

Ministry of
Natural Resources
Renewable Energy Operations Team
300 Water Street
4th Floor, South Tower
Peterborough, Ontario K9J 8M5

Ministère des
Richesses naturelles



April 22nd, 2013

Niagara Region Wind Corporation
277 Lakeshore Road East, Suite 211
Oakville, Ontario L6J 6J3

RE: Modifications to Niagara Region Wind Farm

Dear Darren Croghan,

The Ministry of Natural Resources (MNR) has received the addendum report dated April 8, 2013 that describes modifications to the Niagara Region Wind Farm Project made subsequent to MNR's letter confirming the Natural Heritage Assessment in respect of the project.

The addendum report addresses MNR's concern associated with the access road to turbine 89. Upon review of the addendum report, MNR is satisfied that the Natural Heritage Assessment requirements of Ontario Regulation 359/09 have been met. Please add this letter as an addendum to the confirmation letter issued April 3, 2013 for the Niagara Region Wind Farm Project.

If you wish to discuss, please contact Amy Cameron at Amy.Cameron@Ontario.ca or 613-732-5506.

Sincerely,

A handwritten signature in black ink, appearing to read "SRew".

Sharon Rew
A/Regional Resources Section Manager
Southern Region MNR

cc Amy Cameron, Renewable Energy Planning Ecologist, MNR
Ian Hagman, Guelph District Manager, MNR
Narren Santos, Environmental Approvals Access & Service Integration Branch, MOE
Zeljko Romic, Environmental Approvals Access & Service Integration Branch, MOE



Stantec

April 8, 2013
File: 1609-50269

Attention: Jason Webb, Renewable Energy Planning Ecologist

Ministry of Natural Resources
300 Water Street, 4th Floor, South Tower
Peterborough, Ontario, K9J 8M5

Dear Mr. Webb,

Reference: Niagara Region Wind Farm NHA/EIS Addendum to Address the Winger Provincially Significant Earth Science ANSI

The purpose of this memo is to provide the Ministry of Natural Resources (MNR) with an addendum to the *Natural Heritage Assessment and Environmental Impact Study for the Niagara Region Wind Farm* (Stantec, 2013) to address comments raised in the MNR confirmation letter dated April 3, 2013 regarding the access road to Turbine 89.

We want to thank you and the other MNR staff for making yourselves available to the site meeting on April 3, 2013 to observe

The following information is provided to update to the records review, site investigation, evaluation of significance and environmental impact study sections of the NHA/EIS relating to the access road, buried collector lines, fibre optic lines and temporary construction area associated with Turbine 89 where it occurs within the Winger Provincially Significant Earth Science Area of Natural and Scientific Interest (ANSI).

Section 3 – Records Review

Based on the information obtained from the MNR, through the NHIC, LIO mapping and agency correspondence, one provincially significant Earth Science ANSI has been identified in or within 50 m of the Project Location (Figure 2.48 and 2.49), as follows.

- *Winger Provincially Significant Earth Science ANSI* – The sand dunes here are relicts formed on an unnamed Late Wisconsinian, Port Huron Stadial lake by postglacial westerly and northwesterly winds. This area is an example of characteristic and relatively undisturbed parabolic and longitudinal dunes, typical of this part of Ontario.

Based on mapping available to the MNR, several remnant sand dune formations for which the Winger Provincially Significant Earth Science ANSI has been identified occur within 50 m of the Project components. The dunes are subtle features which represent a post-glacial environment (David Webster, Senior Conservation Geologist, MNR, March 22, 2013).

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Jason Webb, Renewable Energy Planning Ecologist

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Reference: Niagara Region Wind Farm NHA/EIS Addendum to Address the Winger Provincially Significant Earth Science ANSI

Based on existing information, the access road, buried collector lines, fibre optic lines and temporary construction area associated with Turbine 89 occur on one of these dune formations (Jason Webb, Planning Ecologist, MNR, March 19, 2013).

Section 4 – Site Investigation

ANSIs are defined as areas with life or earth science values related to protection, scientific study or education. MNR retains responsibility for identifying the presence of ANSIs and delineating their boundaries. For the purposes of this assessment, ANSIs identified and delineated by MNR were used to determine whether components of the project are located in or within 50 m used. The Winger Provincially Significant Earth Science ANSI is found within the Project Location.

A site visit with MNR staff was held on April 3, 2013 with the following MNR staff to confirm the presence and location of sand dune formations in and within 50 m of the Project Location:

- David Webster, Senior Conservation Geologist
- Jason Webb, Planning Ecologist
- Amy Cameron, Renewable Energy Planning Ecologist

During the site investigation, several subtle remnants of the dune formations were observed on the subject property that according to David Webster (Senior Conservation Geologist, MNR) represent evidence of historic dune formations. Due to agricultural activity on the property, the formation and extent of these dunes have been altered (flattened through plowing; subject to wind and soil erosion). Where they occur within woodland 176, the formation of these features is more pronounced and topography has been preserved by the existing vegetation. Sand dune formations occur to the south of the property where the project components are proposed, and include a sand ridge that has also been actively farmed.

A dug watercourse (open drain, ditch) flows along the property line to the south of the proposed project components. The construction of this drain may have altered or removed areas previously identified as dune formations through historic grading or excavation activities.

Based on observations made with the MNR staff, the access road, buried collector lines, fibre optic lines and temporary construction area associated with Turbine 89 will be constructed on or adjacent to portions of the remnant dune formations for which the Winger Provincially Significant Earth Science ANSI has been identified.

Section 5 – Evaluation of Significance

Earth Science ANSIs were treated as provincially significant if they had been identified as such by MNR. This information was obtained from NHIC and through correspondence with the local MNR District. The significance of the Winger Provincially Significant Earth Science ANSI was confirmed through consultation with the MNR. Since project components are proposed in and within 50 m of the Winger Earth Science ANSI,

Reference: Niagara Region Wind Farm NHA/EIS Addendum to Address the Winger Provincially Significant Earth Science ANSI

an EIS is required to assess the potential negative environmental effects and identify mitigation measures designed to prevent or minimize potential negative effects.

Section 6 – Environmental Impact Study

The construction, installation or expansion of a renewable energy generation facility is may be permitted in or within 50 m of a provincially significant Earth Science ANSI subject to the completion of an EIS.

The Project layout in relation to the Winger Earth Science ANSI boundary is shown on Figures 7.48 and 7.49 of the NHA/EIS (Appendix A). Project components sited in and within 50 m of the ANSI are detailed below:

Feature	Project Component(s) located in the Winger Earth Science ANSI	Feature Size (ha)	Temporary Land Use footprint (>1 year) (ha)	Long-term Land Use footprint (ha)	Project Component(s) located within 50 m (distance at closest point)
Winger Earth Science ANSI	<ul style="list-style-type: none"> • Access Road • Collector Line • Fibre Optic Line • Laydown Area • Turbine T89 	48.483	3.586	2.429	<ul style="list-style-type: none"> • Collector Line (98.9m, 116.3m) • Alternate Transmission Line (103m)

Potential Effects

Potential impacts to the Earth Science ANSI from construction of the turbine, access roads and collector line could include erosion or loss of part of the feature (NHRM, 2010). Alteration or destruction of landforms (i.e. remnant dune formations) can also occur where grading activities are undertaken.

This ANSI has been identified protecting remnant sand dune formations from a glacial lake. Actively managed agricultural lands are currently located within the ANSI, and it is currently subject to impacts associated with these activities. The remnant sand dune features are subtle within the actively managed fields, with more pronounced features identified within woodland 176. Geotechnical investigations will be undertaken on the property prior to construction at the centre of Turbine T89 to confirm subsurface conditions.

Access roads will be gravel roads approximately 6 m wide (40 m at a turning radius) with a 14 m wide staging area (20 m total). Staging areas will be temporary and will be restored to pre-existing conditions at the end of the construction phase. No blasting is anticipated for the excavation of the access roads.

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The area required for installation of the access roads, turbine and collector lines comprises a small area within the ANSI (2.43 ha of the 48.48 ha feature; approximately 5% of the ANSI's land mass). No reduced stability or integrity of the landform is expected as a result of the construction and operation of small stretches of narrow gravel roads.

The topography of the property is relatively flat with minimal grading required for the installation of the access road and turbine. Some grading may be required to accommodate access of the turbine blades, however, no significant grading is required to accommodate construction activities. With the exception of minor flattening of the access road, all project components proposed within the Earth Science ANSI will be constructed at grade.

The access road is proposed to cross remnant sand dune formations south and west of woodland 176, as identified during the site meeting on April 3, 2013. In these areas, the width of the access road and limit of construction will be reduced to approximately 6 m in order to minimize potential disturbance to the existing topography and avoid direct impacts on the sand dunes. The access road will be located along the southern property boundary (adjacent to the watercourse) in an area that may have been previously impacted during construction of the open drain (i.e. sand dune less pronounced).

Proposed Mitigation

The following mitigation measures will be implemented to minimize potential impacts and protect the sand dune formations that exist:

- No significant grading, cutting or filling will occur to maintain the existing topography within the boundaries of the Earth Science ANSI;
- The width of the access road and limits of construction in proximity to the sand dune formations within the Earth Science ANSI will be minimized beyond the typical 20 m constructible area;
- The limit of construction within the ANSI will be staked or fenced (i.e. silt fence) prior to construction to assist with the demarcation of the construction area, to ensure construction activities minimize disturbance to the ANSI and to assist with the proper field installation of erosion and sediment control measures;
- A topographic survey of existing elevations within the ANSI will be completed prior to construction activities to document the shape of the sand dunes. Upon completion of construction, the survey will be used to assist in restoring any disturbed areas to restore existing topography. This information will also be used during decommissioning to restore existing site conditions and topography;
- Prior to construction of the access road, the existing topsoil will be removed and a layer of geotextile fabric installed beneath the access road to assist in removal of the access roads during decommissioning. Topsoil will be replaced at grade for all access roads and constructible areas;

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- Any material excavated during the construction of the turbine will be disposed of off-site, while topsoil removed to accommodate the construction of the access road will be stabilized and stored on-site until the site is restored following completion of construction;
- The pre-existing conditions along the access road and surrounding the turbine location are agricultural and will be converted back to agricultural production following completion of construction;
- Mitigation measures for vegetation removal will be implemented as outlined in Section 6.4.1.1 of the NHA/EIS;
- Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the NHA/EIS; and
- Mitigation measures for dewatering will be implemented as outlined in Section 6.4.1.3 of the NHA/EIS.

Pre-Construction Surveys

Prior to construction, a topographic survey will be completed for the portion of the ANSI in and within 30 m of the proposed access road, buried collector lines, fibre optic lines and temporary construction area associated with Turbine 89.

In addition to the topographic information, the location of the following project components will be identified on a plan and provided to the MNR prior to construction:

- access road, buried collector lines, fibre optic lines and temporary construction area associated with Turbine 89;
- proposed erosion and sediment control measures;
- boundaries of the Winger Provincially Significant Earth Science ANSI; and
- portion of the construction area and access road where the limit of disturbance / construction activities will be minimized to protect existing topography and sand dune formations.

Post-Construction Surveys

Photographs taken during construction of the access road, buried collector lines, fibre optic lines and temporary construction area associated with Turbine 89 will be submitted to the MNR following construction to illustrate compliance with the proposed mitigation measures and pre-construction survey information.

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Jason Webb, Renewable Energy Planning Ecologist
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Net Effects

The Earth Science ANSI has been designated for its geological importance, and not its ecological importance. As such, the predominant aspect of the feature is associated with its surface topography, subsurface composition and land area. The significant features for which the Winger Earth Science ANSI has been identified are being protected during the design, construction, operation and decommissioning of the project. While disturbance to existing conditions will occur during construction, appropriate mitigation measures have been employed to protect existing topography and soil conditions, limit the extent of disturbance within the ANSI boundaries and to avoid the more pronounced sand dune formations on site. As a result, the significant features and provincially significant earth science values associated with the Winger Earth Science ANSI would be protected.

Closure

We trust that the information contained in this addendum is sufficient to address the concerns raised in your letter dated April 3, 2013 with respect to the access road to Turbine 89. As such, we request that an amendment or addendum to the confirmation letter for this project be provided to confirm that NHA and EIS components pertaining to the Winger Provincially Significant Earth Science ANSI have been satisfied.

If you have any questions or require further clarification of the above, please do not hesitate to give me a call.

Sincerely,

Stantec Consulting Ltd.



Chris Powell, M.A.
Project Manager / Environmental Planner

- c. David Webster, MNR
- Amy Cameron, MNR
- Darren Croghan, NRWC
- Shari Muscat, Stantec