NORTHLAND POWER

McLean's Mountain Wind Farm

March 14, 2013

The Ministry of the Environment
Director, Environmental Assessment and Approvals Branch
2 St. Clair Avenue West, Floor 12A,
Toronto, ON M4V 1L5

Dear Vic Schroter,

Re: McLean's Mountain Wind Farm Project
Renewable Energy Approval (REA) - Amendment

On October 31, 2012, McLean's Mountain Wind GP Inc. (operating as McLean's Mountain Wind LP) was issued a Renewable Energy Approval (REA) for the McLean's Mountain Wind Farm. The project is a Class 4 Wind Facility with a total name plate capacity of 60 megawatts.

Since that time, as a result of the project detailed design process, minor revisions have been proposed that consist of layout and technology changes. A meeting was held on February 5, 2013 with the Ministry of the Environment (MOE) to discuss the proposed changes. The changes have also been presented to the Ministry of Natural Resources (MNR) and a letter of no concern has been received from MNR.

The attached Modifications Document provides information on the changes, the rationale for the changes, ways in which the originally-submitted REA documents are affected by the changes and a discussion of associated negative environmental impacts. It also contains revised site plan mapping and our correspondence with the MNR.

A Renewable Energy Approval Application for an amendment to the existing REA has also been attached. The proposed project changes that require the amendment can be generally described as follows:

- Relocation two turbines within the same property parcels by 80-100m
- Re-alignment of some access roads and feeder lines
- Re-alignment of a section of the transmission line
- Larger substation transformer
- An equipment specification change to the generator controls in the turbine's nacelle allowing reduced operational noise levels

30 St. Clair Avenue West, 12th Floor, Toronto, Ontario, Canada M4V 3A1 t: 416.962.6262 f: 416.962.6266

Please note that in Schedule B of the current REA there is an error in the UTM coordinates of turbine site T30. The location of T30 in all of the REA report mapping, as well as the content of the reports (and associated sign-off from the MNR) remains the same today as originally submitted as part of the application for the REA. However, a Changes Report and revised Noise Study Report were provided to the MOE in October 2012 to address minor project changes and comments from the MOE. In this revised Noise Study Report an older 2010 UTM was accidentally used for T30. In the amended REA we ask that you update Schedule B to include the accurate location for this turbine. This is not a project change; it was a typo in the revised Noise Study Report issued to the MOE in October. A new revised Noise Study Report has been attached which incorporates the correct UTM coordinate for this turbine. Also, there is a minor typo in Schedule B of the current REA for the UTM northing coordinate for T42 (the "2" is missing in 5082675).

While we understand that there is no regulated timeline for the processing of REA amendment requests, given the minor nature of these proposed changes and that the changes would largely reduce project impacts, we would appreciate a timely review of this application. The urgency of a timely amendment is threefold: 1) the project's construction needs to re-start in mid-April to meet contractual obligations, 2) the project needs to commence clearing of the trees and grassland habitat in mid-April to avoid MNR restrictions protecting tree nesting birds and the bobolink habitat, and 3) our first nation partners have urgent financing time constraints which require the REA amendment be obtained promptly.

Should you have any questions about the attached documents or project changes please feel free to contact me at 416 662 1437.

Yours truly,

Jim Mulvale
Manager EH&S
Northland Power

Cc: MOE Sudbury District Manager
Kristina Rudzki

Attach: Renewable Energy Approval Amendment Application
Modifications Document
Revised Noise Study Report

Ontario
Ministry of the Environment

Application for Approval of a Renewable Energy Project

Ce formulaire est disponible en français

Form Version 1.1

General Information and Instructions

General

Information requested in this form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and will be used to evaluate this application for a Renewable Energy Project. Questions about this collection of information should be directed to: Information Unit Supervisor, Environmental Assessment and Approvals Branch, 2 St. Clair Ave. W, Floor 12A, Toronto ON M4V 1L5. Telephone outside Toronto 1-800-461-6290 or in Toronto 416-314-8001.

Instructions

1. **Applicants are responsible for ensuring that they complete the most recent application form.** Application forms and supporting documentation are available from the Environmental Assessment and Approvals Branch toll free at 1-800-461-6290 (locally at 416-314-8001), from your local District Office of the Ministry of the Environment, and in the "Publications" section of the Ministry of the Environment website at www.ene.gov.on.ca.

2. Questions regarding completion and submission of this application should be directed to the Environmental Assessment and Approvals Branch, 2 St. Clair Avenue West, Floor 12A, Toronto, Ontario, M4V 1L5, telephone number 1-800-461-6290 or (416) 314-8001, or to your local District Office of the Ministry of the Environment.

3. **Complete Submission**
   In order to be eligible for the issue of a renewable energy approval, a person who proposes to engage in a renewable energy project shall, before submitting an application to the Director,

   1) prepare the application in a form or format approved by the Director;
   2) obtain or prepare, as the case may be, any documents that,
      a) are required under Part IV to be submitted as part of the application, or
      b) are to be submitted as part of the application for the purposes of obtaining an exemption from a provision of Part V; and
      c) comply with all other requirements of Part IV of Ontario Regulation 359/09.
   3) If there is more than one person applying for the issue of a renewable energy approval in respect of a renewable energy project, those persons shall jointly submit one application for the issue of a renewable energy approval.
   4) An application to alter the terms and conditions of a renewable energy approval shall be prepared in a form or format approved by the Director and shall be submitted to the Director.

   Supporting documents

   1) A person who proposes to engage in a renewable energy project shall submit a document set out in Column 1 of Table 1 of the Regulation as part of an application for the issue of a renewable energy approval in respect of the project if it is a project described opposite the document in Column 3.
   2) If a document set out in Column 1 of Table 1 of the Regulation is submitted as part of an application for the issue of a renewable energy approval, the person who is engaging in the renewable energy project shall ensure that the document meets the requirements set out opposite the document in Column 2 of Table 1 of the Regulation.
   3) Any document submitted as part of an application for the issue of a renewable energy approval shall be in writing.
   4) Any document submitted as part of an application for the issue of a renewable energy approval that is a diagram, map or plan shall be drawn to scale and shall include a scale bar and a north arrow.

   INCOMPLETE APPLICATIONS WILL BE RETURNED TO THE APPLICANT.
   The Ministry may require additional information during the technical review of any application.

4. If you are submitting your application electronically, electronic PDF application form should be completed and submitted by email to REAeSubmission@ontario.ca. Once the application has been received, you will receive an acknowledgement email with an MOE reference number for your application and additional instructions for submitting your hard copy application package and supporting information.

   If you are not submitting your application electronically, the original application form and all required supporting documents must be sent to:

   The Ministry of the Environment,
   Director, Environmental Assessment and Approvals Branch,
   2 St. Clair Avenue West, Floor 12A, Toronto, Ontario, M4V 1L5

   A copy of the complete application must be sent to any local Ministry District Office having jurisdiction over the project location. To locate the appropriate local Ministry District Office, please visit the Ministry of the Environment Internet site at: www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist.

   A cover letter addressed to the Director of Environmental Assessment and Approvals Branch should accompany both submissions and indicate that a copy of the complete submission has been sent to each District Office that has jurisdiction over the project location.

5. Information collected by the Ministry of the Environment is subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA). If you are of the view that any part of your application is confidential on the grounds such information constitutes a trade secret or scientific, technical, commercial, financial or labour relations information, please make this known now. Otherwise, the Ministry may make the information available to the public without further notice to you.

Ontario
Ministry of the Environment

Application for Approval of a Renewable Energy Project

Ce formulaire est disponible en français

For Office Use Only		
Reference Number	Date *(y/m/d)*	Initials

Form ID: 1650469

Application Summary

✔ Project Name *(Project identifier to be used as a reference in correspondence)*

McLean's Mountain Wind Farm

✔ Project Description Summary
(This summary should reflect the description in the documents upon which consultation has been completed and if it does not, the difference should be highlighted)

Northland Power Inc. and Mnidoo Mnising Power, together form the McLean's Mountain Wind Limited Partnership and propose to develop the McLean's Mountain Wind Farm. The proposed wind farm will consist of twenty-four (24) GE 2.x class wind turbines and will generate sixty (60) megawatts (MW) of electricity, access roads, substation, operations and maintenance and operations building, feeder lines, and 10.3km transmission line.

The facility is considered to be a Class 4 Wind Facility under O.Reg. 359/09.

	Required Information	Completed (yes or no)
✔	**Project Name & Description**	Yes
✔	**Section 1: Applicant Information**	Yes
✔	**Section 2: Project Information**	Yes
✔	**Section 3: Site Information**	Yes
✔	**Section 4: Required Documents**	Yes
	Application Status: FORM COMPLETE.	**Email Form** **Print Completed Form**

Summary:

Type of Application	Type of Renewable Energy Generation Facility
Amendment to REA 7733-8XUNS5	Wind Class 4.
Total Maximum Name Plate Capacity 60 MW	
Total Expected Generation Capacity 60 MW	

Section 1: Applicant Information

Form ID: 1650469

1.1 Applicant Information *(Owner of works/facility)*

Applicant Name *(legal name of individual or organization as evidenced by legal documents)*	Business Identification Number
McLean's Mountain Wind Limited Partnership	82929 1409

Business Name *(the name under which the entity is operating or trading - also referred to as trade name)* ☒ same as Applicant Name

McLean's Mountain Wind Limited Partnership

Applicant Type:

- ☐ Corporation
- ☐ Individual
- ☒ Partnership
- ☐ Sole Proprietor
- ☐ Federal Government
- ☐ Municipal Government
- ☐ Provincial Government
- ☐ Other *(describe)*:

North American Industry Classification System (NAICS) Code

221119 Other Electric Power Generation

Business Activity Description *(a description of the business endeavour, this may include products sold, services provided or machinery/equipment used, etc.)*

Developer, owner and operator of McLean's Mountain Wind Farm

1.2 Applicant Physical Address

Civic Address- Street information *(includes street number, name, type and direction)*	Unit Identifier *(i.e. apartment number)*
30 St. Clair Ave. West, 12th Floor	

Survey Address *(Not required if Street Information is provided)*	Lot	Conc.	Part	Reference Plan

Municipality /Unorganized Township	County/District	Province/State	Country	Postal Code
Toronto		Ontario	Canada	M4V 3A1

Telephone Number *(include area code & ext.)*	Fax Number *(include area code)*	Mobile Number *(include area code)*	E-mail Address
(647)288-1273 *ext.*		(416)662-1437	jim.mulvale@northlandpower.ca

1.3 Applicant Mailing Address

Same as Applicant Physical Address? ☒ Yes ☐ No *(If no, please provide site address information below)*

Civic Address - Street information *(civic numbering and street information including street number, name, type and direction)*	Unit Identifier *(i.e. apartment number)*
30 St. Clair Ave. West, 12th Floor	

Delivery Designator	Delivery Identifier	Postal Station

Municipality /Unorganized Township	Province/State	Country	Postal Code
Toronto	Ontario	Canada	M4V 3A1

1.4 Statement of Applicant

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I understand that by submitting this form, I am guaranteeing the completeness and accuracy of all the information provided on this form and included in the draft reports. Failure to submit the correct information will result in an incomplete application being returned.
- The Project Technical Information Contact identified below is authorized to act on my behalf for the purpose of obtaining approval under section 47.3 of the EPA for the Project identified herein.

Name of Signing Authority *(please print)*	Title
Jim Mulvale	Manager EH&S

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
(647)288-1273 *ext.*	(416)962-6266	jim.mulvale@northlandpower.ca

Mobile Number *(including area code)*	Signature	Date *(y/m/d)*
(416)662-1437		2013/03/14

Section 2: Project Information

Form ID: 1650469

2.1 Application Type

Type of Application:

- [ ] New Renewable Energy Approval
- [x] Amendment to Renewable Energy Approval

Where Applicable provide Existing Renewable Energy Approval Number: 7733-8XUNS5

Application Initiated by:

- [x] Proponent
- [ ] Environmental Assessment and Approvals Branch
- [ ] Provincial Officer Order (attach copy)
- [ ] Other (specify):

Current Certificate(s) of Approval *(please attach a separate list if more space is required)*

Certificate of Approval Number	Date of Issue *(yyyy/mm/dd)*	Certificate of Approval Number	Date of Issue *(yyyy/mm/dd)*
Certificate of Approval Number	Date of Issue *(yyyy/mm/dd)*	Certificate of Approval Number	Date of Issue *(yyyy/mm/dd)*

Current Permit(s) to Take Water *(please attach a separate list if more space is required)*

Permit Number	Date of Issue *(yyyy/mm/dd)*	Permit Number	Date of Issue *(yyyy/mm/dd)*
Permit Number	Date of Issue *(yyyy/mm/dd)*	Permit Number	Date of Issue *(yyyy/mm/dd)*

Project Schedule

Estimated date for start of construction/installation *(yyyy/mm/dd)*	Estimated date for start of operation *(yyyy/mm/dd)*
2012/11/01	2013/08/01

2.2 Statement of Project Technical Information Contact

Is the Project Technical Information Contact the same as the Applicant (identified in Section 1)? [x] Yes [ ] No

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted in support of this application (electronically and in hard copy) is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*..
- I understand that by submitting this form, I am guaranteeing the completeness and accuracy of this form and the draft documents. Failure to submit the correct information will result in the application being returned as incomplete.
- That the information contained in the electronically submitted application form is the same as the information submitted in the hard copy submission.
- I have used the most recent application form (as obtained from the "publications" section of the Ministry of the Environment website at www.ene.gov.on.ca or from the Environmental Assessment and Approvals Branch at 1-800-461-6290).

Name of Project Technical Information Contact	Company
Jim Mulvale	Northland Power Inc.

Telephone Number *(include area code & ext.)*	Fax Number *(include area code)*	Mobile Number *(include area code)*	E-mail Address
(647)288-1273 *ext.*	(416)962-6266	(416)662-1437	jim.mulvale@northlandpower.ca

Signature (hard copy submission **MUST** be signed)	Date *(yyyy/mm/dd)*
	2013/03/14

Address Information:

Same as Applicant Mailing Address? [x] Yes [ ] No *(If no, please provide technical information contact address information below)*

Civic Address - Street information *(civic numbering and street information including street number, name, type and direction)*	Unit Identifier *(i.e. apartment number)*
30 St. Clair Ave. West, 12th Floor	

Delivery Designator	Delivery Identifier	Postal Station

Municipality /Unorganized Township	Province/State	Country	Postal Code
Toronto	Ontario	Canada	M4V 3A1

2.3 Other Approvals for Facility – *Please attach a separate list if more space is required*

Separate list attached? ☐ Yes ☒ No

List all other environmental approvals/permits applied for related to this project or received in relation to this project

Approval Number	Approval Date (yyyy/mm/dd)	Approval Number	Approval Date (yyyy/mm/dd)	Approval Number	Approval Date (yyyy/mm/dd)

Ontario Power Authority (OPA) Registration ID (if applicable)	Ontario Power Authority (OPA) Reference Number (if applicable)
F-000520-WIN-130-601	FIT-FBN77QW and FIT-FA8YIXK

2.4 Type of Renewable Energy Generation Facility *(select all that apply)*

Wind Facility	Biofuel / Biogas / Other	Anaerobic Digestion Facility	Thermal Treatment Facility	Solar Photo Voltaic Facility
☐ Class 2	☐ Biofuel	☐ Class 1	☐ Class 1	☐ Class 3
☐ Class 3	☐ Biogas	☐ Class 2	☐ Class 2	
☒ Class 4	☐ Other	☐ Class 3	☐ Class 3	
☐ Class 5	If other, please describe:			

2.5 Generation of Electricity

Total Maximum Name Plate Capacity		Total Expected Generation Capacity	
60	MW (1 MW = 1000 kW / 1 kW = 0.001 MW)	60	MW (1 MW = 1000 kW / 1 kW = 0.001 MW)

Days and Hours of Operation

365 days/year; 24 hours/day

Section 3: Site Information

Form ID: 1650469

3.1 Project Location - *(the site/location where project will be located)*

Same as Applicant Physical Address? ☐ Yes ☒ No (If no, please provide site address information below)

Civic Address- Street information *(includes street number, name, type and direction)*	Unit Identifier *(i.e. apartment number)*
Local Office at 13 Worthington Street, Little Current, ON P0P 1K0	

Survey Address *(Legal description of the site)*	Lot	Conc.	Part	Reference Plan
	see below	see below	see below	Schedule A of By-law 2001-00

Municipality / Unorganized Township	County/District	Postal Code
Northeastern Manitoulin and the Islands	Manitoulin island	P0P 1K0

Non Address Information *(where the project spans many locations or a large rural area, specify how the project area relates to the address provided)*

The project location is south of the community of Little Current in the Municipality of Northeastern Manitoulin and the Islands (NEMI); geographic Township of Howland and the geographic Township of Bidwell in the District of Manitoulin, Ontario. Please see map provided in the Modifications Document.

Optioned properties include:
Township of Howland: Concession 1, Lots 15-17 and 31-33, south part of Lots 34 & 35 (25 acres of each lot); Concession 2, Lots 10-14 and Lots 21-32; Concession 3, Lots 12-15 and Lots 21-32; Concession 4, Lots 7-9 and 14, 19 and 20; Concession 5, Lots 6-8 and 10-14; Concession 6, Lots 5-10; Concession 7, Lot 6; Concession 12, Part Lot 21; and in the Township of Bidwell: Concession 12, Lots 22-28.

Geo Reference *(southwest corner of property)*

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing
NAD83	17	+/- 5m	GPS	414356	5083191

3.2 Municipal or local authority Information - *(List all municipal or board authorities where the project is located)*

Local Municipality / Unorganized Township *(Include each Single Tier or Lower Tier in which the project location is situated. Attach a separate list if more space is necessary)*

Name of Municipality	Address	Phone
Northeastern Manitoulin and the Islands	15 Manitowaning Rd, Postal Bag 2000, Little Current, ON	(705)368-3500

Clerk's Name	Clerk's Phone/Fax	E-Mail Address
Janet Moore	(705)368-3500 ext 228	jmoore@townofnemi.on.ca

Is the project location situated in one or more Upper Tier Municipality? *(i.e., county, regional or district municipality.)* ☐ Yes ☒ No
List all Upper Tier Municipalities that the project location is situated in. Attach a separate list if more space is necessary

Name of Municipality	Address	Phone

Clerk's Name	Clerk's Phone/Fax	E-Mail Address

Is the project location situated in a Local Roads Area? ☐ Yes ☒ No
List all Local Roads Areas that the project location is situated in. Attach a separate list if more space is necessary

Name of local roads board	Address	Phone

Secretary-treasurer's Name	Secretary-treasurer's Phone/Fax	E-Mail Address

Is the project location in a Local Service Board area? ☐ Yes ☒ No
List all Local Service Board areas the project location is situated in. Attach a separate list if more space is necessary

Name of Local Service Board	Address	Phone

Secretary's Name	Secretary's Phone/Fax	E-Mail Address

3.3 Site Information - *(information about the site/location where project will be located)*

Site Name	MOE District Office
Geographical Townships of Howland and Bidwell, Northeastern Manitoulin and the Islands	Sudbury District Office

Is in any portion of the Project location on federally owned land or a reserve?

☐ Yes ☒ No

Is in any portion of the Project location on Crown Land?

☐ Yes ☒ No

Is the Project location that is the subject of this application owned by the Applicant?

☐ Yes ☒ No ***If no, please attach the owner's name, address and a signed letter granting consent for the installation and operation of the facilities***

Is the Applicant the operating authority of the facility that is the subject of this application?

☒ Yes ☐ No ***If no, please attach the operating authority name, address and phone number***

Is the Project location in the area of the Niagara Escarpment Plan?

☐ Yes ☒ No

Is the Project location in the area subject to the Oak Ridges Moraine Conservation Plan?

☐ Yes ☒ No

Is the Project location in the Protected Countryside as shown in Schedule 1 to the Greenbelt Belt Plan?

☐ Yes ☒ No

Is the Project location in the Lake Simcoe Watershed as defined in the Lake Simcoe Protection Act, 2008?

☐ Yes ☒ No

Is the Project location in the Central Pickering Development Planning Area as shown in Schedule 1 to the Central Pickering Development Plan?

☐ Yes ☒ No

Has an Archaeological Report (s. 22) been prepared as part of the complete submission?

☒ Yes ☐ No Previously provided with original REA application

Has a Heritage Report (s.23) been prepared as part of the complete submission?

☐ Yes ☒ No

Has an Environmental Impact Study Report (s.38, s. 41 or s. 43) been prepared as part of the complete submission?

☒ Yes ☐ No Previously provided with original REA application

Has a Water body Report (s.39, s. 40, s.44 s. 45) been prepared as part of the complete submission?

☒ Yes ☐ No Previously provided with original REA application

Section 4: Required Documents – Table 1 of the Regulation

Form ID: 1650469

4.1 Supporting Information Checklist - *This is a list of all supporting information to this application and is subject to the FOIPPA and EBR.*

	Mandatory	Attachment	Attached	Reference	Confidential* (√)
★	Yes	Proof of Legal Name of Applicant	☒ Yes ☐ No		☐
★	Yes	A map that identifies the project location.	☒ Yes ☐ No	See modifications document	☐
★		Name, Address and Phone Number of the Operating Authority	☒ Yes ☐ No		☐
★	Yes	Name, Address and consent of land/site owner for the installation/construction and operation of the facility	☐ Yes ☒ No	Previously supplied	☐
★	Yes	Project Description Report	☐ Yes ☒ No	Previously supplied	☐
★	Yes	Design and Operations Report	☐ Yes ☒ No	Previously supplied	☐
★	Yes	Decommissioning Plan Report	☐ Yes ☒ No	Previously supplied	☐
★	Yes	Construction Plan Report	☐ Yes ☒ No	Previously supplied	☐
★	Yes	Consultation Report	☐ Yes ☒ No	Previously supplied	☐
		Development Permit under the *Niagara Escarpment Planning and Development Act*	☐ Yes ☒ No	Not required	☐
★	Yes	A copy of this application has been sent to the local district office(s)	☒ Yes ☐ No		☐

Other Information Submitted in Support of the Application for a Renewable Energy Project

	Title	Reference	Confidential* (√)
★	Modifications Document	see attached	☐
★	- contains revised mapping		☐
★	- contains updated equipment specifications		☐
★	- contains correspondence with MNR		☐
★	Revised Noise Study Report	see attached	☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
	Are you attaching an additional list of attachments? ☐ Yes ☒ No	If there is not enough space to list all of the attachments included in this application package, please include an additional listing of these attachments.	☐

***Please note:** the release of information contained in application forms and documentation submitted in support of applications for approval is subject to the provisions of the *Freedom of Information and Protection of Privacy Act*. This Act defines what may and may not be disclosed to the public, and is used to assess all requests for information contained in the documents on file with an application for approval. The information submitted with an application for approval may also be subject to the *Environmental Bill of Rights*. In those situations, the application and the associated non-confidential supporting documentation is made available for review by members of the public. The applicants should therefore identify all documents or portions of documents as noted above which are to be considered confidential and must provide detailed evidence in support of this claim. This evidence will be one of the factors the ministry would consider when making a decision regarding disclosure of specific documents on file.

NORTHLAND POWER

NORTHLAND POWER

McLean's Mountain Wind Farm

Modifications Document for REA Amendment – March 2013

Submitted by:

DILLON CONSULTING

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List of Appendices

1. Introduction

Northland Power Inc. (NPI) and Mnidoo Mnising Power (MMP), are developing the McLean's Mountain Wind Farm (MMWF), located south of the community of Little Current, in the Municipality of Northeastern Manitoulin and the Islands (NEMI); geographic Township of Howland, and the geographic Township of Bidwell in the District of Manitoulin, Ontario. The proposed wind farm will consist of twenty-four (24) wind turbines that will generate sixty (60) megawatts (MW) of electricity.

An application for Renewable Energy Approval (REA) under *Ontario Regulation 359/09* was submitted to the MOE in September 2001. Approval was received October 31, 2012. As a result of continuing project design activity for the MMWF, some minor changes to the project design and equipment have been made since the submission of the REA application and the Project Changes Report in October 2012. This Modifications Document provides a description of the changes proposed to the project as of March 2013. The modifications can be generally described as follows:

- Relocation two turbines within the same property parcels by 80-100m
- Re-alignment of some access roads and feeder lines
- Re-alignment of a section of the transmission line
- Larger substation transformer
- An equipment specification change to the generator controls in the turbine's nacelle allowing reduced operational noise levels

Also described in this report are the changes that would be required to the originally-submitted REA documents to accommodate the project changes proposed. A discussion of whether the proposed project changes would result in changes to the previously identified environmental effects and mitigation is provided as well.

2. Project Status Update

Clearing of vegetation was initiated in late 2012. Project construction activities are expected to resume in late March, weather conditions permitting.

3. Description of Changes

3.1 Project Design and Layout

Through the process of detailed design and further consultation with landowner's minor changes to the project are required. Table 1 below provides a summary of the proposed component/location changes and a rationale for the changes.

Table 1: Project Component and Location Changes

Component	Location of Original & Revised Components	Proposed Change	Rationale
Turbine T14	Lot 12, Con 5	Shift south-east by 100 metres within the same property parcel.	It was determined following detailed geotechnical evaluation that the topography/geology made the original location unfeasible. The new position of the turbine will be located on lands previously assessed for the access road /collector line. The relocation will result in a decrease in tree cutting and land clearing.
Turbine T23 and related access road and feeder line	Lot 14, Con 3 (turbine) and Lot 14, Con 3 and Lot 14, Con 4 (access road and feeder line)	T23 to be moved west of currently location by 80 metres within the same property parcel. Access road and feeder line to T23 to be angled slightly east of current path between T18 and T23.	Shift in location made to increase the distance between the turbine site and an adjacent wetland and to reduce the length of the access road and feeder line to the site. The new position of the turbine will be located on lands previously assessed for their access road /collector line. The relocation will result in a decrease in tree cutting and land clearing.
Transmission Line	Lots 10-13, Con 5 and Lots 5-10, Con 6	Shift northward of the line on the western side by approximately 60	During detailed design of the substation it was determined that the exact alignment of

		metres, tapering to 0 metres on the eastern side.	the transmission line from the substation would be from the north west corner of the substation. As a result, a small shift of the transmission line alignment to the north is required. The shift also optimizes the distance of the transmission line from turbines that the line passes by.
HDD Staging Area near T21	Lot 19, Con 4 (original) Lot 20, Con 4 (revised)	Shift southwest by 129m metres of staging area for directional drilling, placing it on west side of turbine	Better location of HDD staging area due to: a) topography for the set-up of the drill rig, and; b) avoiding potential drilling interference with the T21 foundation.
Access road and feeder line to T9 from McLean's Mountain Road	Lot 5, Con 6	Shift to the south by approximately 100 metres with north turn to turbine.	Shift requested by landowner to maximize distance from a water spring used by livestock.
Access road and feeder line to T10 from McLean's Mountain Road	Lot 6, Con 6	Shift to the south by approximately 100 metres with north turn to turbine.	Shifted to correspond with the entrance off McLean's Mountain Road for the access road to T9 (since the installation crane will travel directly between T9 and T10, this shift allows for less crane time on McLean's Mountain Road).
Feeder line from T15 to McLean's Mountain Road	Lot 6, Con 5 and Lot 6, Con 6	Shift of the southern point of original feeder line east by 68 metres with west turn to turbine off McLean's Mountain Road.	Shifted to match the access road (McLean's Mountain Road) and to reduce foot print by following McLean's Mountain Road for the majority of the route south of the east/west feeder line between T9 and T10. The turbine will be accessed off this same road.
Feeder line from substation to T11	Lots 13-14, Con 5	Shifted northeast to match the access road and both access road and feeder line have been rounded slightly.	To reduce total footprint and to remove the 90 degree angle to the turbine.
Access road and feeder line between turbine	Lot 9, Con 4	Entrance off Green Bush Road shifted approximately 125 metres	To avoid topographic challenges for access road construction and access to

T20 and Green Bush Road		west.	turbine sites with construction equipment.
Shift of feeder line to the northeast between T29 and HDD located to the northwest.	Lot 13, Con 2	Shift northeast by approximately 56 metres	Refined during detailed design – shifted to avoid wet areas to the south and to swing wide of the turbine's crane pad.
Access roads between T14, T12 and Green Bush Road	Lots 10-13, Con 5	Elimination of originally-planned access roads and adjustment of the feeder lines from T12/T14 and the proposed project substation. Access Road connecting T12 and T14 to come directly from substation and more closely follow transmission line path. Access road off of Green Bush Road, including "Y" junction, to be removed.	In conjunction with the relocation of turbine T14, it is proposed to relocate the access roads and electrical collector lines connecting to turbines T14 and T12. The original plan for the access road was to cut a single-purpose path through forest to create the access routes. The original plan also required that a separate swath of trees be cut for an independent electrical collector line route. This proposal would merge the access roads and collector line routes and run them immediately adjacent to the main 115 kV transmission line route. This adjustment will greatly minimize the amount of forest that needs to be cleared.
Hammerheads	Throughout project location along access roads.	Addition of thirteen (13) hammerheads to the mapping provided	It was always intended that truck turnaround areas would be required adjacent to the access roads, but until detailed design was completed the location of these turnaround areas (or hammerheads) was unknown. The project location figure now identifies the proposed location of the hammerheads, most of which are in areas that do not require vegetation removal or habitat disturbance.

The original site plan submitted with the REA application is provided in ***Appendix A***. The revised site plan, based on the changes discussed above, is provided in ***Appendix B***. To easily compare the final site plan and changes with the original, ***Appendix C*** provides a site plan identifying original components that remain the same, those being relocated and those being removed. While only 24 turbines will be erected, a total of 29 turbine locations were submitted for permitting in the REA application and were approved. ***Appendix C*** identifies the location of the extra permitted sites.

3.2 Equipment Specifications

In addition to component/location changes, two changes in equipment are proposed. These are summarized in Table 2.

Table 2: Equipment Changes

Component	Location	Proposed Change	Rationale
Turbine Generator Controls & Noise Levels	All Turbine Locations	An equipment specification change to the generator controls in the turbine's nacelle allowing reduced operational noise levels	General Electric has an electrical generator (which is positioned high in the nacelle) control scheme option which has a lower noise signature than the original generator controls. The new generator controls will be set at three noise levels (note each step in reducing noise, results in lower MW output). Turbine T20 will be set at the lowest noise level, at an equivalent noise level to the original T20 requirements. Turbines T5 and T9 will be set at a higher noise level equivalent to their original noise levels. The remaining twenty one turbines will be set at a mid-point noise level, all less than the original noise performance specifications.
Substation Transformer	Lot 13, Con 5	Increased rating from 66 MVA to 70 MVA	A larger transformer is needed to better withstand instability of the provincial grid in this area. More MWs will not be exported through the transformer, but based on an electrical short circuit

			protection analysis, the larger transformer is required by the wind turbine vendor to ensure stable and IESO-compliant operation of the turbines. The noise characteristics of the new transformer remain similar to the original transformer.

Using the lower turbine generator noise data, the relocated positions of T14 and T23, and the 70 MVA transformer, Aercoustics re-ran their noise model for the McLean's Mountain Wind Farm. The revised Noise Study Report (submitted under separate cover along with this Modifications Document) confirms that the noise intrusion is *reduced* from the original proposal and in compliance with the REA noise requirements.
Revised technical specifications for the above-mentioned equipment are provided in ***Appendix D***.

4. Additional Potential Negative Effects

Based on the changes discussed above, it is not anticipated that there will be additional significant impacts to the natural environment, outside of those already identified in the original project reports. The impacts and related mitigation measures proposed in the REA report package, including the Natural Heritage Assessment and Water Reports, remain unchanged. The Ministry of Natural Resources has been consulted with regard to the modifications (correspondence is provided in ***Appendix E***) and determined the proposed alterations to be minor in nature and that no further assessment is required.
Based on the results of the revised Noise Study Report all receptors remain below the 40dBA limit. The majority of receptors will experience a decrease in noise due to the change in nacelle equipment in the turbines.

5. Impact of Changes on REA Documentation

Table 3 provides an accounting of modifications that would be required to each of the reports originally submitted to the MOE in order to reflect the above-noted project changes.

Table 3: Summary of Changes Required to Original REA Documents

Northland Power Inc. - McLean's Mountain Wind Farm
Based on Changes Proposed in Modifications Document

Report Section	Report Page Number	Original Text	Comments or Revised Text in Changes Document #1 - October 2012	Comments or Revised Text - February 2013
Project Description Report				
Exec Summary	i	The proposed wind farm (the "project") will consist of 24, 2.5 MW wind turbines with a nameplate capacity of 60 MW.	The project includes twenty-three (23) GE 2.5 MW wind turbine generators and one (1) GE 2.355 MW wind turbine generator…	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
5.4 Project Components	7	The project includes twenty-four (24) GE 2.5 MW wind turbine generators with a nameplate capacity of 60 MW.	The project includes twenty-three (23) GE 2.5 MW wind turbine generators and one (1) GE 2.355 MW wind turbine generator…	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
Appendix A	N/A	Figure A-2: Project Components Site Plan	Revised Site Plan as attached to the Project Changes Report	Revised Site Plan (February 2013) as attached to Modifications Document
Appendix A	N/A	Figure 2: REA Setbacks Map	N/A	See revised site plan
Construction Report				
Exec Summary	i	The proposed wind farm (the "project") will consist of 24, 2.5 MW wind turbines with a nameplate capacity of 60 MW.	The project includes twenty-three (23) GE 2.5 MW wind turbine generators and one (1) GE 2.355 MW wind turbine generator…	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
1. Introduction	1	The wind farm consists of 24, 2.5 megawatt (MW) wind turbines that will generate 60 MW of electricity.	as above	as above
Appendix A	N/A	Figure A-2: Project Components Site Plan	Revised Site Plan as attached to the Project Changes Report	Revised Site Plan (February 2013) as attached to Modifications Document
Appendix A	N/A	Figure 2: REA Setbacks Map	N/A	See revised site plan

Appendix A	N/A	Figure 3: Watercourse Crossings	N/A	See revised site plan
Appendix E	N/A	Stage 1 and 2 Archaeological Assessments	N/A	See note below under Archaeology and Cultural Heritage
Design and Operations Report				
Exec Summary	i	The project includes twenty-four (24) GE 2.5 MW wind turbine generators with a nameplate capacity of 60 MW.	The project includes twenty-three (23) GE 2.5 MW wind turbine generators and one (1) GE 2.355 MW wind turbine generator…	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
1. Introduction	1	as above	as above	as above
4. Site Plan	8	The locations of all noise receptors within 2000 metres are also shown in Appendix A - Figure A-2. The closest noise-sensitive receptor to a wind turbine is Receptor ID 281, which is 700 metres from wind turbine #23.	The locations of all residences within 2000 metres of the turbine sites are shown in the revised Site Plan. The closest residence to a wind turbine is Receptor ID 281 which is 700 metres from a wind turbine #23. The revised 2012 Noise Assessment report identifies the location of all noise receptors considered in the noise modeling including vacant lot receptors. A table is included in the Noise Report (located after page 16) that identifies the distance of the closest receptor to each turbine and the projected noise level at each receptor location. A map is provided that shows the location of the identified receptors.	The closest noise-sensitive receptor to a wind turbine is Receptor ID V229, which is 562m from wind turbine #17. The revised February 2013 Environmental Noise Impact Assessment identifies the location of all noise receptors considered in the noise modeling including vacant lot receptors. A table is included in the Noise Report that identifies the distance of the closest receptor to each turbine and the projected noise level at each receptor location. A map is provided that shows the location of the identified receptors.
Table 4-1	9	Turbine Setbacks to Receptors and Significant Features	The revised 2012 Noise Assessment report identifies the location of all noise receptors considered in the noise modeling including vacant lot receptors. A table is included in the Noise Assessment Report (located after page 16) that identifies the distance of the closest receptor to each turbine and the projected noise… level at each receptor location. A map is provided that shows the location of the identified receptors.	The following reflects the locational changes of T14 and 23. Revised information (approximate distances): T14 - distance to nearest non-participating receptor = 1240m T23 - distance to nearest non-participating receptor = 3050m T14 - distance to nearest non-participating lot line = 265m T23 - distance to nearest… non-participating lot line = 515m T14 - nearest public road = 715m T23 - nearest public road = 510m T23 - wetland closer than 120m = n/a (note that previously it was 90m and is now 180m)

5.2 Wind Farm Components	11	The project includes twenty-four (24) GE 2.5 MW wind turbine generators with a nameplate capacity of 60 MW.	N/A	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
Appendix A	Figure A-2	Site Plan	Revised Site Plan as attached to the Project Changes Report	Revised Site Plan as attached to the Modifications Document
Appendix A	Figure A-3	Natural Features and REA Setbacks Site Plan	N/A	See revised site plan
Appendix B	N/A	Noise Assessment Report	Replace with revised 2012 Noise Assessment Report	Replace with revised February 2013 Environmental Noise Impact Assessment
Decommissioning Plan Report				
Exec Summary	i	The project includes twenty-four (24) GE 2.5 MW wind turbine generators with a nameplate capacity of 60 MW.	N/A	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
1. Introduction	1	as above	N/A	as above
Natural Heritage Assessment - (Records Review, Site Investigation, Evaluation of Significance, Environmental Impact Study)				
Changes relevant to the NHA have been summarized for the MNR and are appended to the Modifications Document. Proposed project changes as outlined in the Modifications Document do not affect new natural features or increase negative environmental effects.				
Water Assessment (Records Review)				
Figure 2	5	Water Assessment Records Review Project Location Map	N/A	See revised site plan
Water Assessment (Site Investigation Reports)				
Figure 2	5	Water Assessment Records Review Project Location Map	N/A	See revised site plan
Figure 3	14	Water Assessment Site Investigation Project Location Map	N/A	See revised site plan
Figures 4-11	17-24	See titles of the eight figures in this report	N/A	See revised site plan
Water Body Report (Water Assessment Environmental Impact Study)				
Figure 2	5	Water Assessment Site Investigation Project Location Map	N/A	See revised site plan

Section 7.0	10	Construction Schedule	N/A	See above updated project schedule
Archaeology and Cultural Heritage				
While the site plans presented in the Archaeological Assessments and Cultural Heritage Self-Assessment are now outdated, the revised locations of turbines, access roads, collector lines and other components are within studied lands as described in these reports and thus, no changes of note are necessary to these documents.				
Consultation Report				
With the exception of consultation with the MNR (document in the Modifications Document) there are no changes to the Consultation Report as a result of the proposed project changes.				
Noise Study Report				
The Noise Study Report has been revised since the last submission with the Changes Report in October 2012. The revised version takes into account the relocation of turbines T14 and T23, changes to the turbine models, and the increased rating of the main substation transformer from 66 MVA to 70 MVA.				
Property Line Setback Report				
Exec Summary	i	The proposed wind farm (the "project") will consist of 24, 2.5 MW wind turbines with a nameplate capacity of 60 MW.	N/A	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
Wind Turbine Specifications Report				
Exec Summary	i	The proposed wind farm (the "project") will consist of 24, 2.5 MW wind turbines with a nameplate capacity of 60 MW.	N/A	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
Introduction	1	The proposed project will consist of 24, 2.5 megawatt (MW) wind turbines.....	N/A	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
4. Wind Turbine Specifications	4	The project will consist of 24 General Electric 2.5 MW wind turbine generators….	N/A	The project includes twenty-four (24) GE 2.x wind turbine generators, with twenty one (21) set at the 2.49 MW/ noise setting,, one (1) at the 2.38 MW/ noise setting and two (2) at the 2.66 MW/ noise setting, …
Table 4-1	4-5	Turbine Description - General Electric 2.5 xl	N/A	Updated technical specifications for the GE 2.x series has been provided in the appendices to the Modifications Document.

Table 4-2	5-6	Turbine Locations	N/A	Revised turbine locations and UTM coordinates have been provided in the February 2013 Noise Study Report appended to the Modifications Document

6. Summary

This document provided a description of the layout and equipment changes proposed since October 2012 for the MMWF project. The proposed changes outlined in this document are minor in nature and do not result in increased environmental impact or the need for additional mitigation measures. As a result of the changes, the overall environmental impact of the project would be reduced.

APPENDIX A

Original Site Plan

NORTHLAND POWER

McLean's Mountain Wind Farm
Figure A-2: Project Components Site Plan

Legend

- Noise Receptor
- Local Roads
- Highway
- 120 m Project Component Setback
- Lots/Concessions
- Water Body
- Watercourse
- Woodland
- Unevaluated Wetland
- 550m Noise Receptor Setback

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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Date Modified: July 25, 2011
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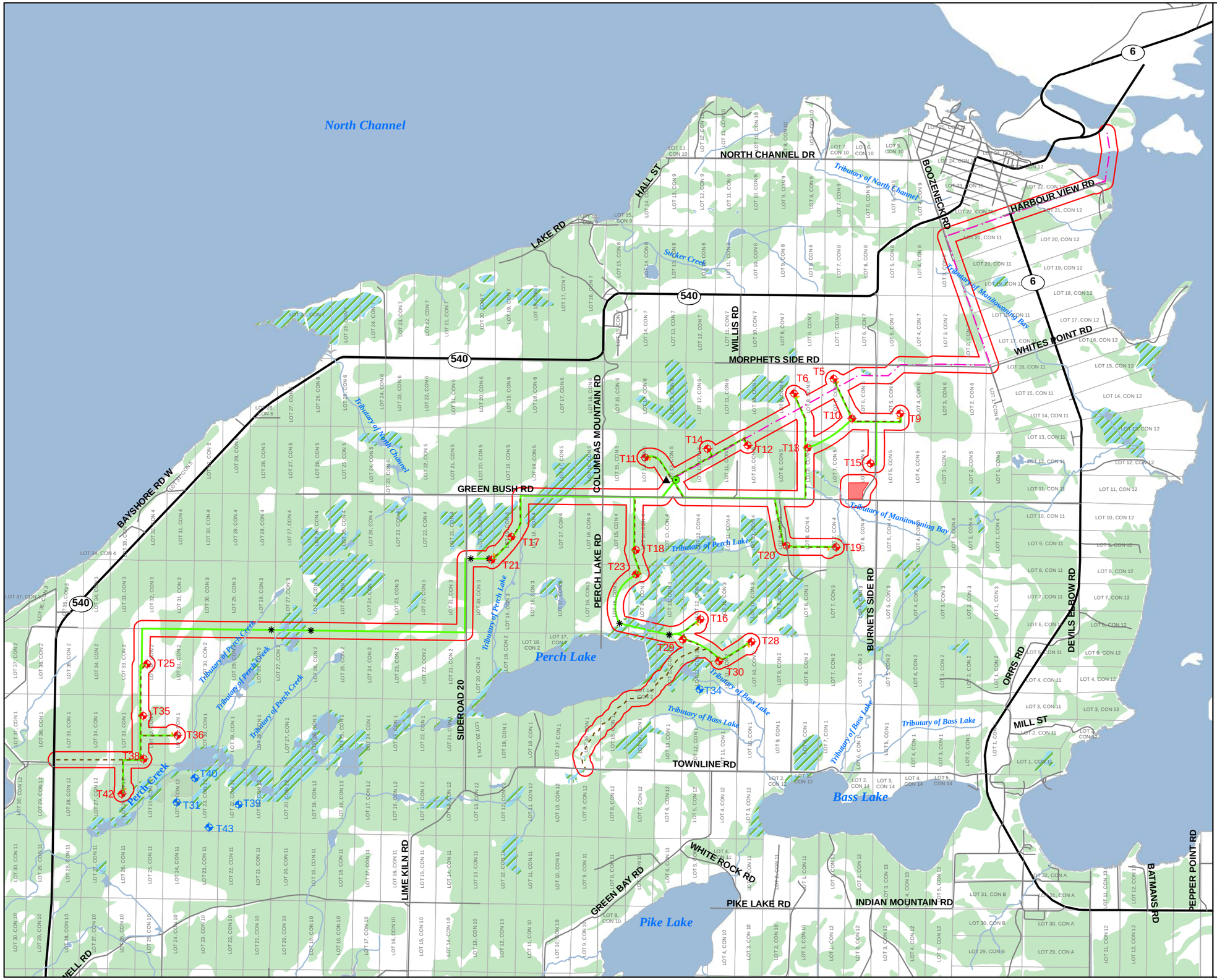
APPENDIX B

Revised Site Plan



McLean's Mountain Wind Farm
Figure 2: February 2013 Revised Project Layout

Legend

- Local Roads
- Highway
- Lots/Concessions
- Water Body
- Watercourse
- Woodland
- Unevaluated Wetland

Project Components

- 24 Wind Turbine Locations
- 5 Extra Permitted Sites
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Hammerhead
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

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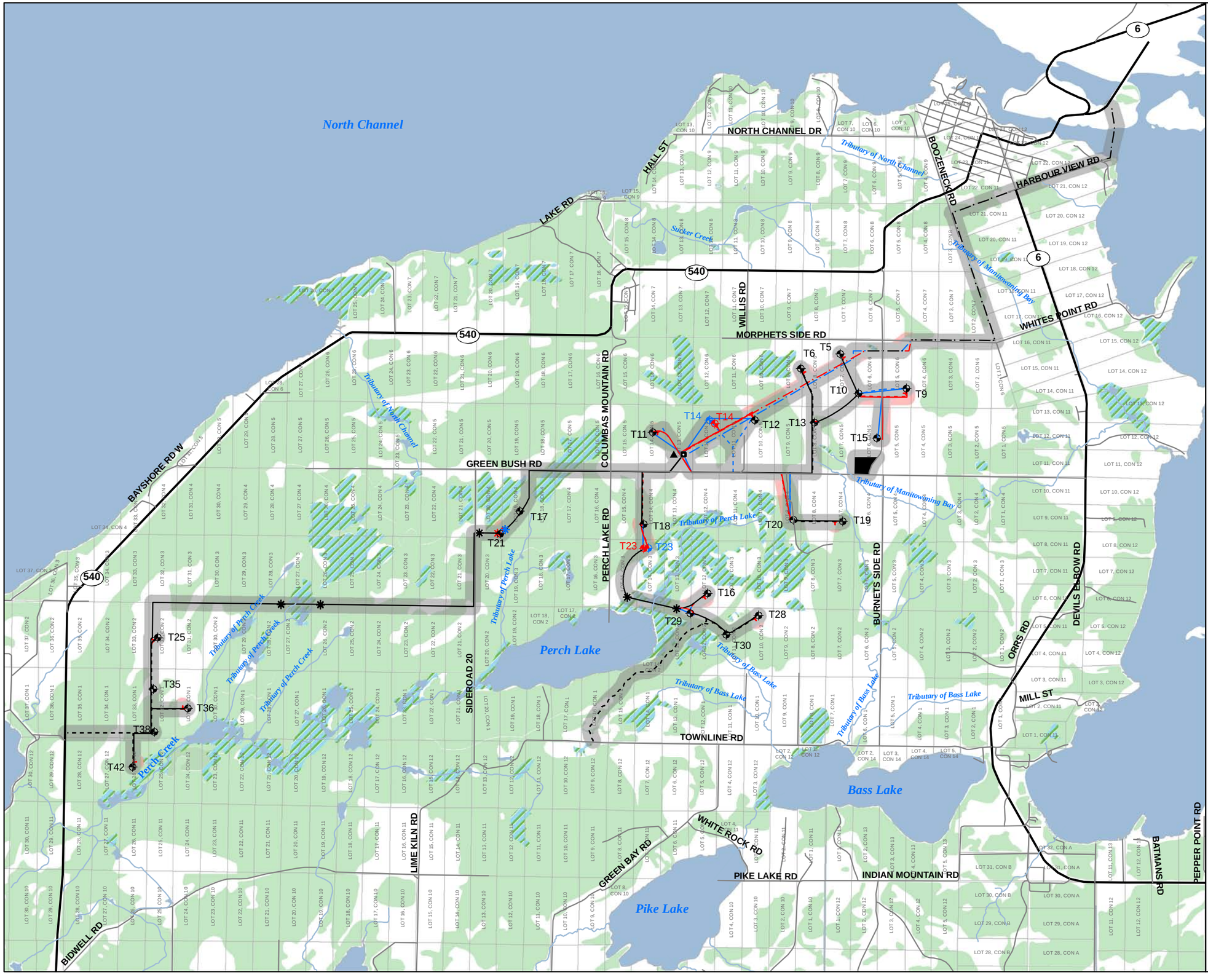
APPENDIX C

Comparison of Original vs. Revised Site Plans



McLean's Mountain Wind Farm Proposed Layout and Component Changes February 2013

Legend

- Local Roads
- Highway
- Lots/Concessions
- Water Body
- Watercourse
- Woodland
- Unevaluated Wetland

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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Date Modified: February 14, 2013
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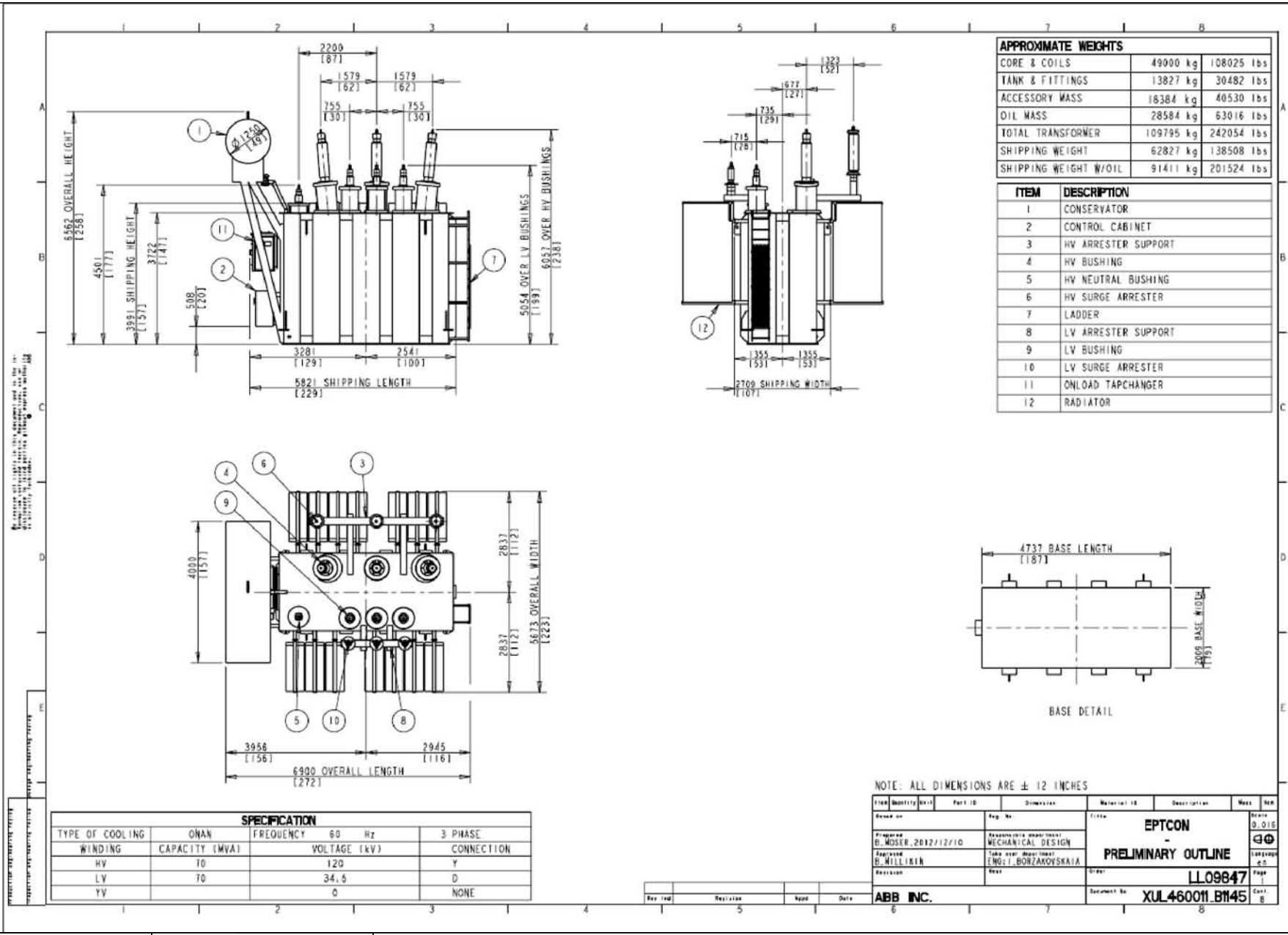
APPENDIX D

Equipment Technical Specifications



aercoustics engineering limited
50 Ronson Dr, Suite 165, Toronto ON
P: 416 249 3361 F: 416 249 9813

Scale: N/A
Drawn: RJ
Eng: PA
Date: Jan 15, 2013

The scope of the work outlined in this document is limited to the acoustic, noise, and/or vibration control aspects of the design. Contractors to verify all dimensions

Project Name:
McLean's Mountain Wind Farm

AEL Project Number 08020

Figure Title:
Transformer Drawing

Figure 3

GE Energy

Technical Documentation Wind Turbine Generator Systems 2.x Series

Technical Description and Data

imagination at work

GE Energy

www.ge-energy.com

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Table of Contents

1 Introduction

This document summarizes the technical description and specifications of the GE 2.x Series wind turbines.

2 Technical Description of the Wind Turbine and Major Components

The 2.x Series are three-bladed, upwind, horizontal-axis wind turbines with rotor diameters of 100 or 103 meters. The turbine rotor and nacelle are mounted on top of a tubular tower with the following hub heights (cf. Fig. 2 to Fig. 5).

	2.5-100	2.5-103	2.75-100	2.75-103	2.85-100	2.85-103
50 Hz:	98.3 m, 85 m, 75 m	98.3 m, 85 m	98.3 m, 85 m, 75 m	123.5 m, 98.3 m, 85 m	98.3 m, 85 m, 75 m	123.5 m, 98.3 m, 85 m
60 Hz:	-	98.3 m, 85 m	-	98.3 m, 85 m	-	98.3 m, 85 m

Table 1: 2.x Series hub heights depending on 50 or 60 Hz market

The 2.x Series employs active yaw control (to steer the wind turbine with respect to the wind direction), active blade pitch control (to regulate turbine rotor speed) and a variable speed generator with a power electronic converter system.

The 2.x series features a modular drive train design where the major drive train components including main shaft bearing, gearbox, generator and yaw drives are attached to a bedplate (see Fig. 1).

The 2.x Series has turbine variants with different MW output nameplates: 2.5 MW, 2.75 MW, and 2.85 MW. Over the course of turbine development, improved efficiencies in the control and electrical conversion systems have enabled the 2.x Series wind turbines to produce more power output than the original 2.5 MW design. The maximum rated MW output per turbine variant is listed in a table in section 3 "Technical Data for the 2.x Series".

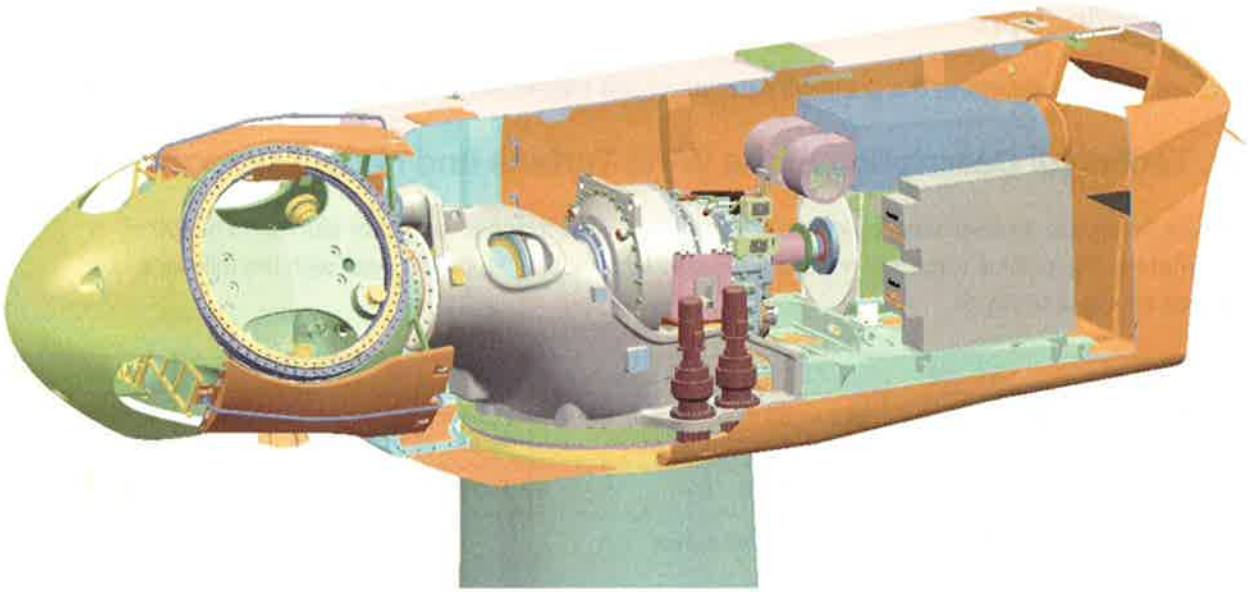

Fig. 1: 2.x Series wind turbine nacelle layout (for reference only)

2.1 Dimensions

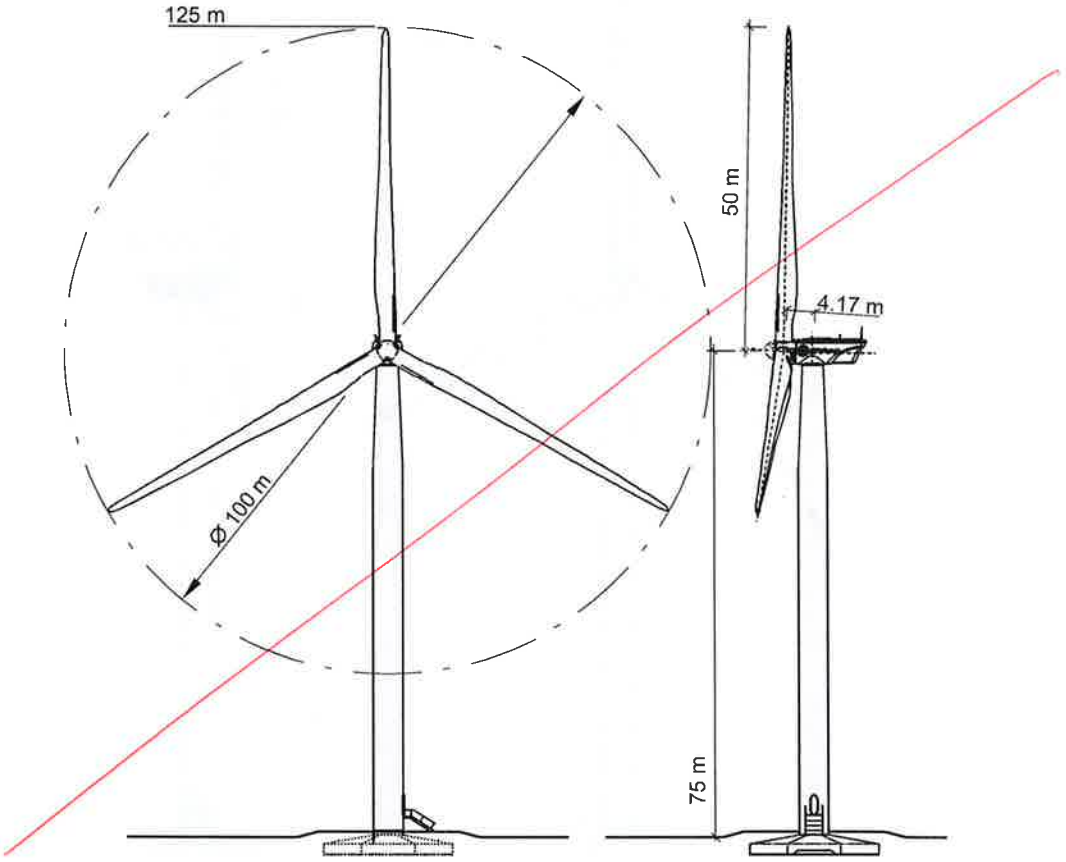

Fig. 2: 2.x Series dimensions with 75 m hub height and 100 m rotor diameter

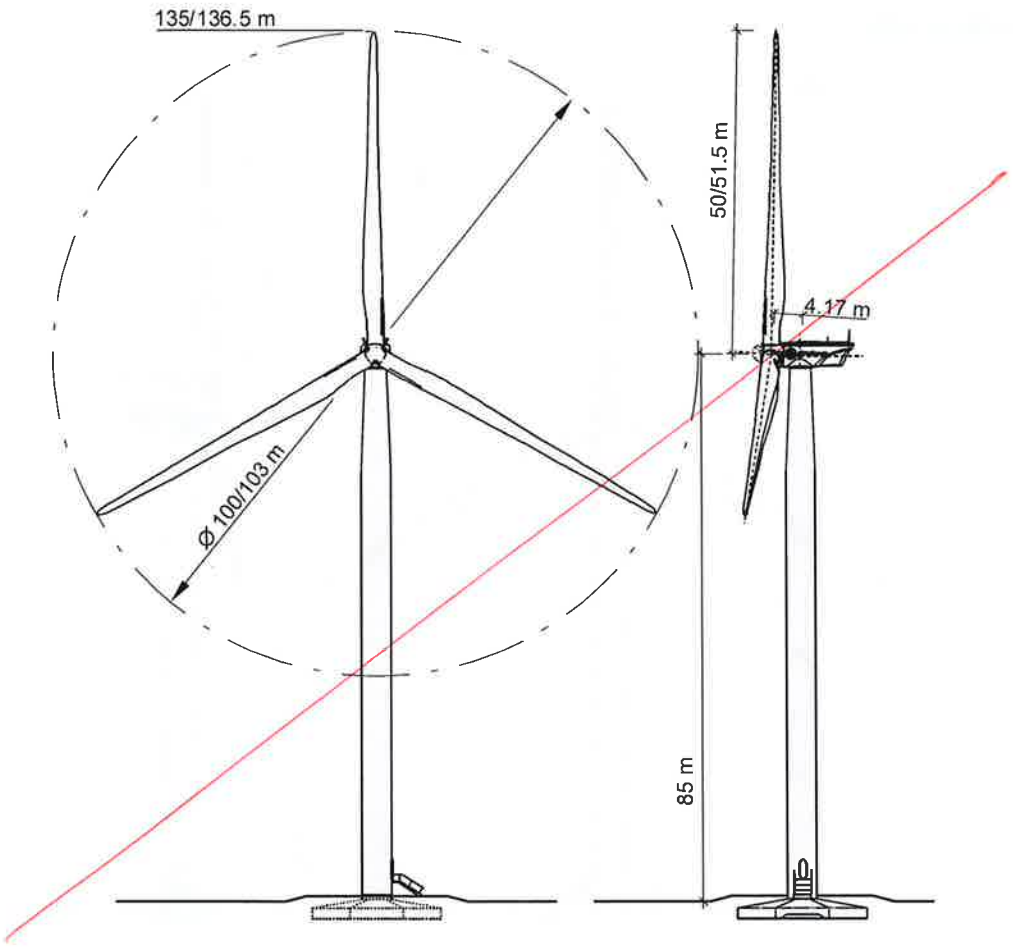

Fig. 3: 2.x Series dimensions with 85 m hub height and 100/103 m rotor diameter

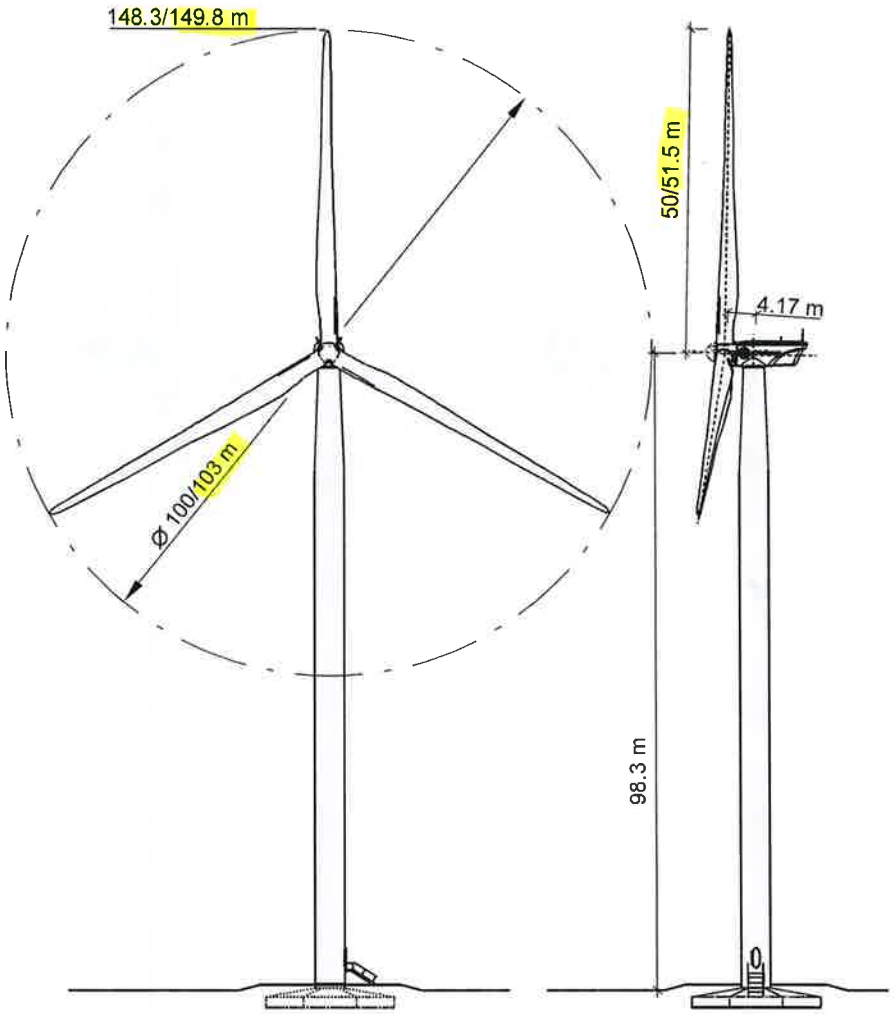

Fig. 4: 2.x Series dimensions with 98.3 m hub height and 100/103 m rotor diameter

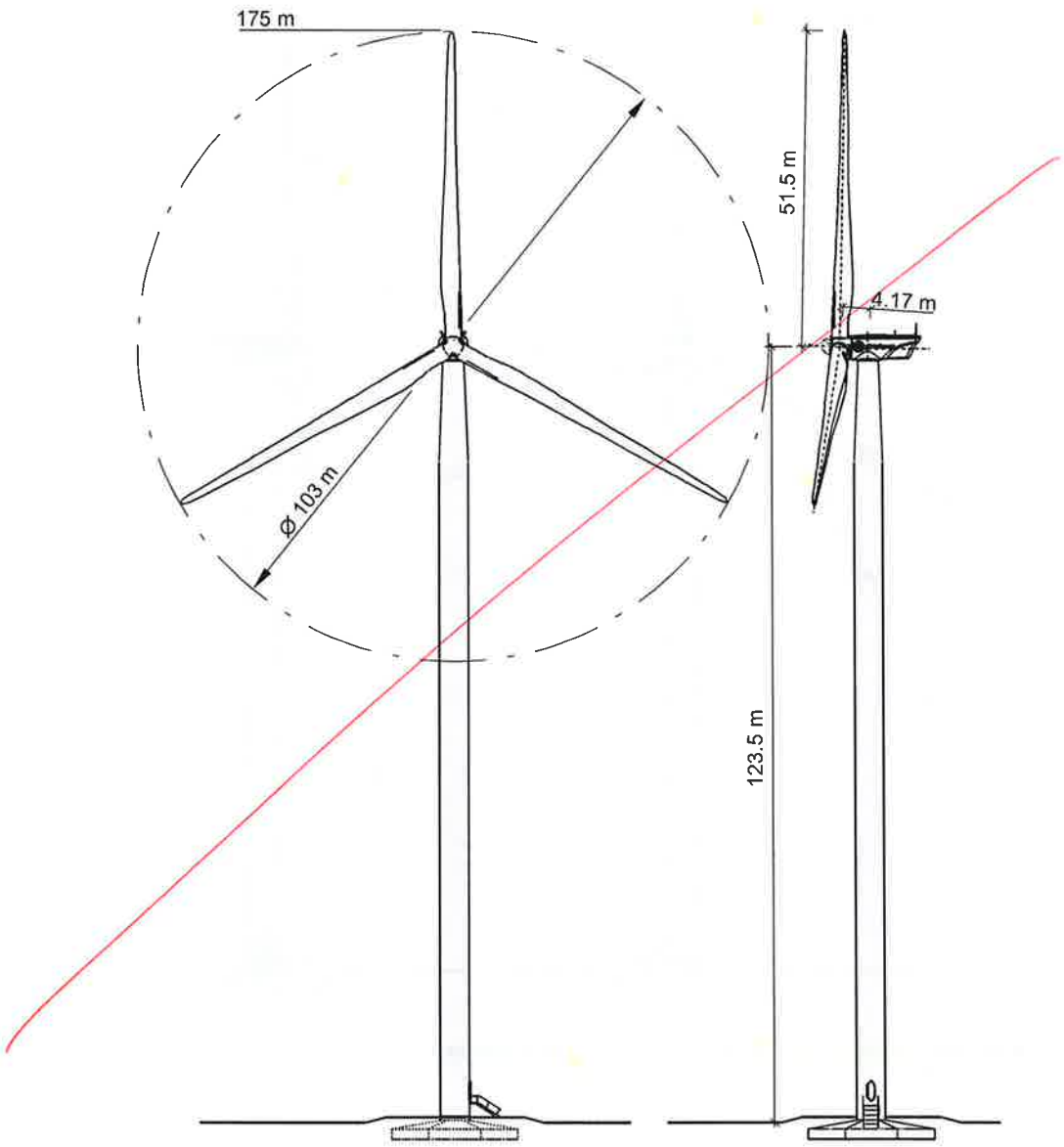

Fig. 5: 2.x Series dimensions with 123.5 m hub height and 103 m rotor diameter

2.2 Rotor

The rotor diameter is 100 meters, resulting in a swept area of 7,854 m^2 or 103 meters with a swept area of 8,332 m^2 respectively. The rotor is designed to operate between 5 and 15 revolutions per minute (rpm). Rotor speed is regulated by a combination of blade pitch angle adjustment and generator/converter torque control. The rotor spins in a clockwise direction under normal operating conditions when viewed from an upwind location.

Full blade pitch angle range is approximately 90 degrees, with the zero degree position being with the blade flat to the prevailing wind. Pitching the blades to a full feather pitch angle of approximately 90 degrees accomplishes aerodynamic braking of the rotor, thus reduces the rotor speed.

2.3 Blades

There are three rotor blades used on each 2.x Series wind turbine. The airfoils transition along the blade span with the thicker airfoils being located inboard towards the blade root (hub) and gradually tapering to thinner cross sections out towards the blade tip.

2.4 Blade Pitch Control System

The rotor utilizes a pitch system to provide adjustment of the blade pitch angle during operation.

The active pitch controller enables the wind turbine rotor to regulate speed, when above rated wind speed, by allowing the blade to "spill" excess aerodynamic lift. Energy from wind gusts below rated wind speed is captured by allowing the rotor to speed up.

Independent back up is provided to drive each blade in order to feather the blades and shut down the wind turbine in the event of a grid line outage or other fault. By having all three blades outfitted with independent pitch systems, redundancy of individual blade aerodynamic braking capability is provided.

2.5 Hub

The hub is used to connect the three rotor blades to the turbine main shaft. The hub also houses the blade pitch system and is mounted directly to the main shaft. To carry out maintenance work, the hub is entered through a hatch.

2.6 Gearbox

The gearbox in the wind turbine is designed to transmit torsional power between the low-rpm turbine rotor and high-rpm electric generator. The gearbox is a multi-stage planetary/helical design. The gearbox is mounted to the wind turbine bedplate. The gearbox mounting is designed to reduce vibration and noise transfer to the bedplate. The gearbox is lubricated by a forced, cooled lubrication system and a filter assist to maintain oil cleanliness.

2.7 Bearings

The blade pitch bearing is designed to allow the blade to pitch about a span-wise pitch axis. The inner race of the blade pitch bearing is outfitted with a blade drive gear that enables the blade to be driven in pitch.

The main shaft bearing is a two-bearing system, designed to provide bearing and alignment of the internal gearing shafts and accommodate radial and axial loads.

2.8 Brake System

The blade pitch system acts as the main braking system for the wind turbine. Braking under normal operating conditions is accomplished by feathering the blades out of the wind. Only two feathered rotor blades are required to decelerate the rotor safely into idling mode, and each rotor blade has its own backup to drive the blade in the event of a grid line loss.

2.9 Generator

The generator is a doubly fed induction generator. It is mounted to the bedplate with a mounting so designed as to reduce vibration and noise transfer to the bedplate.

2.10 Gearbox/Generator Coupling

To protect the drive train from excessive torque loads, a special coupling including a torque-limiting device is provided between the generator and gearbox output shaft.

2.11 Yaw System

A bearing attached between the nacelle and tower facilitates yaw motion. Yaw drives mesh with the gear of the yaw bearing and steer the wind turbine to track the wind in yaw. The yaw drive system contains an automatic yaw brake. This brake engages when the yaw drive is not operating and prevents the yaw drives from being loaded due to turbulent wind conditions.

The controller activates the yaw drives to align the nacelle to the wind direction based on the wind vane sensor mounted on the top of the nacelle.

The wind turbine records nacelle yaw position following excessive rotation in one direction, the controller automatically brings the rotor to a complete stop, untwists the internal cables, and restarts the wind turbine.

2.12 Tower

The wind turbine is mounted on top of a tubular steel tower (75, 85 or 98.3 m hub height), or a steel/concrete hybrid tower (123.5 m hub height). Access to the turbine is through a door at the base of the tower. Internal service platforms and interior lighting is included. A ladder provides access to the nacelle and also supports a fall arrest safety system.

Optional climb assist or service lifts are available upon request.

2.13 Nacelle

The nacelle houses the main components of the wind turbine generator. Access from the tower into the nacelle is through the bottom of the nacelle. The nacelle is ventilated, and illuminated by electric lights. A hatch provides access to the blades and hub.

2.14 Anemometer, Wind Vane and Lightning Rod

An anemometer, wind vane, and lightning rod are mounted on top of the nacelle housing. Access to these sensors is accomplished through the hatch in the nacelle.

2.15 Lightning Protection (according to IEC 61400-24 Level II)

The rotor blades are equipped with lightning receptors mounted in the blade. The turbine is grounded and shielded to protect against lightning; however, lightning is an unpredictable force of nature and it is possible that a lightning strike could damage various components notwithstanding the lightning protection employed in the wind turbine.

2.16 Wind Turbine Control System

The wind turbine can be controlled locally. Control signals can also be sent from a remote computer via a Supervisory Control and Data Acquisition System (SCADA), with local lockout capability provided at the turbine controller.

Service switches at the tower top prevent service personnel at the bottom of the tower from operating certain systems of the turbine while service personnel are in the nacelle. To override any wind turbine operation, emergency-stop buttons located in the tower base and in the nacelle can be activated to stop the turbine in the event of an emergency.

2.17 Power Converter

The wind turbine uses a power converter system that consists of a converter on the rotor side, a DC intermediate circuit, and a power inverter on the grid side.

The converter system consists of a power module and the associated electrical equipment.

3 Technical Data for the 2.x Series

Turbine	2.5-100	2.5-103	2.75-100	2.75-103	2.85-100	2.85-103
Rated output	2.53 MW	2.53 MW	2.78 MW	2.78 MW	2.85 MW	2.85 MW
Rotor diameter	100 m	103 m	100 m	103 m	100 m	103 m
Number of blades	3	3	3	3	3	3
Swept area	7,854 m²	8,332 m²	7,854 m²	8,332 m²	7,854 m²	8,332 m²
Rotor speed range	4.7 – 14.1 rpm	4.7 – 13.7 rpm	4.7 – 14.8 rpm	4.7 – 14.8 rpm	4.7 – 14.8 rpm	4.7 – 14.8 rpm
Rotational direction (viewed from an upwind location)	Clockwise	Clockwise	Clockwise	Clockwise	Clockwise	Clockwise
Maximum speed of the blade tips	73.6 m/s	74.0 m/s	77.4 m/s	79.7 m/s	77.4 m/s	79.7 m/s
Orientation	Upwind	Upwind	Upwind	Upwind	Upwind	Upwind
Speed regulation	Pitch control	Pitch control	Pitch control	Pitch control	Pitch control	Pitch control
Aerodynamic brake	Full feathering	Full feathering	Full feathering	Full feathering	Full feathering	Full feathering

Atmospheric corrosion protection (corrosion categories as defined by ISO 12944-2:1998)					
		Standard		Enhanced (Option)	
		Internal	External	Internal	External
Americas	Tower shell	C-2	C-3	C-4	C-5M
	All other components	C-2	C-3	C-2	C-3
Europe	Tower shell	C-2	C-3	C-4	C-5M
	All other components	C-2	C-3	C-2	C-3

3.1 Operational Limits

Turbine	2.5-100 75 m HH	2.5-100/ 2.5-103 85 m HH	2.5-100/ 2.5-103 98.3 m HH	2.75-100 75 m HH	2.75-100/ 2.75-103 85 m HH	2.75-100/ 2.75-103 98.3 m HH	2.75-103 123.5 m HH	2.85-100 75 m HH	2.85-100/ 2.85-103 85 m HH	2.85-100/ 2.85-103 98.3 m HH
Rotor diameter	100 m	100/103 m	100/103 m	100 m	100/103 m	100/103 m	103 m	100 m	100/103 m	100/103 m
Hub height	75 m	85 m	98.3 m	75 m	85 m	98.3 m	123.5 m	75 m	85 m	98.3 m
Wind turbine design standard	IEC 61400-1, second edition: 'Wind turbine generator systems'									
Height above sea level	Maximum 1000 m with the maximum standard operational temperature of +40 °C. Above 1000 m, the maximum operational temperature is reduced per DIN IEC 60034-1 (e.g., maximum operational temperature reduced to +30 °C at 2000 m). For installations above 1000 m isolation distances of medium voltage terminals must also be re-evaluated.									
Standard Weather Option (STW)	-15 °C – +40 °C									
Cold Weather Option (CWE, available for 60 Hz market only)	n/a	2.5-103: -30 °C – +40 °C	2.5-103: -30 °C – +40 °C	n/a	2.75-103: -30 °C – +40 °C	2.75-103: -30 °C – +40 °C	n/a	n/a	2.85-103: -30 °C – +40 °C	2.85-103: -30 °C – +40 °C
Wind conditions according to IEC 61400-1 (ed. 2) for the standard temperature range	50 Hz market: 75/85/98.3 m hub height 8.5 m/s average wind speed 123.5 m hub height 7.5 m/s average wind speed 60 Hz market: 85/98.3 m hub height 8.5 m/s average wind speed									
Maximum extreme gust (10 min) according to IEC 61400-1 (ed. 2) for the standard temperature range	TC IIIa, TC S, B-turbulence: approx. 37.5 m/s TC IIb and TC S, B-turbulence: approx. 42.5 m/s									
Design guideline and wind class for 100 m rotor diameter	S: 8.5 m/s average wind speed; b-turbulence						n/a	S: 8.5 m/s average wind speed; b-turbulence		
Design guideline and wind class for 103 m rotor diameter	n/a	S: 8.5 m/s average wind speed; B-turbulence	DIBt WZ II, III, S: 8.5 m/s average wind speed; B-turbulence	n/a	S: 8.5 m/s average wind speed; B-turbulence	DIBt WZ II, III, S: 8.5 m/s average wind speed; B-turbulence	DIBt WZ II, S: 7.5 m/s average wind speed; A-turbulence	n/a	S: 8.5 m/s average wind speed; B-turbulence	DIBt WZ II, III, S: 8.5 m/s average wind speed; B-turbulence

Subject: Modeling for GE Wind Turbine-Generators for Grid Studies – 2.5 MW DFAG Addendum

The note provides guidance in modeling of 2.5 MW Doubly-Fed Asynchronous Generators (DFAG) for grid stability studies. This document should be used in conjunction with the document "Modeling of GE Wind Turbine Generators for Grid Studies" Version 4.5. Unless noted otherwise the in this document the modeling of the GE 2.5 MW DFAG WTG is the same as that of the GE 1.6 MW WTG as described in the document "Modeling of GE Wind Turbine Generators for Grid Studies" Version 4.5. Specific parameter changes and clarifications for the GE 2.5 MW DFAG are as follows with reference to the document

"Modeling of GE Wind Turbine Generators for Grid Studies" Version 4.5 where appropriate:
Table 3-1

Table 3-1	GE 2.5 MW DFAG	
Generator Rating	3	MVA
Pmax	2.5	MW
Pmin	0	MW
Qmax	1.2	MVAR
Qmin	-1.2	MVAR
Terminal Voltage (60 Hz. Converter Circuit)	690	V
Terminal Voltage (60 Hz. Stator Circuit)	6000	V
Unit Transformer Rating	3.4	MVA
Unit Transformer Z	To be determined	
Unit Transformer X/R	To be determined	

Table 5-3
H=2.7

Default Control Features
POI Voltage Regulation(Section 3-1)
WindFREE reactive power off (table 4-8)
Active Power Control off (table4-12)
WindINERTIA off (Table 4-13)
0.90 Power Factor, Q priority (Table 5-2

APPENDIX E

Correspondence with the MNR

February 22, 2013

Mr. Bob Robinson
Ontario Ministry of Natural Resources
Sudbury District Office
3767 Hwy. 69 South,
Suite 5,
P3G 1E7

DILLON CONSULTING

1155 North Service Road West
Unit 14
Oakville, Ontario
Canada
L6M3E3
Telephone
(905) 901-2912
Fax
(905) 901-2918

Re: Proposed Minor Alterations of the McLean's Mountain Wind Farm Project Layout

Dear Mr. Robinson:

This letter is to notify the Ontario Ministry of Natural Resources (MNR) of some minor alterations that are being proposed to the project location presented in the Natural Heritage Assessment (NHA) (Dillon Consulting September 2011) and confirmed by the MNR in their confirmation letter dated September 9, 2011. Recently, during the detailed design of turbine foundations, feeder lines, access roads and through landowner consultation, the construction contractor noted some minor alterations that are required in order to construct the project. These changes have been suggested for various reasons including: site specific topographic conditions, routing optimization, a reduced need for vegetation clearing and land owner requests.

The proposed changes are identified in the attached **Figure**. The potential impacts these changes will have on natural features identified in the NHA are detailed in the **Table**, which is also attached. The proposed layout changes do not result in a meaningful change to the information presented in the Environmental Impact Study (Dillon Consulting Limited, September 2011) previously reviewed by the MNR. In some cases, layout changes will bring about a positive environmental effect due to reduced foot print in natural features, reduced need for clearing of vegetation and an increased distance from natural features. A small number of proposed changes will cause slight negative environmental impacts due to increases in size of project foot print. For the purposes of your review, we have included separately, figures forming part of the EIS, which incorporate the proposed changes to the project location.

Continued…

Once you and your staff have had an opportunity to review the attached Figures and Table, we request that a meeting between the MNR, Dillon and Northland Power Inc. representatives occur to go through the proposed changes. The intent of this meeting would be to either confirm the MNR's acceptance of the proposed changes or specific documentation and process to facilitate confirmation of the proposed changes.

We look forward to hearing from you and discussing these proposed changes to the project location. Should you have any questions during your review, please contact the undersigned at 905-901-2912 ext. 3401 or Jim Mulvale at Northland Power Inc. (jim.mulvale@northlandpower.ca; 647-288-1273).

Yours sincerely,

DILLON CONSULTING LIMITED

Michael Enright
Associate

NORTHLAND POWER

McLean's Mountain Wind Farm Proposed Layout and Component Changes February 2013

Legend

- Local Roads
- Highway
- Lots/Concessions
- Water Body
- Watercourse
- Woodland
- Unevaluated Wetland

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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Item No.	Description of Proposed Change	Rationale	Natural Heritage Assessment Description of Surrounding Area	Natural Heritage Assessment Figure Reference	Natural Heritage Assessment Text Reference	Positive, Negative or Neutral Impact on Relevant Natural Feature(s) and Summary of NHA Changes as a Result of Proposed Change
1	Access Road and Feeder Line to turbine site T9 to be shifted south approximately 100 m with north turn to turbine.	Shift requested by landowner to maximize distance from a livestock water spring used by the landowner.	Currently, the access road and feeder line to turbine site T9 occurs in Raptor Winter Feeding and Roosting Area 4 and Open Country Breeding Bird Habitat 4. With the proposed changes, this project component will remain within these natural heritage features and will not put project components within 120 m of any other significant or sensitive features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	McLean's Mountain Wind Farm Environmental Impact Study Report – Table 4, Table 6	The proposed shifting of the access road to the south will cause an increase of approximately 100 m to the length of the road and result in a slightly larger footprint (approx. 500m^2) within Raptor Winter Feeding and Roosting Area 4, and Open Country Breeding Bird Habitat 4. Slight Negative Impact.
2	Access Road and Feeder Line to turbine site T10 to be shifted south approximately 100 m with north turn to turbine.	Shifted to correspond with the entrance off McLean's Mountain Road for the access road to turbine site T9 (since the installation crane will go directly between T9 and T10, this shift allows for less crane time on McLean's Mountain Road)	Currently, the access road and feeder line to turbine site T10 from McLean's Mountain Road occurs in Raptor Winter Feeding and Roosting Area 4 and Open Country Breeding Bird Habitat 4. With the proposed changes, this project component will remain within these natural heritage features and will not put project components within 120 m of any other significant or sensitive features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	McLean's Mountain Wind Farm Environmental Impact Study Report – Table 4, Table 6	With the shifting of the access road between McLean's Mountain Road and turbine site T10 to the south, it will remain in Raptor Winter Feeding and Roosting Area 4, and Open Country Breeding Bird Habitat 4 and will not encroach on any new natural features. The change will have negligible impact to the footprint in this feature. Neutral Impact.
3	Shift of the southern point of original feeder line to turbine site T15 east by 68 metres with west turn to turbine off McLean's Mountain Road.	Shifted northeast to match the access road and to reduce footprint by following McLean's Mountain Road for the majority of the route south of the east/west feeder line between turbine sites T9 and T10.	Currently, the feeder line occurs in Raptor Winter Feeding and Roosting Area 4 and Open Country Breeding Bird Habitat 4. The proposed shift will move the feeder line out of these features and will not put project components within 120 m of any other significant or sensitive features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	McLean's Mountain Wind Farm Environmental Impact Study Report – Table 4, Table 6	Shifting of the feeder line to turbine site T15 to the east will reduce the footprint in Raptor Winter Feeding and Roosting Area 4 and Open Country Breeding Bird Habitat 4. Slight Positive Impact.
4	Access Road and feeder line to turbine site T20 (and T19) coming in from Greenbush Road to be shifted approximately 125 m to the west.	To avoid topographic challenges for access road construction and access to turbine sites with construction equipment.	Currently, the access road to turbine site T20 occurs within Raptor Winter Feeding and Roosting Area 4, adjacent to Open Country Breeding Bird Habitat 4 and runs through a small section of non-significant Woodland. With the proposed change, this project component will remain on the edge of Raptor Wintering habitat and within non-significant Woodland.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	McLean's Mountain Wind Farm Environmental Impact Study Report – Table 4, Table 6	Shifting the access road from Greenbush Road to turbine site T20 by 125 m to the west will move the access road to the edge of Raptor Winter Feeding and Roosting Area 4, and will move the access road further from the edge of Open Country Breeding Bird Habitat 4. The access road will remain within the woodland. No additional constraints are present within 120 m of the proposed change in location. Neutral Impact.
5	Elimination of originally-planned access roads and adjustment of the feeder line from T12/T14 and the proposed project substation. Access Road connecting T12 and T14 to come directly from substation and more closely	In conjunction with the relocation of turbine T14 (see table row below), it is proposed to relocate the access roads and electrical feeder lines connecting to turbines T14 and T12. The original plan for the access road was to cut a single-	Currently, access roads to turbine sites T12 and T14 occur in Non-significant woodland. With the proposed changes, these project components will remain within this natural heritage feature and will not put project components within 120 m of any significant or sensitive features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	N/A	The proposed altering of the road to more closely follow the transmission line path and removing the "Y" junction in the access road will reduce the footprint in woodland habitat. No natural feature constraints are present within 120 m of the proposed change in location. Positive Impact.

Item No.	Description of Proposed Change	Rationale	Natural Heritage Assessment Description of Surrounding Area	Natural Heritage Assessment Figure Reference	Natural Heritage Assessment Text Reference	Positive, Negative or Neutral Impact on Relevant Natural Feature(s) and Summary of NHA Changes as a Result of Proposed Change
	follow transmission line path. Access road off of Green Bush Road, including "Y" junction, to be removed.	purpose path through forest to create the access routes. The original plan also required that a separate swath of trees be cut for an independent electrical feeder line route. This proposal would merge the access roads and feeder line routes and run them immediately adjacent to the main 115 kV transmission line route. This adjustment will greatly minimize the amount of forest that needs to be cleared.				
6	Turbine site T14 to be moved to the south east of current location by 100 m. Turbine to remain on same property.	It was determined following detailed geotechnical evaluation that the topography/geology made the original location unfeasible. The new position of the turbine will be located on lands previously assessed for their access road /feeder line. The relocation will result in a decrease in tree cutting and land clearing.	Currently, turbine site T14 occurs in non-significant woodland. With the proposed changes, this project component will remain within this natural heritage feature and will not put project components within 120 m of any significant or sensitive features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	N/A	The proposed shifting of the turbine slightly south east will reduce the length of the access road into forested habitat, reducing the footprint. No constraints are present within 120 m of the proposed change in location. Positive Impact.
7	A slight adjustment to Transmission Line Route between sub-station and a point east of turbine site T5. The T-line will be shifted on the western side by approximately 60 metres to the north, tapering to 0 metres on the eastern side.	During detailed design of the substation it was determined that the exact line for entry/exit from the substation would be further north (north west corner of substation). In addition the shift is to optimize the distance of the transmission line from turbines.	Currently, the section of Transmission Line between the sub-station occurs within non-significant woodland and open country habitat (i.e., Raptor Winter Feeding and Roosting Area 4 and Open Country Breeding Bird Habitat 4). Proposed changes to this project component will remain within this natural feature and will not encroach on any new natural features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	N/A	With the slight adjustment to the Transmission Line Route between the sub-station and east of turbine site T5, it will remain within non-significant Woodland and Raptor Winter Feeding and Roosting Area 4 and Open Country Breeding Bird Habitat 4. This adjustment will not result in an encroachment on any new natural features. The change will have a negligible impact to the footprint in this feature. Neutral Impact
8	Path of feeder line to turbine site T11 from substation to be shifted to match access road and both have been rounded slightly to avoid a 90 degree turn.	To reduce total footprint and to remove the 90 degree angle to the turbine.	Currently, the access road and feeder line to turbine site T11 occur in Woodland that has been evaluated as non-significant. Proposed changes to these project components will remain within this natural heritage feature and will not put project components within 120 m of any significant or sensitive features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	N/A	The proposed rounding of the access road and relocation of the feeder line to turbine site T11 from the substation will have negligible impact on the footprint within the Woodland feature. Neutral Impact.

Item No.	Description of Proposed Change	Rationale	Natural Heritage Assessment Description of Surrounding Area	Natural Heritage Assessment Figure Reference	Natural Heritage Assessment Text Reference	Positive, Negative or Neutral Impact on Relevant Natural Feature(s) and Summary of NHA Changes as a Result of Proposed Change
9	Turbine site T23 to be moved west of current location by 80 m. Access Road and feeder (collector) line to turbine site T23 to be angled slightly east of current path between turbines sires T18 and T23. Turbine to remain on same property.	In order to increase the distance between the turbine and an adjacent wetland. The new position of the turbine will be located on lands previously assessed for the access road and feeder line. The relocation will result in a decrease in tree cutting and land clearing.	Currently, turbine site T23 occurs in Woodland that has been evaluated as non-significant. Turbine site T23 also occurs within 90 m of Wetland Unit 6/Woodland Amphibian Breeding Habitat 8/Turtle Overwintering Area 5. Proposed changes to turbine site T23, the access road and feeder line will be contained within the Woodland and will not place a project component within 120 m of any new significant or sensitive features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	McLean's Mountain Wind Farm Environmental Impact Study Report – Table 3, Table 4, Table 6	The proposed shifting of the turbine to the west will put the turbine 160 m from Wetland Unit 6/ Woodland Amphibian Breeding Habitat 8/ Turtle Overwintering Area 5. Angling the access road and feeder line to the east slightly between turbine sites T18 and T23 will bring the access road slightly closer to Wetland Unit 6/ Woodland Amphibian Breeding Habitat 8/ Turtle Overwintering Area 5, but will not cause an effect on this feature. No additional natural feature constraints are present within 120 m of the proposed change in location. Slight Positive Impact.
10	Shifting of HDD Staging Area from east to west of turbine site T21.	Better location of HDD staging area due to potential interference with turbine site T21 foundation and topography for the set-up of the drill rig.	Proposed staging area within 120 m of Wetland Unit 3/Woodland Amphibian Breeding Habitat 5/Turtle Overwintering Area 3 and will not place a project component within 120 m of any new significant or sensitive features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	McLean's Mountain Wind Farm Environmental Impact Study Report – Table 3, Table 4, Table 6	The HDD Staging Area on the west side of turbine site T21 is within the 120 m setback to Wetland Unit 3. It is expected that typical HDD staging area mitigation can be employed resulting in no effect to the wetland unit or its associated wildlife habitat. Neutral Impact.
11	Shift of feeder line 56 metres to the northeast between T29 and HDD staging area to the northwest.	Refined during detailed design - shifted to avoid wet areas to the south and to swing wide of the turbine's crane pad.	Currently, the feeder line is not within a significant or sensitive feature, but is within 120 m of Wetland 6 and Waterfowl Nesting Area 4. The proposed shift will move the feeder line 56 metres further from these features and will not place a project component within 120 m of any new significant or sensitive features.	McLean's Mountain Wind Farm Environmental Impact Study Report – Figures 4-11	McLean's Mountain Wind Farm Environmental Impact Study Report – Table 3, Table 4, Table 6	The slight shift of the feeder line to the northeast will move this feature further away from Wetland 6 and Waterfowl Nesting Area 4. Slight Positive Impact.
Addition of Thirteen (13) Truck Turnarounds (Hammerheads) (6 hammerheads require vegetation clearing and/or habitat disturbance as described below)						
12	Hammerhead truck turnarounds to be added at turbine sites T5, T6 and T9.	It was always intended that truck turnaround areas would be required adjacent to the access roads, but until detailed design was completed the location of these turnaround areas (or hammerheads) was unknown. The project location figure now identifies the proposed location of the hammerheads, most of which are in areas that do not require vegetation	The proposed hammerheads at turbine sites T5, T6 and T9 are in Raptor Winter Feeding and Roosting Area 4 and Open Country Breeding Bird Habitat 4.	N/A	N/A	The addition of hammerhead truck turnarounds will require a small area of open country habitat to be removed adjacent to each turbine. Slight Negative Impact.
13	Hammerhead truck turnaround to be added at south side of access road, east of turbine site T11.		The proposed turbine siteT11 hammerhead occurs in Woodland that has been evaluated as non-significant and will not place a project component within 120 m of any new significant or sensitive features.	N/A	N/A	The addition of a hammerhead truck turnaround will require a small additional non-significant woodland area to be cleared. Slight Negative Impact.
14	Addition of hammerhead truck turnaround on the west side of access road north of turbine site T21.		Wetland Unit 3/Woodland Amphibian Breeding Habitat 5/Turtle Overwintering Area 3 are approximately 130 metres from western edge of hammerhead.	N/A	N/A	The hammerhead truck turnaround area proposed on the west side of access road north of turbine site T21 is in an open non-significant woodland area. The hammerhead boundary is 130 m from Wetland Unit 3/Woodland Amphibian Breeding Habitat 5/Turtle Overwintering Area 3. Slight Negative Impact.

Item No.	Description of Proposed Change	Rationale	Natural Heritage Assessment Description of Surrounding Area	Natural Heritage Assessment Figure Reference	Natural Heritage Assessment Text Reference	Positive, Negative or Neutral Impact on Relevant Natural Feature(s) and Summary of NHA Changes as a Result of Proposed Change
15	Addition of hammerhead truck turnaround on east side of access road north of T42.	removal or habitat disturbance. Each hammerhead is about 45 m in length and 5m wide.	The hammerhead truck turnaround encroaches into the Waterfowl Nesting Area 4 wildlife habitat feature that is currently being treated as significant until baseline studies of habitat use can be completed in the spring of 2013.	N/A	N/A	The addition of a hammerhead truck turnaround on the east side of the access road north of turbine site T42 will encroach into Waterfowl Nesting Area 1, which has temporary vegetation removal restrictions, but will remain outside of Wetland Unit 1 and its other associated wildlife habitat. Slight Negative Impact.

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McLean's Mountain Wind Farm
Figure 3: Ecological Land Classification Map

Legend

- Local Roads
- Highway
- Watercourse
- 120m Project Component Setback
- Lots/Concessions
- Water Body
- Woodland

Ecological Land Classification (Based on Community Code)

- 1) BO: Bog
- 2) CVC_2: Light Industrial
- 3) CVI_3: Sewage and Water Treatment
- 4) CVR_1: Low Density Residential
- 5) FOD: Deciduous forest
- 6) FODM1: Dry-Fresh Oak Deciduous Forest
- 7) FODM5-1: Dry-Fresh Sugar Maple Deciduous Forest
- 8) FODM8-1: Fresh-Moist Poplar Deciduous Forest
- 9) FOMM10: Fresh-Moist Spruce Fir – Hardwood Mixed Forest
- 10) FOMM4: Dry-Fresh White Cedar Mixed Forest
- 11) MAMM1: Graminoid Mineral Meadow Marsh
- 12) MAMM3: Mixed Mineral Meadow Marsh
- 13) MASM1: Graminoid Mineral Shallow Marsh
- 14) MASM1-1: Cattail Mineral Shallow Marsh
- 15) MASM1-14: Reed Canary Grass Mineral Shallow Marsh
- 16) ME: Meadow
- 17) OAGM4: Open Pasture
- 18) OAO: Open Water
- 19) RBSA1-1: Common Juniper Shrub Alvar
- 20) SWCM1-2: White Cedar-Conifer Coniferous Swamp
- 21) SWDM2: Ash Mineral Deciduous Swamp
- 22) SWDM2-1: Black Ash Deciduous Swamp
- 23) SWDM2-2: Green Ash Deciduous Swamp
- 24) SWDM3: Maple Mineral Deciduous Swamp
- 25) SWDM4-5: Poplar Deciduous Swamp
- 26) SWMM1-1: White Cedar-Hardwood Mixed Swamp
- 27) SWMM3-2: Poplar-Conifer Mixed Swamp
- 28) SWMM4: Ash Mixed Swamp
- 29) SWTM2-5: Red-Osier Dogwood Mineral Deciduous Swamp
- 30) SWTM3: Willow Mineral Deciduous Thicket Swamp
- 31) TAGM4: Treed Pasture
- 32) WODM5-1: Fresh-Moist Poplar Deciduous Woodland

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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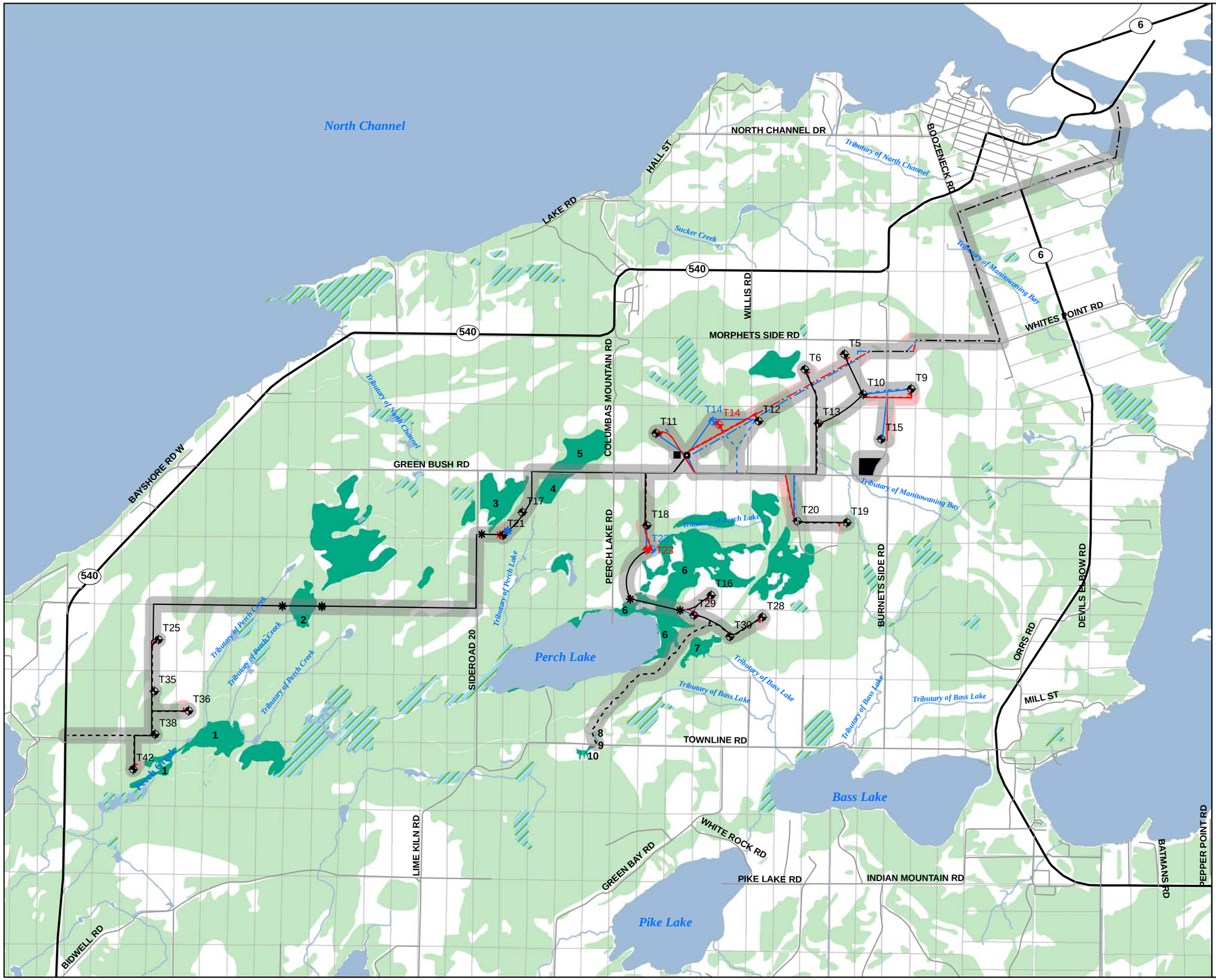

McLean's Mountain Wind Farm
Figure 4: Wetlands of Significance Requiring an EIS

Legend

- Local Roads
- Highway
- 120 m Project Location Setback
- Lots/Concessions
- Water Body
- Watercourse
- 1 — Delineated Unevaluated Wetlands
- Woodland*
- Unevaluated Wetland Outside of the 120m Project Component Setback*

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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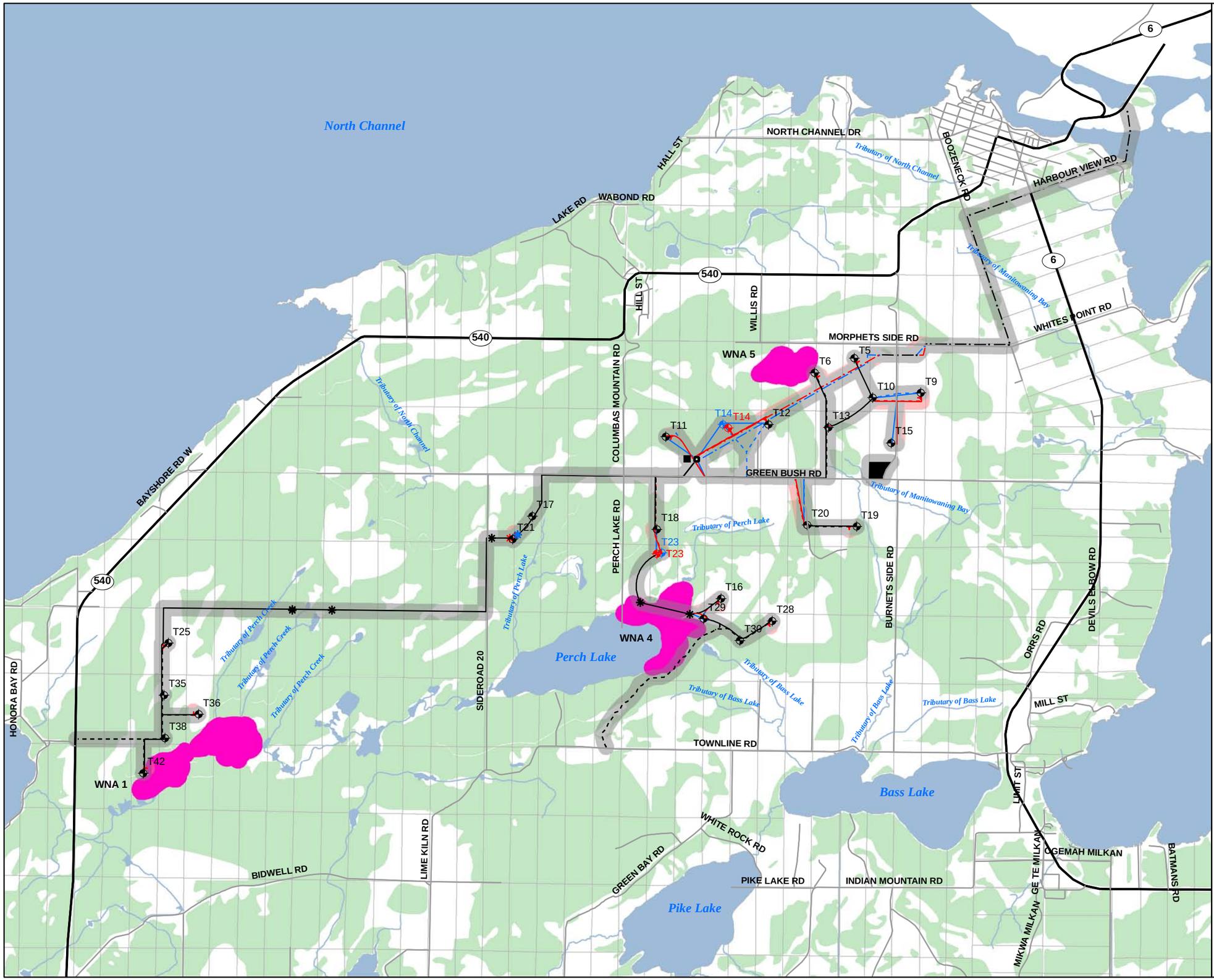

NORTHLAND POWER

McLean's Mountain Wind Farm
Figure 5: Significant Waterfowl Nesting Areas

Legend

- Local Roads
- Highway
- Watercourse
- 120 m Project Location Setback
- Lots/Concessions
- Water Body
- Unclassified Woodland Community
- Waterfowl Nesting Areas (Including: MAMM1, MAMM3, MASM1, MASM1-1, MASM1-14, ME, SWDM2,SWDM2-1, SWDM2-2, SWDM3, SWDM4-5, SWTM2-5, SWTM3

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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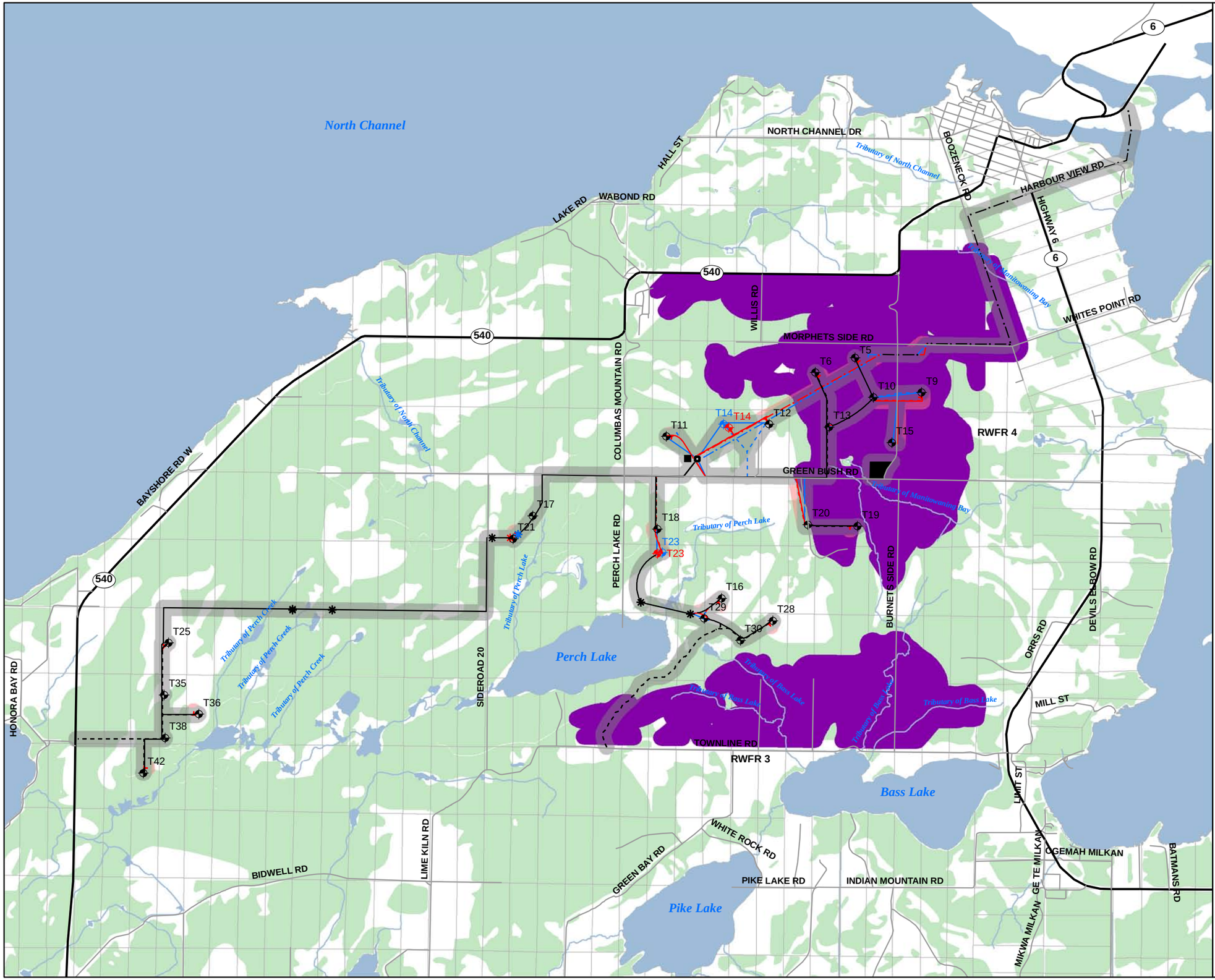
File Path: I:\GIS\091983 - Northland Power\Mapping\NEM Report 2011\EIS\070811\Figure 5 Waterfowl Nesting Area.mxd



McLean's Mountain Wind Farm
Figure 6: Significant Raptor Winter Feeding and Roosting Areas

Legend

- Local Roads
- Highway
- Watercourse
- 120 m Project Location Setback
- Lots/Concessions
- Water Body
- Unclassified Woodland Community
- Raptor Winter Feeding and Roosting Area (120m Buffer) (Including: OAGM4)

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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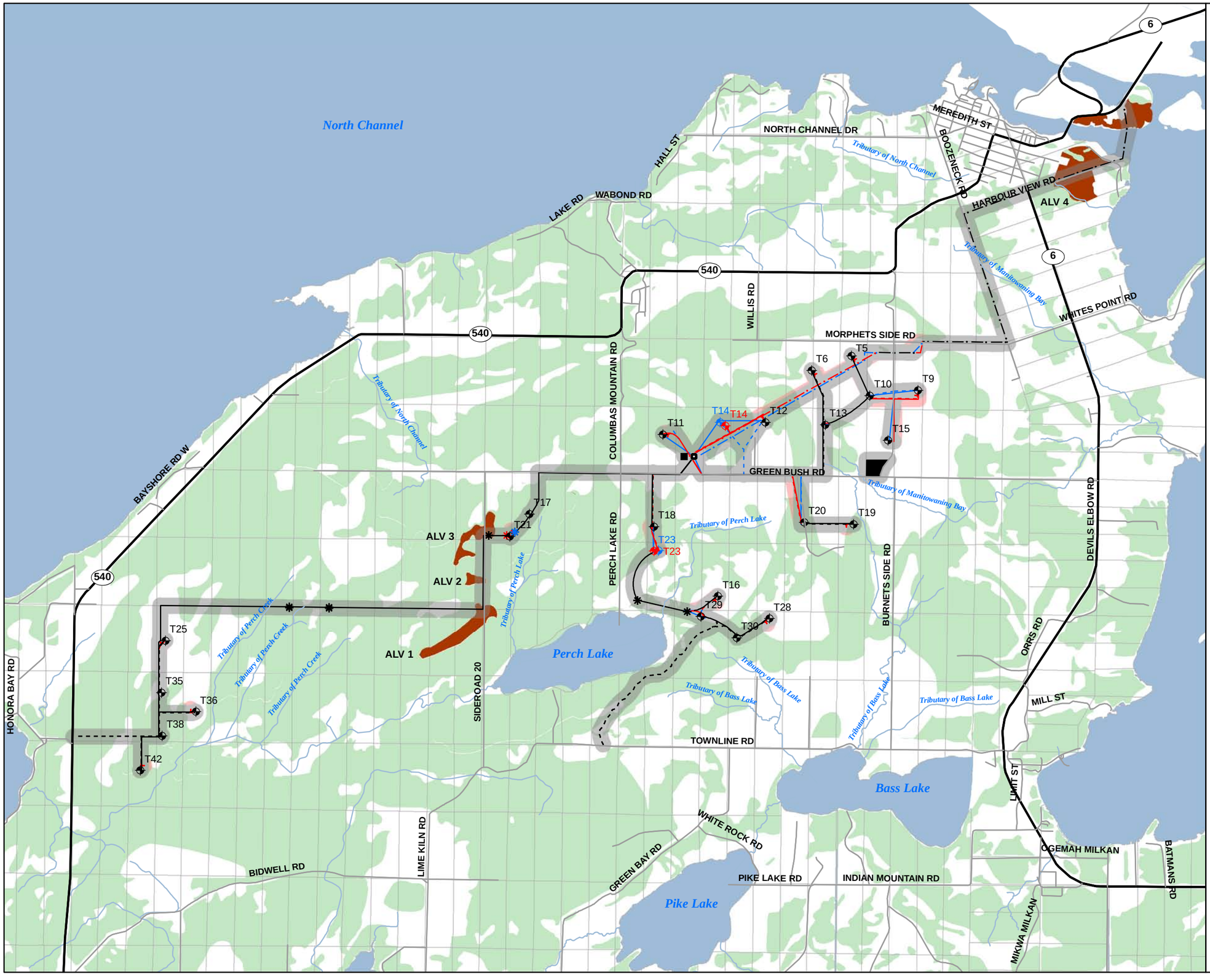

McLean's Mountain Wind Farm
Figure 7: Significant Rare Vegetation Areas

Legend

- Local Roads
- Highway
- Watercourse
- 120 m Project Location Setback
- Lots/Concessions
- Water Body
- Unclassified Woodland Community
- RBSA1-1: Common Juiper Shrub Alvar

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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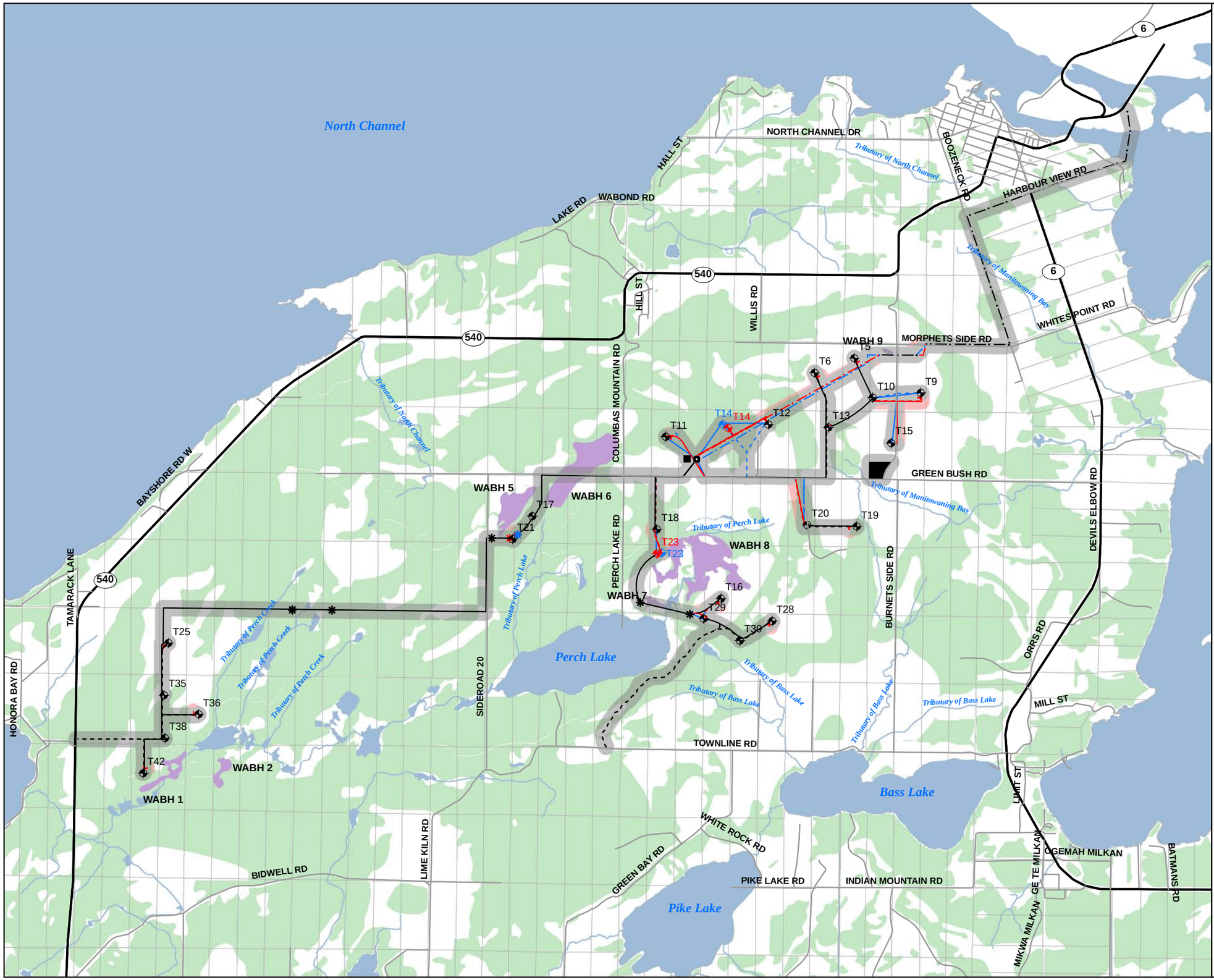
McLean's Mountain Wind Farm
Figure 8: Woodland Amphibian Breeding Habitat of Significance REquiring an EIS



Legend

- Local Roads
- Highway
- Watercourse
- 120 m Project Location Setback
- Lots/Concessions
- Water Body
- Unclassified Woodland Community
- Woodland Amphibian Breeding Habitat (Including: SWDM2, SWDM2-1, SWDM2-2, SWDM3, SWDM4-5, SWMM1-1, SWMM3-2, SWMM4)

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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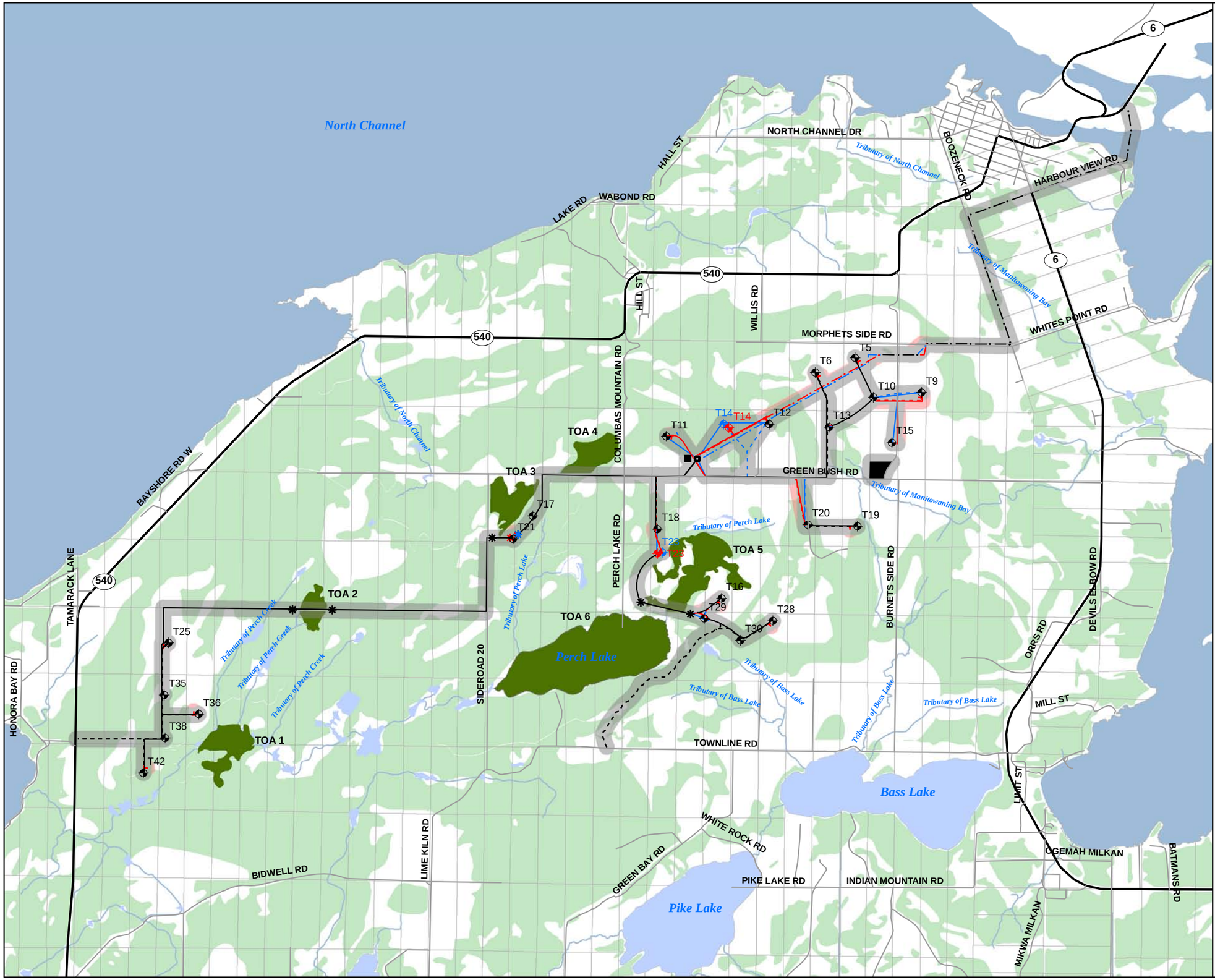
File Path: I:\GIS\091983 - Northland Power\Mapping\NEM Report 2011\EIS\070811\Figure 8 Woodland Amphibian Breeding Habitat of Significance.mxd



McLean's Mountain Wind Farm Figure 9: TurtleOverwintering Areas of Significance Requiring an EIS

Legend

- Local Roads
- Highway
- Watercourse
- 120 m Project Location Setback
- Lots/Concessions
- Water Body
- Unclassified Woodland Community
- Turtle Overwintering Areas

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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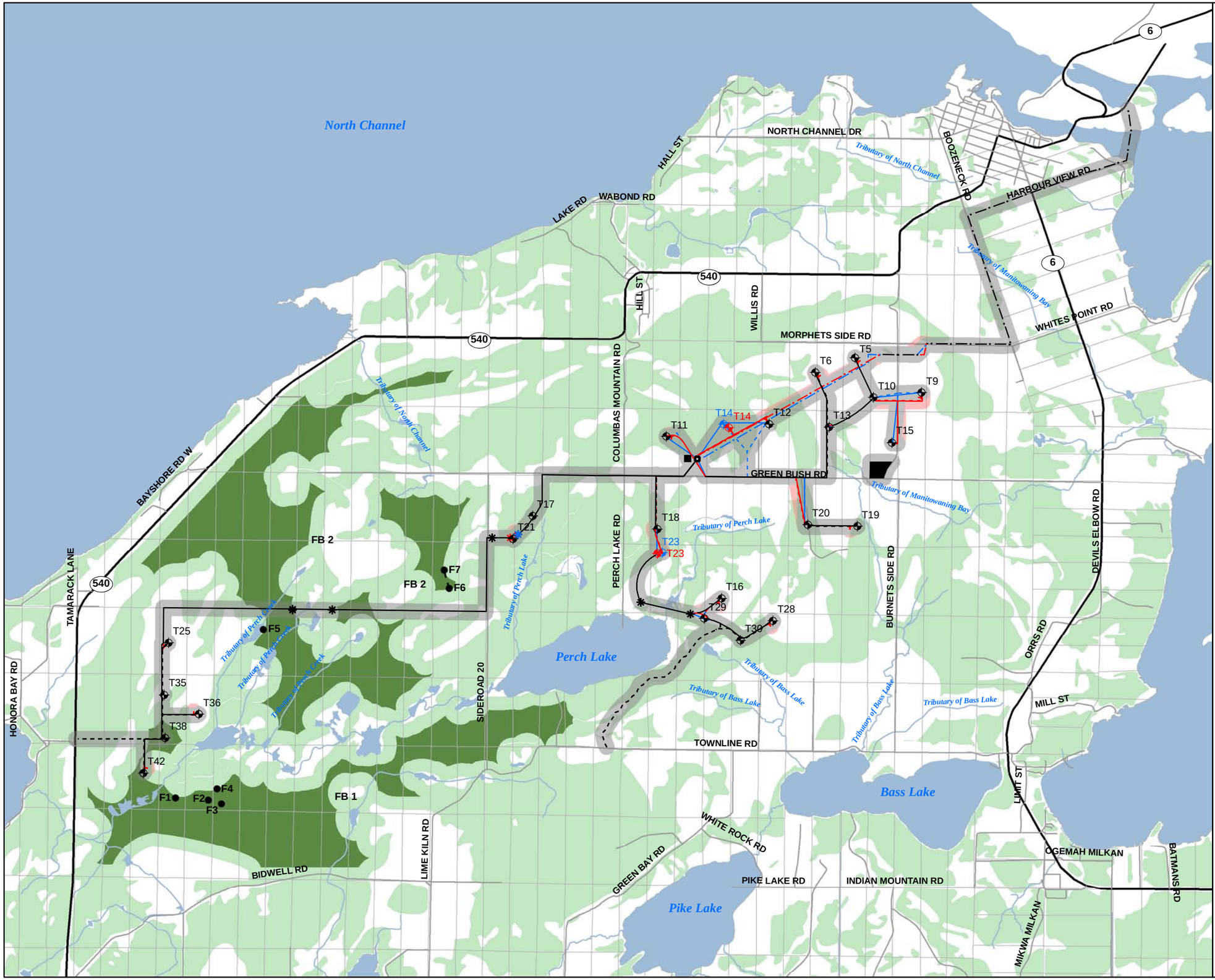

NORTHLAND POWER

McLean's Mountain Wind Farm
Figure 10: Significant Sites Supporting Area-Sensitive Species: Forest Birds

Legend

- Local Roads
- Highway
- Watercourse
- 120 m Project Location Setback
- Lots/Concessions
- Water Body
- Unclassified Woodland Community (< 200m from edge)
- Unclassified Woodland Community (Interior > 200 m from edge) (Including: FOD, FODM1, FODM5-1, FODM8-1, FOMM10, FOMM4, FODM5-1, SWCM1-2, SWDM2-1, SWDM2-1, SWDM2-2, SWDM2, SWDM3, SWDM4-5, SWMM1-1, SWMM3-2, SWMM4)

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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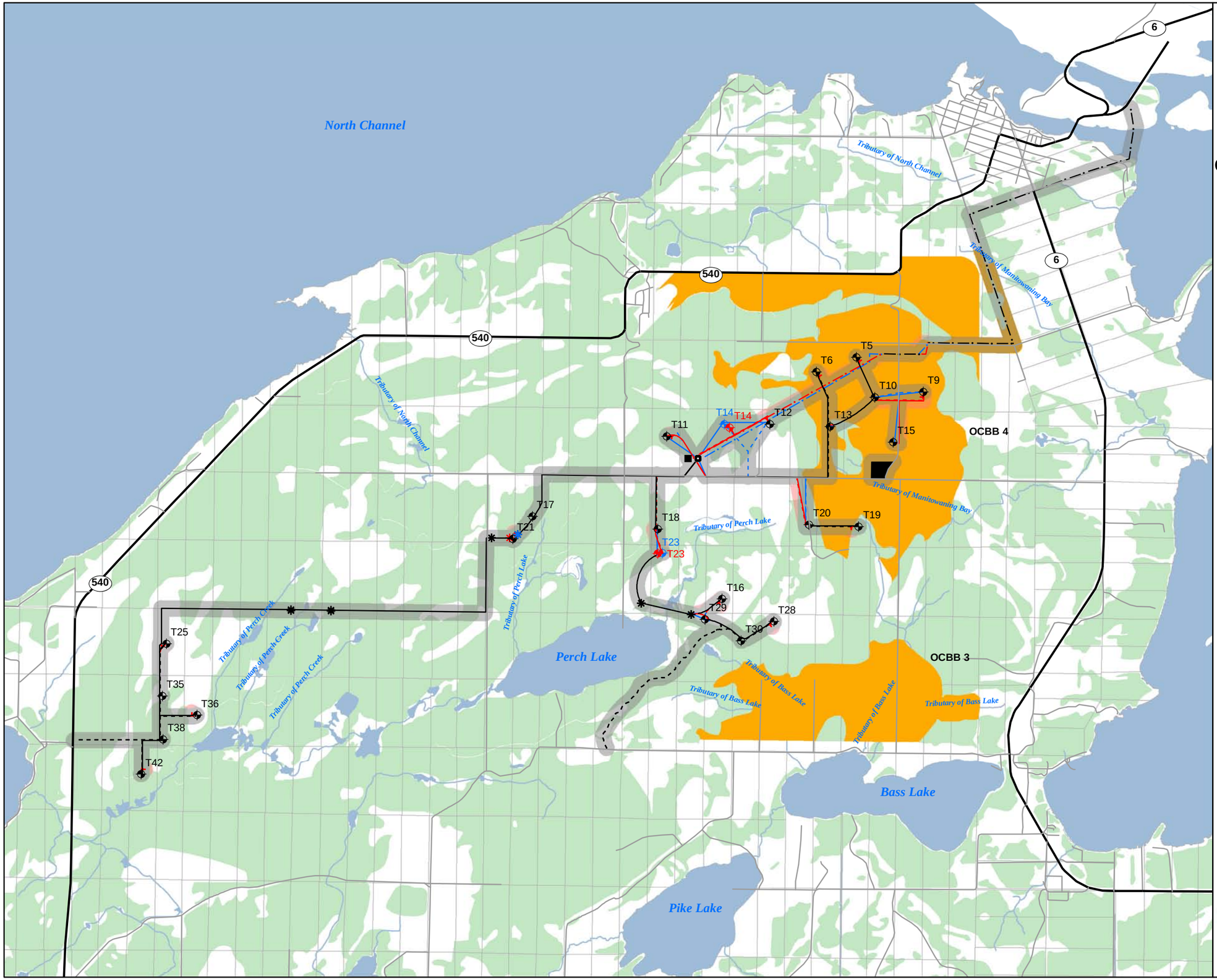

NORTHLAND POWER

McLean's Mountain Wind Farm
Figure 11: Significant Sites Supporting Area-Sensitive Species: Open Country Breeding Bird Habitat

Legend

- Local Roads
- Highway
- Watercourse
- 120 m Project Location Setback
- Lots/Concessions
- Water Body
- Unclassified Woodland Community
- Open Country Breeding Bird Habitat > 30 ha (Including: OAGM4, ME)

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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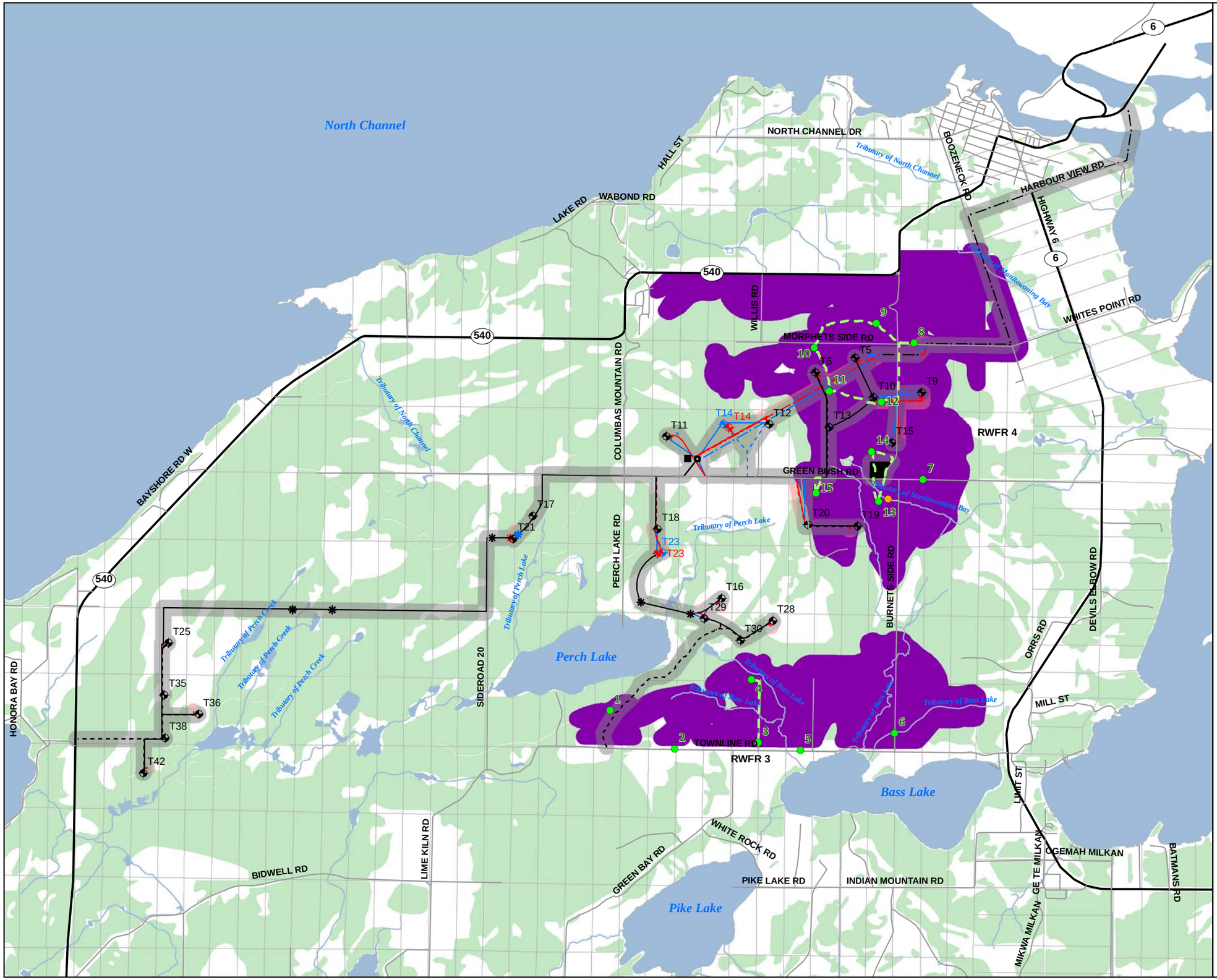
File Path: I:\GIS\091983 - Northland Power\Mapping\NEM Report 2011\EIS\070811\Figure 11 Open Country Breeding Birds.mxd



McLean's Mountain Wind Farm
Winter Raptor Survey 2013

Legend

Snowy Owl, Dec. 20, 2012

Winter Raptor Survey 2013

- Point Count
- Search Route
- Local Roads
- Highway
- Watercourse
- 120 m Project Location Setback
- Lots/Concessions
- Water Body
- Unclassified Woodland Community
- Raptor Winter Feeding and Roosting Area (120m Buffer) (Including: OAGM4)

Project Components Unchanged

- Turbines
- Horizontal Directional Drilling Locations
- Operations Building
- Substation
- Access Road
- Feeder Line
- Transmission Line
- Construction Laydown Area
- 120 m Project Location Setback

February 2013 Relocated Project Component

- Turbine
- Horizontal Directional Drilling Locations
- Access Roads
- Feeder Line
- Transmission Line
- 120 m Project Location Setback

Project Components to be Removed

- Turbine
- Horizontal Directional Drilling Locations
- Access Road
- Feeder Line
- Transmission Line

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Ministry of Natural Resources

Sudbury District Office
Northeast Region
Regional Operations Division

3767 Highway 69 South, Suite 5
Sudbury, ON P3G 1E7
Tel.: 705-564-7823
Fax: 705-564-7879

Ministère des Richesses naturelles

Bureau de district Sudbury
Région Nord-est
Division des opérations régionales

3767 Route 69 Sud, bureau 5
Sudbury ON P3G 1E7
Tél. : 705-564-7823
Téléc. : 705-564-7879

Ontario

March 13, 2013

Mr. Michael Enright
Dillon Consulting
1155 North Service Road West
Oakville, Ontario
L6M 3E3

Dear Mr. Enright:

RE: Proposed Alterations to the McLean's Mountain Wind Farm

The Ministry of Natural Resources (MNR) has reviewed the proposed alterations to the McLean's Mountain Wind Farm on Manitoulin Island, submitted by Dillon Consulting on February 22, 2013.

The proposed alterations have been assessed as minor in nature. As a result, the MNR does not require further assessment. The existing Natural Heritage Assessment, as confirmed on September 9, 2011, is considered to be in effect.

Please contact the undersigned at (705) 564-7868 or bob.l.robinson@ontario.ca if you require anything further.

Sincerely,

Bob Robinson
A/Planning and Information Management Supervisor
Sudbury District

Copies: Jim Mulvale, Northland Power
Rick Martin, Northland Power
Brian Riche, Ministry of Natural Resources
Kristina Rudzki, Ministry of Environment