



Stantec

**AMHERST ISLAND WIND ENERGY PROJECT
PROPERTY LINE SETBACK ASSESSMENT
REPORT**

File No. 160960595
April 2013

Prepared for:

Windletric Inc.
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Prepared by:

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1.0 Introduction

1.1 PROJECT OVERVIEW

Windlectric Inc. (the Proponent or Windlectric) is proposing to develop, construct, and operate the 56 - 75 megawatt (MW) Amherst Island Wind Energy Project (the Project) within Loyalist Township (the Township) in the County of Lennox and Addington (the County) in eastern Ontario, in response to the Government of Ontario's initiative to promote the development of renewable electricity in the province.

The basic components of the proposed Project include up to 36 Siemens wind turbines. The turbine model proposed utilizes the same 36 turbine pad locations that have been subject to the assessment required under the Renewable Energy Approval (REA). The layout includes 24 Siemens SWT-2.3-113 2300 kW and twelve (12) Siemens SWT-2.3-113 2221 kW model wind turbines. The final layout will result in a total installed nameplate capacity of approximately 56 - 75 MW. The number of wind turbines will be dependent upon final selection of the model of the wind turbine most appropriate to the proposed Project.

The proposed Project will also include a 34.5 kilovolt (kV) underground and/or overhead electrical power line collector system, fibre optic data lines from each turbine and/or wireless technology for the communication of data, a transmission line, truck turnaround areas, a submarine cable, an operations and maintenance building, permanent dock, a substation, a switching station, an un-serviced storage shed, one connection point to the existing electrical system, cable vault areas, meteorological tower(s) (met tower(s)), access road(s) to the met tower site(s), and turbine access roads with culvert installations, as required, at associated watercourse crossings.

Temporary components during construction may include staging areas for the turbines, access roads, met tower(s), collector lines and transmission line as well as crane paths, a temporary dock, site office(s), batch plant, central staging areas, and associated watercourse crossings. The electrical power line collector system would transport the electricity generated from each turbine to the substation, along the submarine cable to the mainland and then to a switching station located near to an existing Hydro One Networks Inc. (HONI) 115 kV transmission line.

The Proponent has elected to assess and seek approval for some alternative Project configurations. The REA application process will consider:

- two alternative mainland transmission line routes;
- two alternative switching station locations and corresponding point of common coupling with the HONI line;

- three alternative mainland temporary dock locations along the mainland;
- a submarine cable with three alternative submarine cable routes near the mainland;
- three alternative mainland submarine cable landing locations and corresponding cable vault locations;
- up to three alternative met tower locations; and,
- up to three potential locations for an operations and maintenance building.

Final selection of the sites to be used would be based on the results of consultation activities, detailed design / engineering work, and the conditions experienced during construction.

Windlectric has retained Stantec Consulting Ltd. (Stantec) to prepare a Renewable Energy Approval (REA) application, as required under Ontario Regulation 359/09 - Renewable Energy Approvals under Part V.0.1 of the Act of the *Environmental Protection Act* (O. Reg. 359/09). According to subsection 6(3) of O. Reg. 359/09, this Project is classified as a Class 4 Wind Facility. The *Draft Property Line Setback Assessment Report* is one component of the REA application for the Project, and has been prepared in accordance with O. Reg. 359/09, and the Ministry of the Environment's (MOE) *Technical Guide to Renewable Energy Approvals* (MOE 2011).

1.2 REPORT REQUIREMENTS

The purpose of the *Draft Property Line Setback Assessment Report* is to provide a review of potential adverse impacts and preventative measures for wind turbines located within the prescribed setback from non-participating parcels of land.

The *Draft Property Line Setback Assessment Report* has been prepared in accordance with O. Reg. 359/09 and the Ministry of the Environment's (MOE's) guidance document *Technical Guide to Renewable Energy Approvals*.

Under O. Reg. 359/09, Class 4 wind projects are subject to property line setback requirements that require turbines to be located at a distance equal to the hub height from a property line. A turbine may be sited closer to the property line (to a limit of the length of the turbine blade plus 10 m) if the applicant submits a *Property Line Setback Assessment Report* to fulfill the requirements of subsection 53 (3) of O. Reg. 359/09.

The following table summarizes the documentation requirements as specified under O. Reg. 359/09.

AMHERST ISLAND WIND ENERGY PROJECT
PROPERTY LINE SETBACK ASSESSMENT REPORT
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Table 1.1: Property Line Setback Assessment Report Requirements: O. Reg. 359/09

Requirements	Completed	Section Reference
As part of an application for the issues of a renewable energy approval or a certificate of approval in respect of the construction, installation or expansion of the wind turbine, the person who is constructing, installing or expanding the wind turbine submits a written assessment,		
1. Demonstrating that the proposed location of the wind turbine will not result in adverse impacts on nearby business, infrastructure, properties or land use activities, and	✓	Attachment B
2. Describing any preventative measures that are required to be implemented to address the possibility of any adverse impacts.	✓	Section 2.0, Attachment B

All of the proposed turbine sites meet the minimum setback requirement of at least 550 metres from the nearest noise receptor. None of the proposed turbine sites are located less than the length of the turbine blades plus 10 metres (i.e. 65 metres) from a property line or public road right of way. However four (4) are located closer to a non-participating property line than the height of the turbine tower (99.5 metres). Mapping of each turbine location within the setback is provided in **Attachment A**.

2.0 Property Line Setback Analysis

An analysis for each turbine that does not meet the hub height setback, including the distance of each potential turbine site from the non-participating property line, and the distance of overlap, is provided in Attachment B. This includes an assessment of features within the overlap such as businesses, infrastructure and land use activities along with preventative measures to address potential adverse effects.

The primary preventative measure relates to the design and construction of the turbines. The turbines would be constructed and designed by professional engineers, undergo regular maintenance and monitoring by operational staff, and contain automatic shutdown mechanisms in instances such as extreme weather. All of these measures are standard best practices detailed in the REA documents.

3.0 Closure

The Amherst Island Wind Energy Project *Draft Property Line Setback Assessment Report* has been prepared by Stantec for Windlectric in accordance with Ontario Regulation 359/09, and in consideration of the *Technical Guide to Renewable Energy Approvals*.

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

STANTEC CONSULTING LTD.



Rob Rowland
Senior Project Manager



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Project Manager

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**AMHERST ISLAND WIND ENERGY PROJECT
PROPERTY LINE SETBACK ASSESSMENT REPORT**

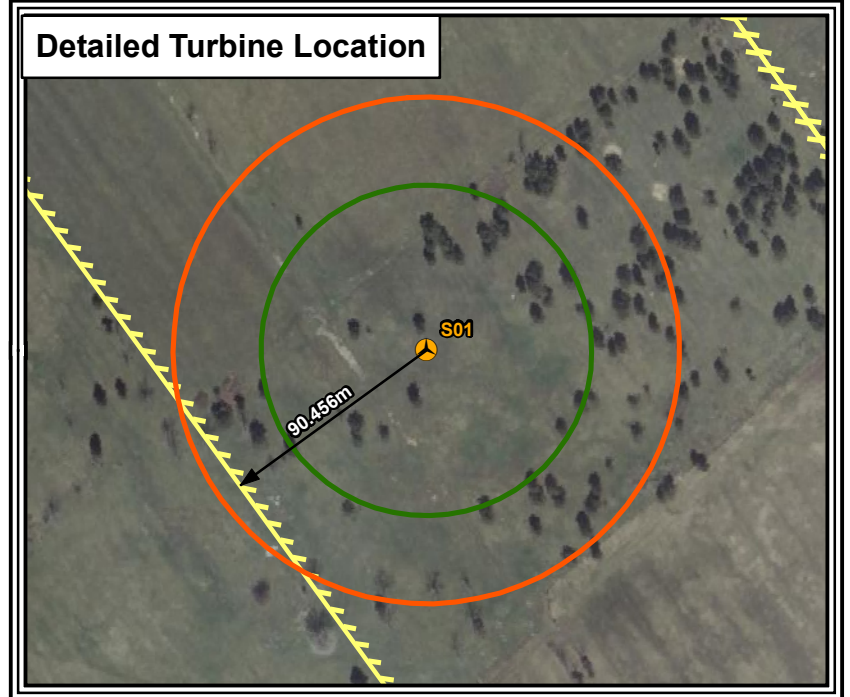
Attachment A

Figures



Legend

- Project Components**
- Turbine
 - Turbine 65m Buffer (Blade + 10m)
 - Turbine 99.5m Buffer (Hub height)
 - Participating Property
- Existing Features**
- Road
 - Property Boundary



Notes

1. Coordinate System: UTM NAD 83 - Zone 18 (N).
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013. Project layout S19 - revision 3.
3. Imagery Source: First Base Solutions ©, 2013. Imagery Date: 2008



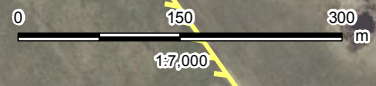
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Figure No.
1

Title
Property Line Assessment Turbine No. S01





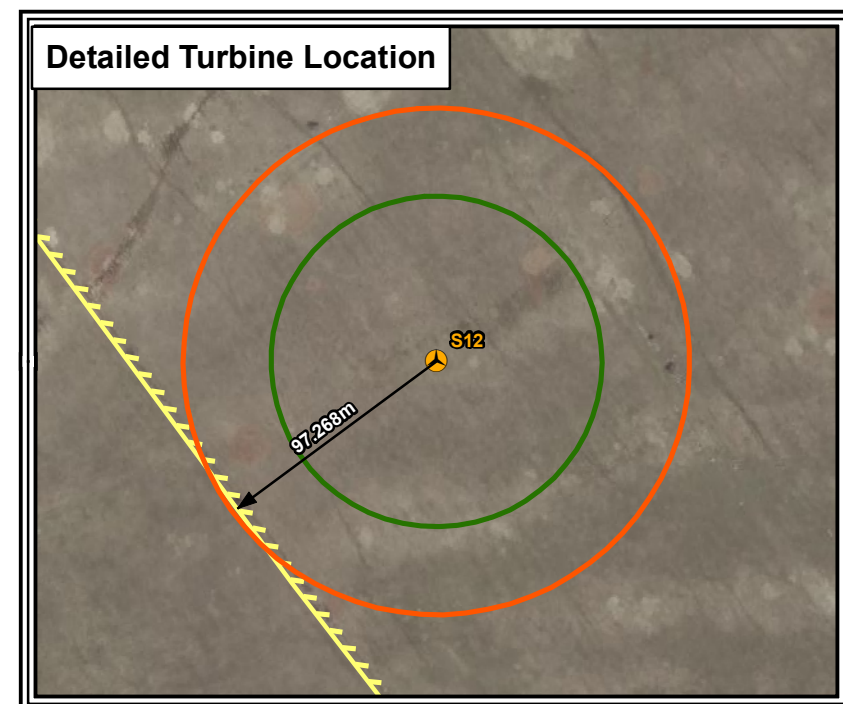
Legend

Project Components

- Turbine
- Turbine 65m Buffer (Blade + 10m)
- Turbine 99.5m Buffer (Hub height)
- Participating Property

Existing Features

- Road
- Property Boundary



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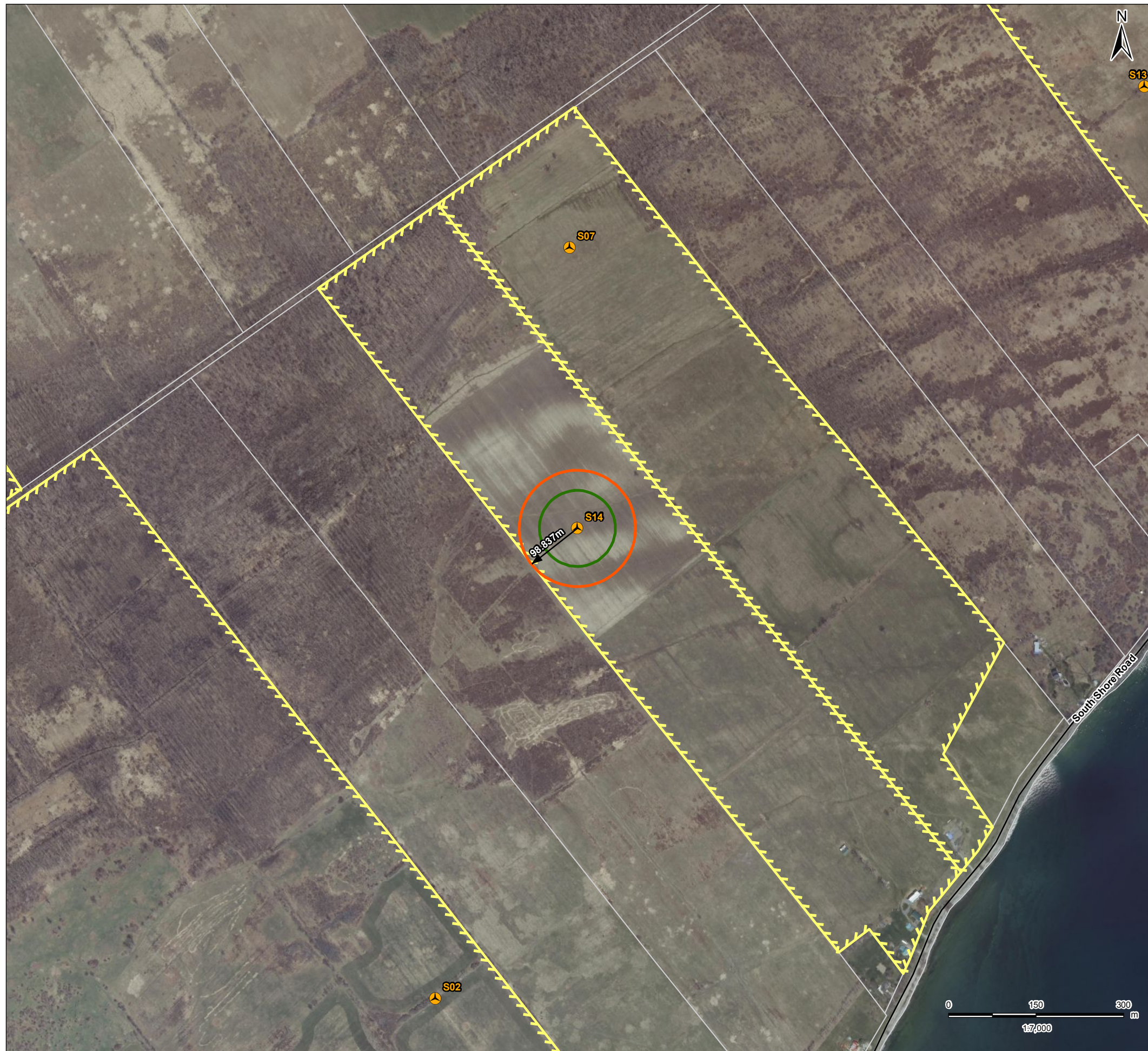
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Figure No.

2





Title

Property Line Assessment Turbine No. S12





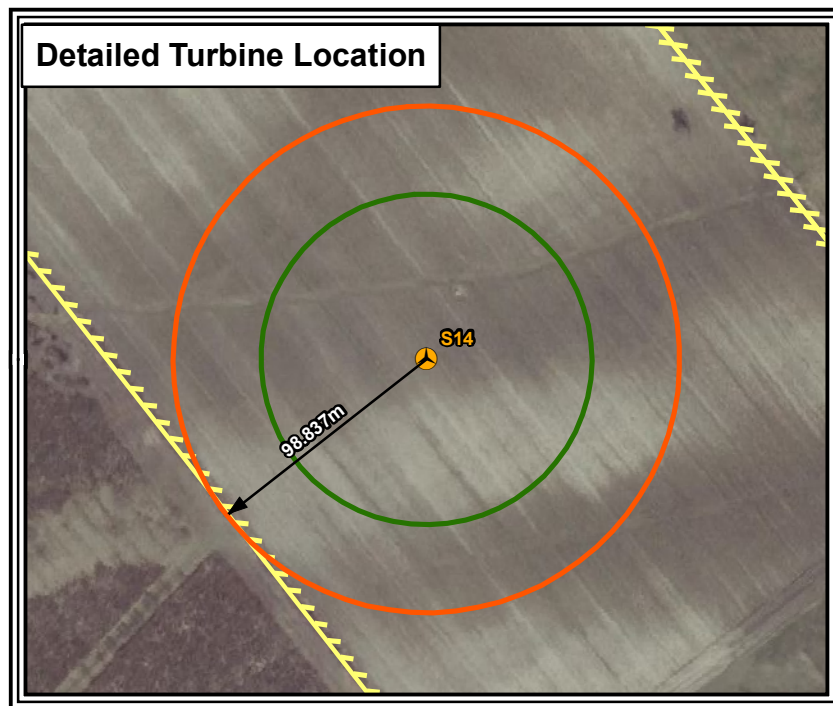
Legend

Project Components

-  Turbine
-  Turbine 65m Buffer (Blade + 10m)
-  Turbine 99.5m Buffer (Hub height)
-  Participating Property

Existing Features

-  Road
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Figure No.

3

Title

Property Line Assessment Turbine No. S14



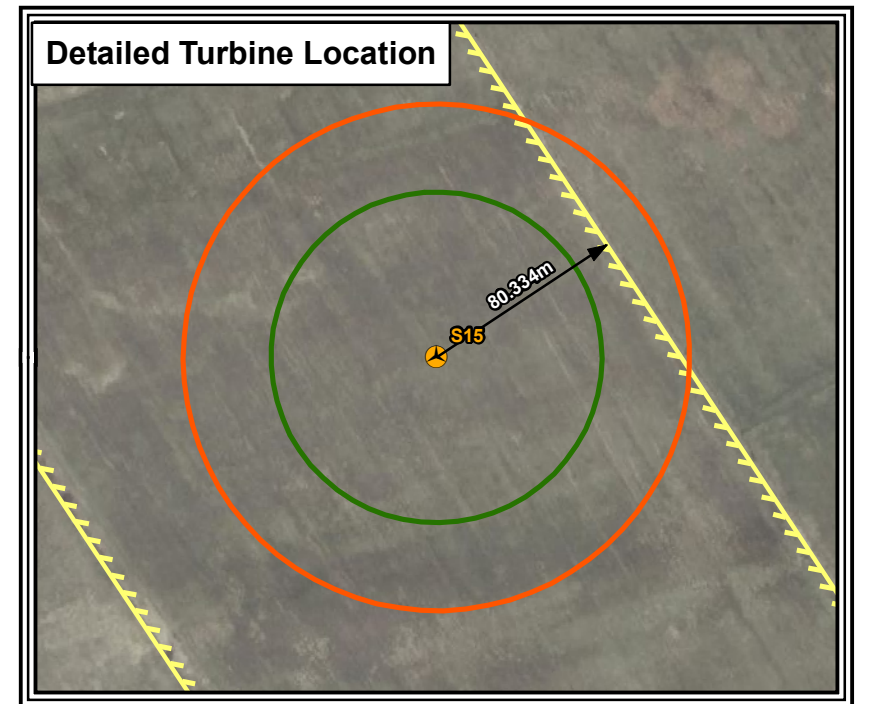
Legend

Project Components

- Turbine
- Turbine 65m Buffer (Blade + 10m)
- Turbine 99.5m Buffer (Hub height)
- Participating Property

Existing Features

- Road
- Property Boundary



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Figure No.

4

Title

Property Line Assessment Turbine No. S15

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**AMHERST ISLAND WIND ENERGY PROJECT
PROPERTY LINE SETBACK ASSESSMENT REPORT**

Attachment B

Individual Property Line Setback Assessments

Attachment B: Property Line Assessment Summary

Turbine ID	Approximate Distance to Property Line (m)	Approximate Distance of Overlap (m)	Features Within Overlap	Potential Effect	Preventative Measures/Mitigation Strategy	Net Effects
S01	90.456	9.044	Infrastructure: <input type="checkbox"/> Land Use and Businesses: <input checked="" type="checkbox"/> Hedgerows: <input type="checkbox"/> Woodlots: <input type="checkbox"/> Watercourses: <input type="checkbox"/>	Limited adverse impacts to agricultural land, including crop damage and soil compaction, may occur in the unlikely event of turbine collapse.	The turbines would be constructed and designed by professional engineers, undergo regular maintenance and monitoring by operational staff, and contain shutdown mechanisms in instances such as extreme weather or malfunction. Probability of turbine collapse is low. In the unlikely event of damage to agricultural land due to turbine collapse, landowners would be compensated by Windlectric for any crop damage, damage to fencing and measures are outlined in the REA documents to mitigate soil compaction.	Following the application of documented preventative measures no adverse net effects on agricultural land is anticipated.
S12	97.286	2.214	Infrastructure: <input type="checkbox"/> Land Use and Businesses: <input checked="" type="checkbox"/> Hedgerows: <input type="checkbox"/> Woodlots: <input type="checkbox"/> Watercourses: <input type="checkbox"/>	Limited adverse impacts to agricultural land, including crop damage and soil compaction, may occur in the unlikely event of turbine collapse.	The turbines would be constructed and designed by professional engineers, undergo regular maintenance and monitoring by operational staff, and contain shutdown mechanisms in instances such as extreme weather or malfunction. Probability of turbine collapse is low. In the unlikely event of damage to agricultural land due to turbine collapse, landowners would be compensated by Windlectric for any crop damage, damage to fencing and measures are outlined in the REA documents to mitigate soil compaction.	Following the application of documented preventative measures no adverse net effects on agricultural land is anticipated.
S14	98.837	0.663	Infrastructure: <input type="checkbox"/> Land Use and Businesses: <input checked="" type="checkbox"/> Hedgerows: <input type="checkbox"/> Woodlots: <input checked="" type="checkbox"/> Watercourses: <input type="checkbox"/>	Limited adverse impacts to agricultural land, including crop damage and soil compaction, may occur in the unlikely event of turbine collapse. Limited adverse impacts to woodlands, including vegetation damage and disturbance to related wildlife habitat, may occur in the unlikely event of turbine collapse.	The turbines would be constructed and designed by professional engineers, undergo regular maintenance and monitoring by operational staff, and contain shutdown mechanisms in instances such as extreme weather or malfunction. Probability of turbine collapse is low. In the unlikely event of damage to agricultural land due to turbine collapse, landowners would be compensated by Windlectric for any crop damage, damage to fencing and measures are outlined in the REA documents to mitigate soil compaction. Additional mitigation measures for vegetation, including damage and disturbance to wildlife habitat, are outlined in the REA reports.	Following the application of documented preventative measures no adverse net effects on agricultural land and woodlands are anticipated.
S15	80.334	19.166	Infrastructure: <input type="checkbox"/> Land Use and Businesses: <input checked="" type="checkbox"/> Hedgerows: <input type="checkbox"/> Woodlots: <input type="checkbox"/> Watercourses: <input type="checkbox"/>	Limited adverse impacts to agricultural land, including crop damage and soil compaction, may occur in the unlikely event of turbine collapse.	The turbines would be constructed and designed by professional engineers, undergo regular maintenance and monitoring by operational staff, and contain shutdown mechanisms in instances such as extreme weather or malfunction. Probability of turbine collapse is low. In the unlikely event of damage to agricultural land due to turbine collapse, landowners would be compensated by Windlectric for any crop damage, damage to fencing and measures are outlined in the REA documents to mitigate soil compaction.	Following the application of documented preventative measures no adverse net effects on agricultural land is anticipated.