

SCHEDULE 13 – Tree Removal in Municipal Road Allowances

To: Peter Bright
Waterloo, ON

From: Jennifer Koskinen
Waterloo ON Office

File: 133560104

Date: April 29, 2017

Reference: Amherst Island Wind Project 75MW Wind Farm, Tree Removal Assessment, Amherst Island, Ontario

1.0 Introduction

Stantec Consulting Ltd. has been retained by Pennecon Heavy Civil Limited to complete a Tree Removal Assessment for the Amherst Island Wind Project, 75MW Wind Farm. The Tree Removal Assessment includes a review of trees located adjacent to the collector circuit that will be installed within the gravel shoulder adjacent to the road. The collector circuits will be distributed throughout the island on sections of the following public roads: 2nd Concession Road, Stella 40 Foot Road, South Shore Road, Front Road, Dump Road and Lower 40 Foot Road. Trees were reviewed along the section of these public roads where the collector circuit will be located.

2.0 Methodology

The Project Arborist from Stantec, Ms. Jennifer Koskinen, HBESfcon, ISA, completed a site visit on September 28th, 2016, with the Project Electrical Technologist, Mr. Andrew Rees. The purpose of the visit was to review the circuit alignment along the road and to assess proposed impact to the trees located adjacent to the roads. The tree review included collecting general tree data through observation from the road. Tree data collected includes species identification, diameter class, condition, tree location in relation to the road, and impacts on the tree if the alignment was located on the adjacent gravel shoulder.

Additional trees have been identified by Algonquin Power as requiring removal. These include trees located on South Shore Road, 2nd Concession Road, and Dump Road, located on the attached Table 1. These removal trees were reviewed by Stantec and the data was verified in the field on April 20th, 2017. Tree removals in Table 1 include trees impacted by the collector system installation, road improvements, turbine component movement, and construction for access roads.

3.0 Observations

Species distribution along all of the roads included in the study was similar. The tree species predominantly included Red Maple (*Acer rubrum*), Green Ash (*Fraxinus pennsylvanica*), Basswood (*Tilia americana*), and Elm sp. (*Ulmus sp.*). There were no rare or endangered species observed within the collector system area, or the areas where the additional tree removals were located. Trees were located anywhere from 2 meters to 5 meters off of the edge of the road with the average distance being 3 meters. The majority of trees were in good condition, with sporadic dead standing trees.

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4.1 Assessment

The collector circuit will be located adjacent to the existing road edge within the gravel shoulder for all the roads except for South Shore Road. South Shore Road will predominantly have the collector circuit located within the road, with some areas located adjacent to the road edge. The excavation required to install the collector circuit will be no more than 1 meter wide. This width was used to determine the construction impact and the required removal of trees for the collector system. Tree removals for road access, turbine delivery, and road improvements were identified by Algonquin. The species, DBH, condition, and GPS coordinates of these additional removals were verified by Stantec.

The following trees have been identified for removal based on the impacts identified in the field:

Stella 40 Foot Road

- Silver Maple, *Acer saccharinum*, 40 to 50 cm DBH, Poor

South Shore Road

- Basswood, *Tilia americana*, 45cm DBH, Poor
- Red Oak, *Quercus rubra*, 38cm DBH, Fair
- Cherry sp., *Prunus sp.*, 3 stems <10cm DBH, Good
- Basswood, *Tilia americana*, 2 stems at 18cm, 20cm, 23cm DBH, Good
- Basswood, *Tilia americana*, 2 stems 10cm and multiple <10cm DBH, Good

2nd Concession Road

- Bur Oak, *Quercus macrocarpa*, 65cm DBH, Good
- Ash sp., *Fraxinus sp.*, 2 trees at 10cm DBH, Good

Dump Road

- White Elm, *Ulmus americana*, 23cm DBH, Fair
- Green Ash, *Fraxinus pennsylvanica*, 22cm, 20cm, 18cm DBH, Poor
- Red Oak, *Quercus rubra*, 48cm DBH, Good
- Green Ash, *Fraxinus pennsylvanica*, 28cm, 35cm DBH, Poor
- White Elm, *Ulmus americana*, 10cm, 2 stems 18cm DBH, Good
- Basswood, *Tilia americana*, 10cm, 18cm DBH, Good
- Basswood, *Tilia americana*, 20cm, 15cm DBH, Good
- Basswood, *Tilia americana*, 10cm, 14cm DBH, Good
- Basswood, *Tilia americana*, <10cm, 10cm DBH, Good
- Basswood, *Tilia americana*, 18cm, <10cm DBH, Good
- White Elm, *Ulmus americana*, 18cm DBH, Dead
- Basswood, *Tilia americana*, 14cm DBH, Good
- Green Ash, *Fraxinus pennsylvanica*, 14cm DBH, Good

There will be twenty three, 23, trees removed to facilitate construction for the collector circuit, road access, turbine delivery, and road improvements. In total one, 1, tree will be removed for construction of the collector circuit; six, 6, trees will be removed for turbine delivery; and fifteen, 15, trees will be removed for access road construction.



March 29, 2017

Peter Bright

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A handwritten signature in blue ink that reads "Jennifer Koskinen".

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Attachment: Table 1. General Tree Removal Inventory

c. Tim McCormick, Stantec

TABLE 1. General Tree Inventory, Amherst Island Wind Farm, Ontario
 Data collected : September 28th, 2016, and April 20th, 2017.

Approximate # of trees	Botanical Name	Common Name	DBH (cm)/Diameter Class	Condition	Comments	Tree Location	Impact Assessment	GPS Coordinates for Removals
Stella 40 Foot Road								
1	<i>Acer saccharinum</i>	Silver Maple	40 to 50	Poor	First large tree south of 2nd Concession, on the west side of Stalla 40.	Public	Remove - 1	X: 364716 Y: 4890896
South Shore Road								
1	<i>Tilia americana</i>	Basswood	45	Poor	Hile in mid trunk.	South Shore	Remove - 2	X: 367049.1 Y: 4889984.6
1	<i>Quercus rubra</i>	Red Oak	38	Fair		South Shore	Remove - 2	X: 367052.3 Y: 4889999.8
3	<i>Prunus sp.</i>	Cherry sp.	(3) <10	Good	Three stems.	South Shore	Remove - 3	X: 368721.3 Y: 4891591.0
1	<i>Tilia americana</i>	Basswood	(2)18,20,23	Good		South Shore	Remove - 2	X: 369580.5 Y: 4892111.5
1	<i>Tilia americana</i>	Basswood	(2)10, multiple <10	Good		South Shore	Remove - 2	X: 369672.5 Y: 4892175.9
2nd Concession Road								
1	<i>Quercus macrocarpa</i>	Bur Oak	65	Good		Concession 2	Remove - 3	X: 362360.0 Y: 4890196.2
Multiple	<i>Fraxinus sp.</i>	Ash sp.	(2) 10	Good	Within thiss removal area inlcude multiple <10 Staghorn Sumac, and dogwood shrubs	Concession 2	Remove - 2	Area of X: 361408 Area of Y: 4889716
Dump Road								
1	<i>Ulmus americana</i>	White Elm	23	Fair		Dump Road	Remove - 3	X: 362813.5 Y: 4890507.0
1	<i>Fraxinus pennsylvanica</i>	Green Ash	23,20,18	Poor		Dump Road	Remove - 3	X: 362807.1 Y: 4890519.5
1	<i>Quercus rubra</i>	Red Oak	48	Good		Dump Road	Remove - 3	X: 362793.6 Y: 4890542.0
1	<i>Fraxinus pennsylvanica</i>	Green Ash	28,35	Poor		Dump Road	Remove - 3	X: 362789.5 Y: 4890546.6
1	<i>Ulmus americana</i>	White Elm	10,(2)18	Good		Dump Road	Remove - 3	X: 362784 Y: 4890556
1	<i>Tilia americana</i>	Basswood	10,18	Good		Dump Road	Remove - 3	X: 362770 Y: 4890580
1	<i>Tilia americana</i>	Basswood	20,15	Good		Dump Road	Remove - 3	X: 362755 Y: 4890611
1	<i>Tilia americana</i>	Basswood	10,14	Good		Dump Road	Remove - 3	X: 362752 Y: 4890612
1	<i>Tilia americana</i>	Basswood	<10,10	Good		Dump Road	Remove - 3	X: 362734 Y: 4890646
1	<i>Tilia americana</i>	Basswood	18,<10	Good		Dump Road	Remove - 3	X: 362734 Y: 4890646
1	<i>Ulmus americana</i>	White Elm	18	Dead		Dump Road	Remove - 3	X: 362720 Y: 4890622
1	<i>Tilia americana</i>	Basswood	14	Good		Dump Road	Remove - 3	X: 362720 Y: 4890622
1	<i>Fraxinus pennsylvanica</i>	Green Ash	14	Good		Dump Road	Remove - 3	X: 362650 Y: 4890785

Trees to Be Removed Which Are Over 15cm DBH

1 Trees to be Removed for Electrical Line

2 Trees to be Removed for Turbine Delivery

3 Trees to be Removed for Access Road Construction