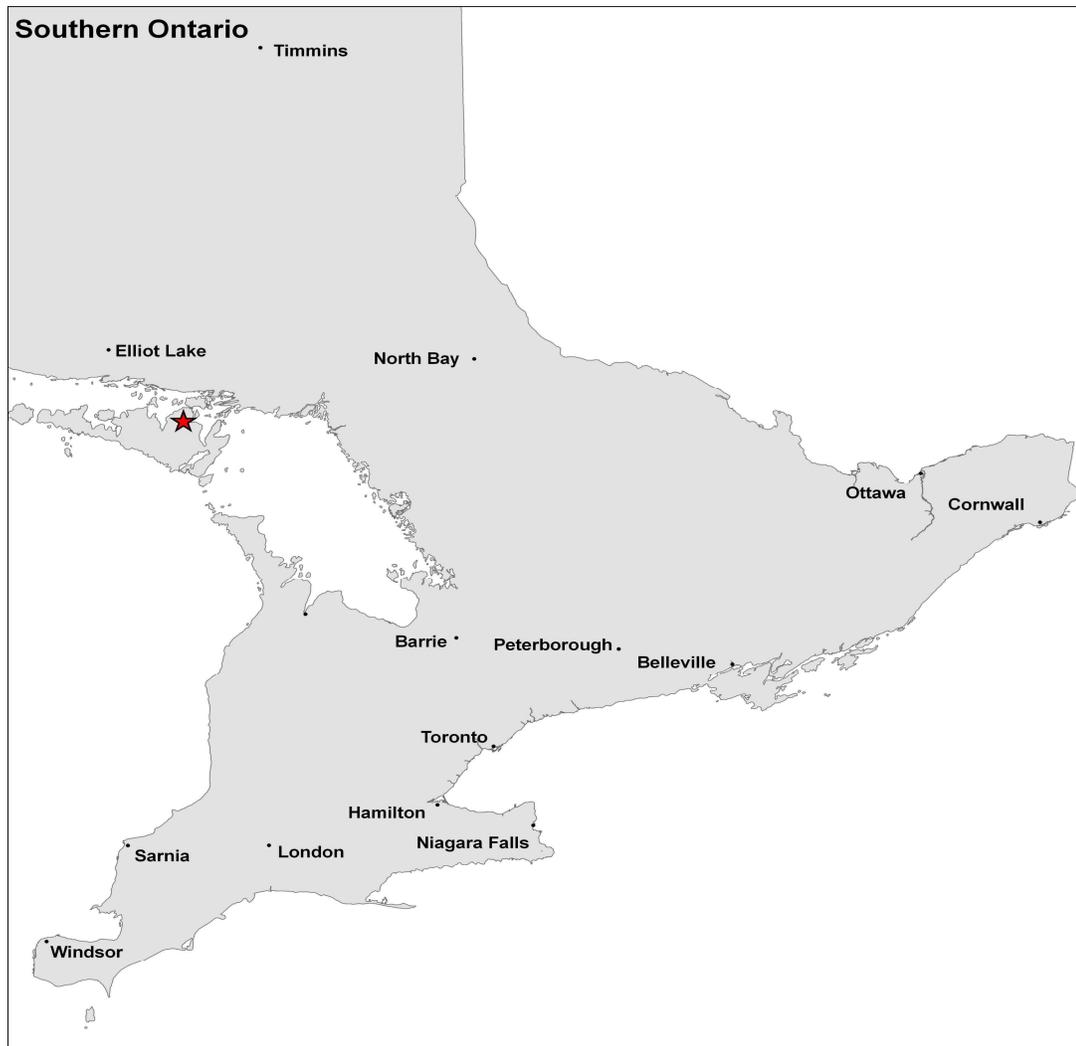


Figure 1: General Location of McLean's Mountain Wind Farm in Ontario

2. The Proponent

Northland Power, founded in 1987, is an experienced developer, owner and operator of renewable power generation in Canada and abroad. Company activities include developing, managing, financing and owning renewable energy facilities. In the course of developing renewable energy projects, Northland Power and MMP strive to satisfy the various environmental approval requirements that vary depending on the jurisdiction, project capacity and site location. In addition, Northland Power and MMP build long-term relationships with the communities that host its' projects. Northland Power and MMP are committed to the health and welfare of the community of Little Current and the Municipality of Northeastern Manitoulin and the Islands.

Contact information for the Proponent is as follows:

Full Name of Company: Northland Power Incorporated
Address: 30 St. Clair Avenue West, 17th Floor
Telephone: (705) 271-5358, (705) 368-0303
Prime Contact: Rick Martin - Project Manager
Email: rickmartin@northlandpower.ca

Dillon Consulting Limited is the prime contractor for the preparation of this *Records Review Report*. The contact at Dillon is:

Full Name of Company: Dillon Consulting Limited
Address: 235 Yorkland Blvd, Suite 800
Toronto, Ontario, M2J 4Y8
Telephone: (416) 229-4646 ext 2355
Fax: (416) 229-4692
Prime Contact: Don McKinnon, REA Project Manager
Email: DPMckinnon@dillon.ca

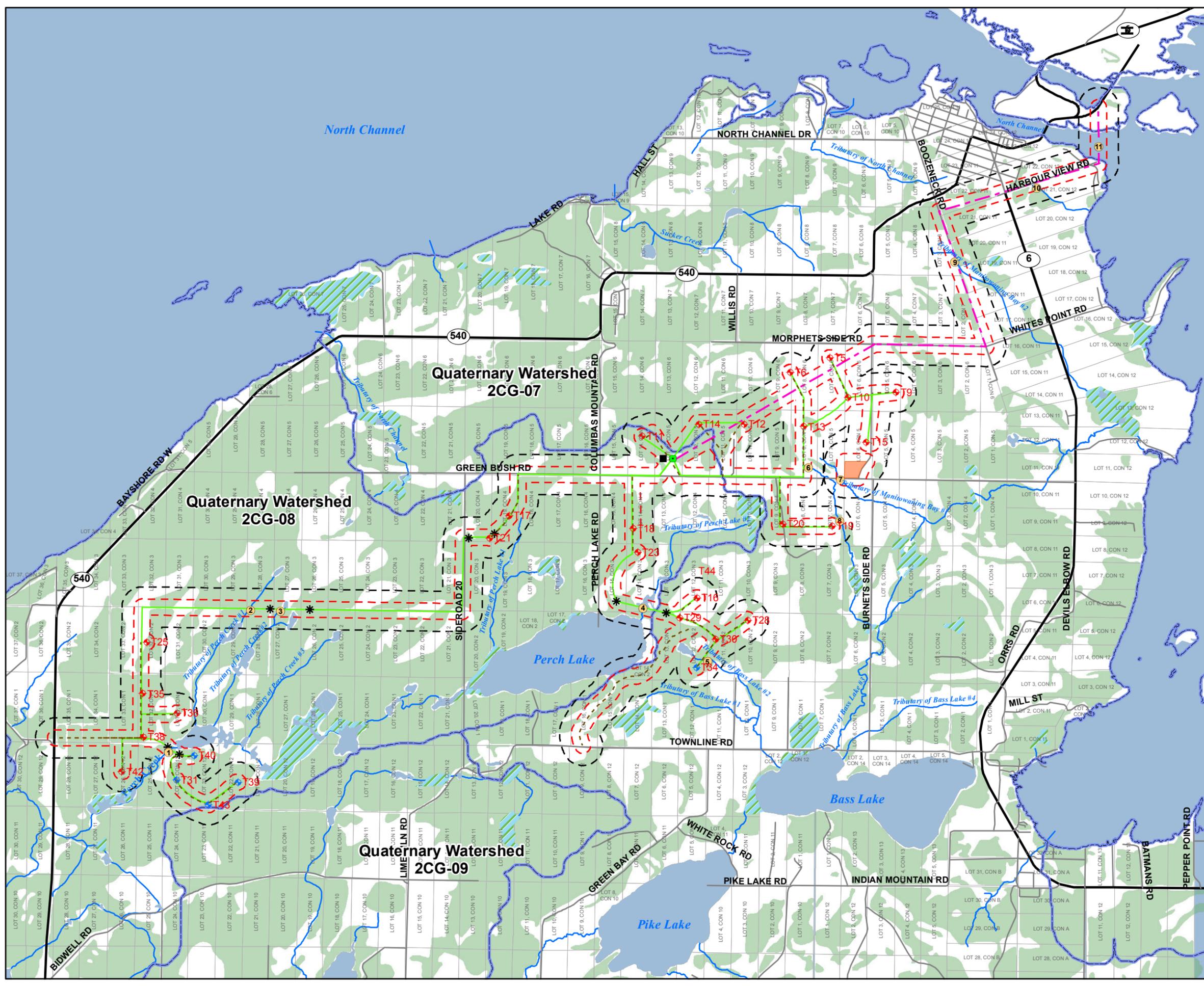
3. Project Location

The proposed Class 4 wind facility is located in the Municipality of Northeastern Manitoulin and the Islands in northeastern Ontario, and covers approximately 8,200 ha of land south of the Town of Little Current. Figure 1 shows the general location of the project. Figure 2 shows the project location, as defined in Ontario Regulation 359/09 as the location encompassing all projects components including a 120 m setback. All project components, including wind turbines, access roads, and electrical facilities such as transmission lines, inverters, transformers, substations and electrical feeder lines, will be located on private land or municipal rights-of-way. The planned wind facility will occur primarily within lands currently zoned as rural, with small areas used for agriculture (Municipality of Northeastern Manitoulin and the Islands Official Plan 2002; see Appendix A).



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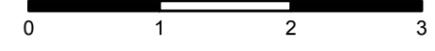
McLean's Mountain Wind Farm Figure 2: Water Assessment Records Review



- Legend**
- Watercourse Crossing
 - Local Roads
 - Highway
 - Watercourse
 - 120 m Project Component Setback
 - 300 m Project Component Setback
 - Quaternary Watershed Boundary
 - Lots/Concessions
 - Water Body
 - Woodland
 - Wetland
- Project Components**
- 24 Wind Turbine Locations
 - Five Extra Permitted Sites
 - Substation
 - Operations Building
 - Horizontal Directional Drilling Access/Exit Pit
 - Access Road
 - Feeder Lines
 - Transmission Line
 - Construction Staging Area



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4. Methodology

A records review was completed, consistent with Section 30 of Ontario Regulation 359/09, for the project location (see Figure 2) using secondary source information.

Section 30 of Ontario Regulation 359/09 states a natural heritage assessment for a renewable energy facility includes a records review to search for and determine whether the project location is:

1. In a water body;
2. Within 120 m of the average annual high water mark of a lake, other than a Lake Trout lake that is at or above development capacity;
3. Within 300 m of the average annual high water mark of a Lake Trout lake that is at or above development capacity;
4. Within 120 m of the average annual high water mark of a permanent or intermittent stream; or
5. Within 120 m of a seepage area.

Under Ontario Regulation 359/09, the definition of a water body does not include:

- a) Grassed waterways;
- b) Temporary channels for surface drainage, such as furrows or shallow channels that can be tilled and driven through;
- c) Rock chutes and spillways;
- d) Roadside ditches that do not contain a permanent or intermittent stream;
- e) Temporary ponded areas that are normally farmed;
- f) Dugout ponds; or,
- g) Artificial bodies of water intended for the storage, treatment or recirculation of runoff from farm animal yards, manure storage facilities and site and outdoor confinement areas.

Table 1 outlines the secondary sources of information used to conduct the natural heritage features records review.

Table 1: Records and Resources Search and Analyzed During Records Review

Record Source		Records Requested and/or Reviewed
Ministry of Natural Resources		
District Office: Espanola		Contact: Wayne Selinger, Area Biologist, via email
Date of Request: September 2008	Date of Data Receipt: October 2008	<ul style="list-style-type: none"> ▪ Records relating to natural features, water bodies and wildlife species
District Office: Sudbury		Contact: Holly Simpson, Area Biologist, via email
Date of Request: October 2004	Date of Data Receipt: October 2004	Records relating to natural features, water bodies and wildlife species
Manuals/Guidelines		Natural Heritage Reference Manual, Second Edition, March 2010
		Inland Ontario Lakes Designated for Lake Trout Management, May 2006
Land Information Ontario, data requested/accessed November 2010		<ul style="list-style-type: none"> ▪ Interactive Online Mapping Tool ▪ Warehouse Data (see Appendix B for data layers obtained)
Ontario Crown Land Use Policy Atlas, online data accessed November 2010		<ul style="list-style-type: none"> ▪ Information related to Crown land, federal and provincial parks and jurisdictional boundaries
Natural Heritage Information Centre (NHIC)		<ul style="list-style-type: none"> ▪ Biodiversity Explorer <ul style="list-style-type: none"> ▪ Rare species ▪ Natural areas ▪ Invasive species
Ministry of the Environment		
Federal Government		
Fisheries and Oceans Canada		Contact: Connie Smith, via email
Date of Request: June 2009	Date of Data Receipt: June 2009	<ul style="list-style-type: none"> ▪ Fisheries issues related to the North Channel
Conservation Authority		
<ul style="list-style-type: none"> ▪ Not applicable; No Conservation Authority with jurisdiction in the project location. 		
Municipality		
Single-Tier Municipality: Northeastern Manitoulin and the Islands		<ul style="list-style-type: none"> • Official Plan and mapping Schedules reviewed
Planning Authorities and Local Boards		
Municipal Planning Authority		Not applicable in project location
Manitoulin Planning Board		Jake Diebolt, GIS Technician/Coordinator; June 10, 2011, email correspondence <ul style="list-style-type: none"> • No applicable information available specific to the project location

Record Source	Records Requested and/or Reviewed
Local Roads Board	Not applicable in project location
Local Services Board	Not applicable in project location
Other Resources	
Great Lakes Conservation Blueprint for Aquatic Biodiversity. Volume 2: Tertiary Watershed Summaries	Phair et al. 2005. Produced by the Nature Conservancy of Canada <ul style="list-style-type: none"> ▪ Summary of statistics and land use relating to water bodies in each tertiary watershed
Provincial Plan Area Records	
Niagara Escarpment Commission	Project location does not fall within the Niagara Escarpment Plan Area
Oak Ridges Conservation Plan Area	Project location does not fall within the Oak Ridges Conservation Plan Area
Greenbelt Plan Area	Project location does not fall within the Greenbelt Plan Area
Lake Simcoe Protection Plan	Project location does not fall within the Lake Simcoe Protection Plan

5. Records Review Results

The project location falls within the Manitoulin Islands Tertiary Watershed 2CG, which lies between the north end of Georgian Bay and Lake Huron and drains into Lake Huron (Phair *et al.*, 2005). This watershed consists of Manitoulin Island and many smaller islands surrounding it. Characteristics of this watershed include coastal areas, stream systems, lakes and wetlands. A significant portion of the watershed is alvar, with mixed forests, sparse deciduous and coniferous forest and dense deciduous forest found throughout the remainder of the watershed. Approximately 9% of the watershed is made up of stream systems; less than 8% is comprised of lake systems (Phair *et al.*, 2005).

The project location is split between two quaternary watersheds (2CG-08 and 2CG-07; see Figure 2). In general, the majority of watercourses within the project location flow towards either Perch Lake or Strawberry Channel (Lake Huron).

As stated in Section 3.0, the project location is located just outside the Town of Little Current and classed mainly as rural lands according to the Municipality of Northeastern Manitoulin and the Islands Official Plan (Appendix A).

5.1 Water Bodies

Based on our review and analysis of the records and resources outlined in Table 1, and in accordance with Ontario Regulation 359/09, determinations were made whether the project location is in a water body or within 120 m of the average annual high water mark of a water body. In consideration of potential Lake Trout lakes and to meet the requirements of the Construction Plan Report, water bodies within 300 m are also noted. The Construction Plan Report will be included as part of the REA Application.

5.1.1 Average Annual High Water Mark Determination

Average annual high water mark determination will be approximated based on top of bank for each watercourse. These determinations will be confirmed during the site investigation. For the purposes of this records review, distances between the project components and water bodies is measured from the centreline of streams and the mapped shoreline of lakes.

5.1.2 Lakes

Manitoulin Island is located within Lake Huron and the project location is located on the northern tip of the island in proximity to the North Channel. The transmission line for the wind farm will cross the North Channel to Goat Island (Crossing 10 on Figure 2).

Besides the crossing of the North Channel, the project location is not located within 120 m of any lakes.

The only lake within 300 m of the project location is Perch Lake, located within the south-central area of the project location. An access road running from Turbine 29 to Townline Road is located 124 m from Perch Lake, just outside of the 120 m setback. A feeder line between Turbines 23 and 29/16 is located 170 m from Perch Lake.

5.1.3 Lake Trout Lakes

A search and analysis of the records and resources outlined in Table 1 did not identify any Lake Trout lakes in the project location or within the surrounding 300 m (MNR 2006).

There is only one lake on Manitoulin Island which is considered a natural Lake Trout lake; Lake Manitou is located approximately 5 km south of the project location. Lake Huron is part of the Great Lakes system and is not currently designated for Lake Trout management.

5.1.4 Permanent and/or Intermittent Streams

Nine watercourse crossings have been identified throughout the project location (see Figure 2). Stations 1 to 3 indicate the location of feeder lines crossing the Perch Creek coldwater system which flows southwest to the North Channel (Wayne Selinger, MNR; *personal communication*). As these crossings, the feeder line will be installed using high-pressure directional drilling. Access/exit pits for construction are located within 120 m of the creek system. In addition, Turbine 40 lies within 120 m of Perch Creek, but is greater than 30 m from the system.

Station 4 is the location of a feeder line crossing tributary (#2) that drains into Perch Lake.

Station 5 indicates the area where Turbine 34 is located greater than 30 m but within 120 m of a Tributary to Bass Lake #2. A feeder line and access road crossing is proposed across this tributary to connect and access this turbine.

Station 6 marks where a Tributary to Bass Lake #3 originates. An access road and feeder line are proposed within 30 m of this stream. Downstream of this location, Station 8 indicates where Turbine 19 lies within 120 m of the stream. This turbine is mapped outside of the 30 m setback.

Station 7 indicates the area where a portion of the Tributary to Manitowaning Bay #1 falls within 120 m of the project construction staging area.

Station 9 at the Tributary to Manitowaning Bay #2, Station 10 at an unnamed tributary and Station 11 at the North Channel all are within 120 m of the proposed transmission line route that terminates on Goat Island. Station 11 relates to Lake Huron and is discussed above in Section 5.1.2.

5.1.5 Seepage Areas

A search and analysis of the records and resources outlined in Table 1 did not identify any seepage areas in the project location or within the surrounding 300 m.

5.2 Species at Risk

Species at risk listed under the federal *Species at Risk Act* and provincial *Endangered Species Act, 2007*, with the potential to interact with the project location and/or adjacent lands, are being considered in consultation with the appropriate agency. Reporting related to the protection of these species at risk is being provided to the appropriate agency under separate cover. This reporting format meets the requirements as set out in Ontario Regulation 359/09, and is consistent with the direction provided by the MNR and the MOE.

5.3 Provincial Plan Areas

Under Ontario Regulation 359/09, if any part of the project location falls within a provincial plan area the project may be subject to different criterion to evaluate the applicable water bodies. In addition, should development occur within the prescribed setback area of a water body, it may be subject to a different set of prohibitions under Ontario Regulation 359/09. Table 2 outlines the provincial plan areas that should be considered when planning a renewable energy project and identifies which, if any, are applicable to the project location.

Table 2: Summary of Provincial Plan Areas and Applicability to the Project

Provincial Plan Area	Applicability to Project
Oak Ridges Moraine Conservation Plan Area	None
Niagara Escarpment Plan Area	None
Greenbelt - Natural Heritage System	None
Greenbelt – Protected Countryside	None
Lake Simcoe Protection Plan	None

6. Conclusions

This report is intended to fulfill the requirements for the water assessment records review report under Ontario Regulation 359/09. Table 3 summarizes the determinations made during this records review. All applicable water bodies within the project location and surrounding 300 m are outlined on Figure 2.

Table 3: Summary of the Water Assessment Records Review

Station ¹	Water Body	Source of Information	Approximate Distance from Project Location to Water Body (m)	Project Components within 120 m
Lakes				
11	North Channel of Lake Huron	MNR Land Information Ontario Mapping	Overlaps	Transmission Line
Lake Trout Lakes				
Not applicable to project location				
Permanent and/or Intermittent Streams¹				
1	Perch Creek	MNR Land Information Ontario Mapping	Overlaps	Feeder Line
			30-120	HDD* access/exit pit
			30-120	Turbine 40
2	Tributary To Perch Creek #1	MNR Land Information Ontario Mapping	Overlaps	Feeder Line
3	Tributary To Perch Creek #2	MNR Land Information Ontario Mapping	Overlaps	Feeder Line
			30-120	HDD* access/exit pit
4	Tributary to Perch Lake #2	MNR Land Information Ontario Mapping	Overlaps	Feeder Line
5	Tributary To Bass Lake #2	MNR Land Information Ontario Mapping	Overlaps	Feeder Line
			Overlaps	Access Road
			30-120	Turbine 34
6	Tributary to Bass Lake #3	MNR Land Information Ontario Mapping	Overlaps	Feeder Line
			Overlaps	Access Road

Station ¹	Water Body	Source of Information	Approximate Distance from Project Location to Water Body (m)	Project Components within 120 m
7	Tributary to Manitowaning Bay #1	MNR Land Information Ontario Mapping	Within 120 m	Construction Staging Area
8	Tributary to Bass Lake #3	MNR Land Information Ontario Mapping	30-120	Turbine 19
9	Tributary to Manitowaning Bay #2	MNR Land Information Ontario Mapping	Overlaps	Transmission Line
10	Unnamed Tributary	MNR Land Information Ontario Mapping	Overlaps	Transmission Line
Seepage Areas				
None located within project location				
Provincial Plan Areas				
None located within project location				

¹ See Figure 2 for station locations in reference to project location; *High-pressure directional drilling

The determinations made in this records review will form the baseline knowledge for water bodies in and around the project location. Fieldwork completed to date will be used to determine the accuracy of this records review for the water bodies mapped within the project location or within 120 m or 300 m, as applicable. This Water Assessment Records Review Report is the first report of two that will fulfill the water assessment component of the REA process.

7. References

Municipality of Northeastern Manitoulin and the Islands. 2002. Official Plan, including Schedules.

Ontario Ministry of Natural Resources. Crown Land Use Policy Atlas.
<http://crownlanduseatlas.mnr.gov.on.ca/clupa.html>. Accessed November 2010.

Ontario Ministry of Natural Resources. Land Information Ontario.
<http://www.mnr.gov.on.ca/en/Business/LIO/index.html>. Accessed November 2010.

Ontario Ministry of Natural Resources. March 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248pp.

Ontario Ministry of Natural Resources. Natural Heritage Information Centre Database.
<http://nhic.mnr.gov.on.ca/> Accessed November 2010.

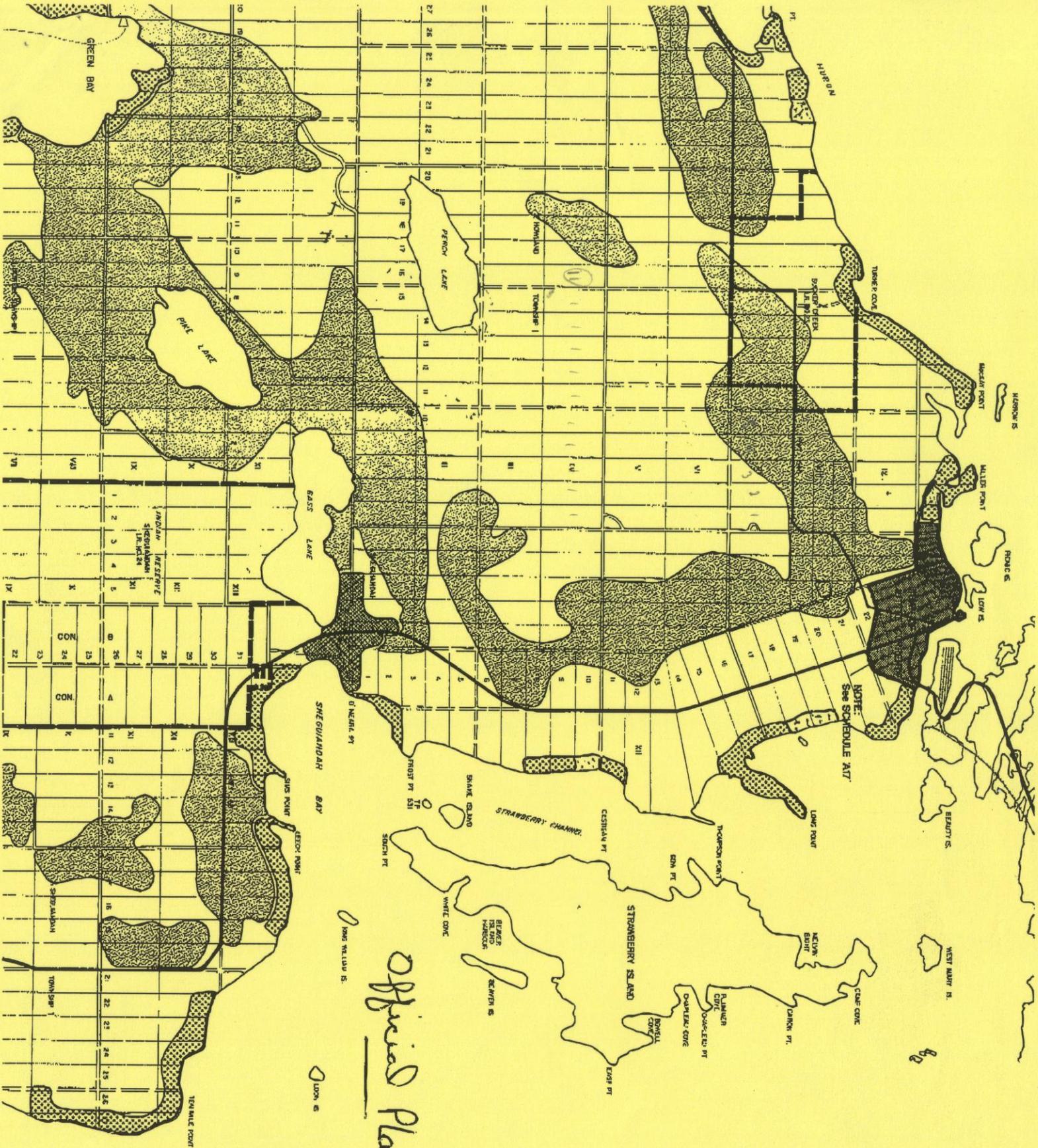
Ontario Ministry of Natural Resources. May 2006. Inland Ontario Lakes Designated for Lake Trout Management. 58 pp.

Phair, C., Henson, B.L., and Brodribb, K.E. 2005. Great Lakes Conservation Blueprint for Aquatic Biodiversity. Volume 2: Tertiary Watershed Summaries. 454pp.

APPENDIX A

Official Plan

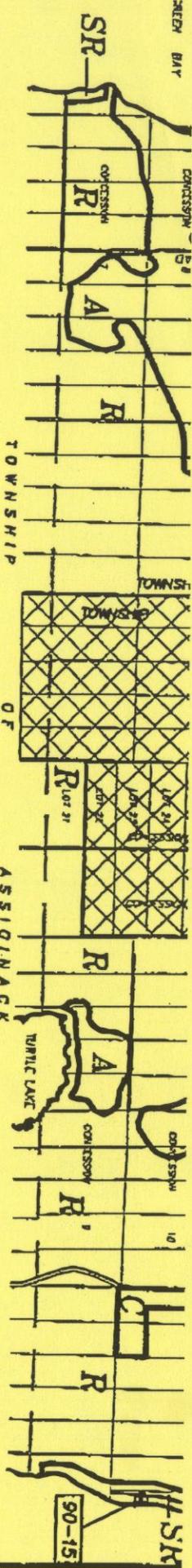




Official Plan

NOTE:
See SCHEDULE A17

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ZONES

Zone	Symbol
------	--------

- | | |
|------------------------------|-----|
| Agricultural (A) | A |
| Rural (R) | R |
| Hamlet (H) | H |
| Settlement (S) | S |
| Shoreline Residential (SR) | SR |
| Mobile Home Park (RMH) | RMH |
| Restricted Commercial (C) | C |
| Commercial Recreational (CR) | CR |
| Restricted Industrial (M) | M |
| Pit & Quarry (Q) | Q |
| Recreation (RE) | RE |
| Hazard (HZ) | HZ |
| Landfill (LF) | LF |
| Waste Processing (WP) | WP |
| Special Provision | ⊙ |

By-Law No. 90-15

NOTE:
 No new habitable structure shall be constructed below the 178.3 metre contour adjacent to Lake Huron unless the setback from the shoreline is a minimum of 81 metres and the structure is flood proofed to the 179.8 metre contour.

This is Schedule A
 to By-Law No. 2002-32
 Passed this day of 18/12/2002.
 Mayor *[Signature]*
 Clerk *[Signature]*

APPENDIX B

GIS Data Layer Summary



Table B1: GIS Data Layer Information

Title of Data Set	Data Layers	Vintage of Data or Date Info/Searched/Collected	Ownership of Information
Roads		Collected 2007	DMTI Spatial
Lots		Collected 2010	Ministry of Natural Resources (Land Information Ontario)
Waterbody		Collected 2010	Ministry of Natural Resources (Land Information Ontario)
Watercourse		Collected 2010	Ministry of Natural Resources (Land Information Ontario)
Woodland		Collected 2010	Ministry of Natural Resources (Land Information Ontario)
Wetlands		Collected 2010	Ministry of Natural Resources (Land Information Ontario)