

- Legend**
- Wind Energy Centre Study Area
 - Goshen Transmission Line Study Area
 - 120 m Area of Investigation
 - Property Boundary
 - Municipal Division
 - Expressway / Highway
 - Major Road
 - Local Road
 - Watercourse
 - Waterbody
 - Cartographic Wetland
 - CUM - Cultural Meadow
 - CUP - Cultural Plantation
 - CUS - Cultural Savannah
 - CUT - Cultural Thicket
 - CLW - Cultural Woodland
 - FOC - Coniferous Forest
 - FOD - Deciduous Forest
 - FOM - Mixed Forest
 - Hedgrows, HED
 - MAM - Meadow Marsh
 - MAS - Shallow Marsh
 - OAO - Open Aquatic
 - SAS
 - SWC - Coniferous Swamp
 - SWD - Deciduous Swamp Type
 - SWM - Mixed Swamp
 - SWT - Thicket Swamp
 - GE Turbine
 - Permanent Meteorological Tower
 - Access Roads
 - Collection Line
 - Transmission Line
 - Breaker Switch Station
 - Transformer Substation
 - Temporary Laydown Area
 - Disturbance Area

Site Code	Site Name
CUM1	City of Goshen Park Machine Site
CUM2	City of Goshen Park Machine Site
CUM3	City of Goshen Park Machine Site
CUM4	City of Goshen Park Machine Site
CUM5	City of Goshen Park Machine Site
CUM6	City of Goshen Park Machine Site
CUM7	City of Goshen Park Machine Site
CUM8	City of Goshen Park Machine Site
CUM9	City of Goshen Park Machine Site
CUM10	City of Goshen Park Machine Site
CUM11	City of Goshen Park Machine Site
CUM12	City of Goshen Park Machine Site
CUM13	City of Goshen Park Machine Site
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CUM17	City of Goshen Park Machine Site
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CUM26	City of Goshen Park Machine Site
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CUM30	City of Goshen Park Machine Site
CUM31	City of Goshen Park Machine Site
CUM32	City of Goshen Park Machine Site
CUM33	City of Goshen Park Machine Site
CUM34	City of Goshen Park Machine Site
CUM35	City of Goshen Park Machine Site
CUM36	City of Goshen Park Machine Site
CUM37	City of Goshen Park Machine Site
CUM38	City of Goshen Park Machine Site
CUM39	City of Goshen Park Machine Site
CUM40	City of Goshen Park Machine Site
CUM41	City of Goshen Park Machine Site
CUM42	City of Goshen Park Machine Site
CUM43	City of Goshen Park Machine Site
CUM44	City of Goshen Park Machine Site
CUM45	City of Goshen Park Machine Site
CUM46	City of Goshen Park Machine Site
CUM47	City of Goshen Park Machine Site
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CUM49	City of Goshen Park Machine Site
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CUM91	City of Goshen Park Machine Site
CUM92	City of Goshen Park Machine Site
CUM93	City of Goshen Park Machine Site
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CUM96	City of Goshen Park Machine Site
CUM97	City of Goshen Park Machine Site
CUM98	City of Goshen Park Machine Site
CUM99	City of Goshen Park Machine Site
CUM100	City of Goshen Park Machine Site

Beasmapping from Ontario Ministry of Natural Resources

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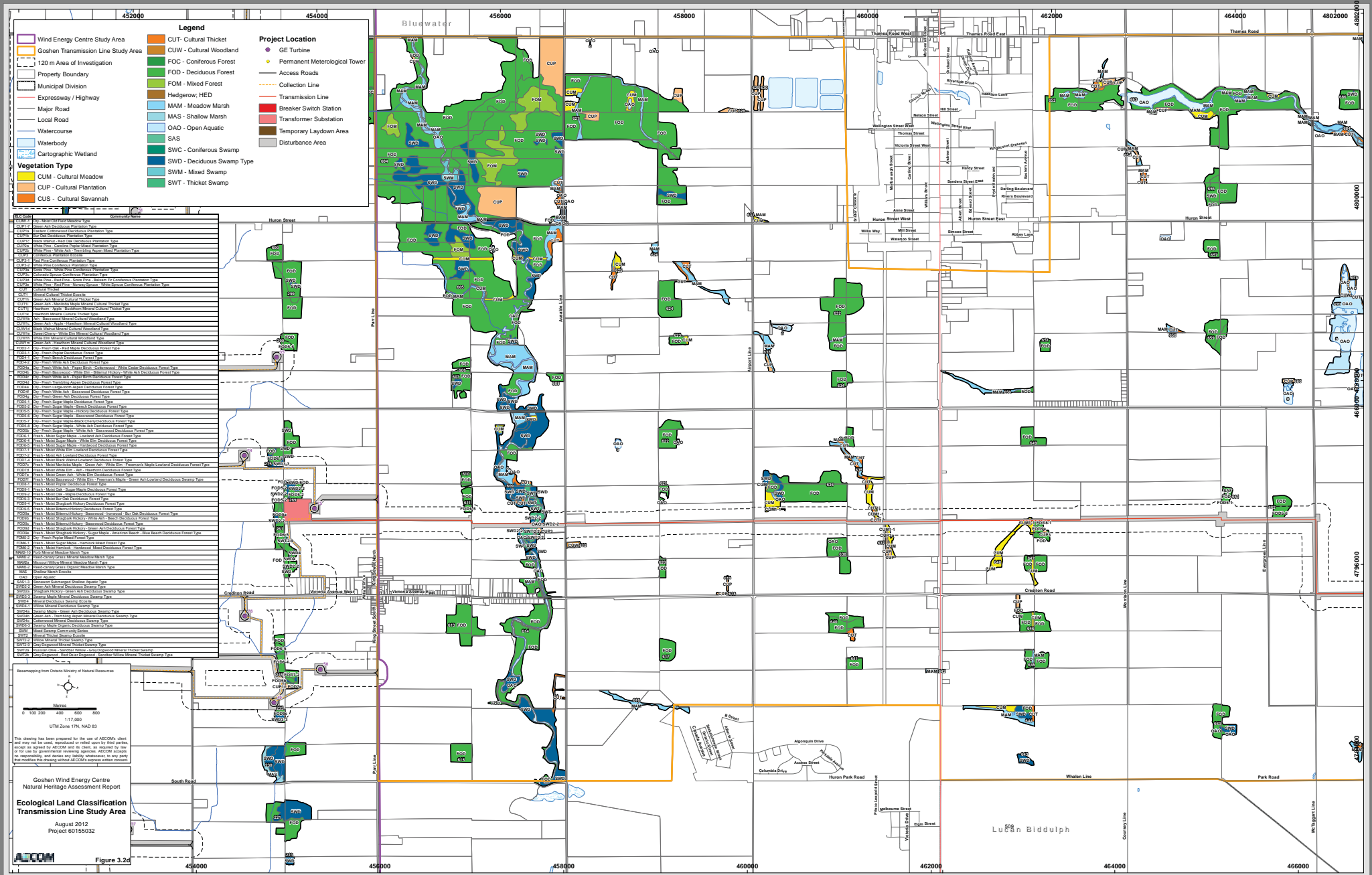
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UTM Zone 17N, NAD 83

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Goshen Wind Energy Centre
Natural Heritage Assessment Report
**Ecological Land Classification
Wind Energy Centre Study Area**
August 2012
Project 60155032

ACCOM

Figure 3.2c



- Legend**
- Wind Energy Centre Study Area
 - Goshen Transmission Line Study Area
 - 120 m Area of Investigation
 - Property Boundary
 - Municipal Division
 - Expressway / Highway
 - Major Road
 - Local Road
 - Watercourse
 - Waterbody
 - Cartographic Wetland
 - CUT - Cultural Thicket
 - CUW - Cultural Woodland
 - FOC - Coniferous Forest
 - FOD - Deciduous Forest
 - FOM - Mixed Forest
 - Hedgerow, HED
 - MAM - Meadow Marsh
 - MAS - Shallow Marsh
 - OAO - Open Aquatic
 - SAS
 - SWC - Coniferous Swamp
 - SWD - Deciduous Swamp Type
 - SWM - Mixed Swamp
 - SWT - Thicket Swamp
 - Project Location
 - GE Turbine
 - Permanent Meteorological Tower
 - Access Roads
 - Collection Line
 - Transmission Line
 - Breaker Switch Station
 - Transformer Substation
 - Temporary Laydown Area
 - Disturbance Area

FOC1	Forest - Mixed Coniferous Deciduous Forest Type
FOC2	Forest - Mixed Coniferous Deciduous Forest Type
FOC3	Forest - Mixed Coniferous Deciduous Forest Type
FOC4	Forest - Mixed Coniferous Deciduous Forest Type
FOC5	Forest - Mixed Coniferous Deciduous Forest Type
FOC6	Forest - Mixed Coniferous Deciduous Forest Type
FOC7	Forest - Mixed Coniferous Deciduous Forest Type
FOC8	Forest - Mixed Coniferous Deciduous Forest Type
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FOC96	Forest - Mixed Coniferous Deciduous Forest Type
FOC97	Forest - Mixed Coniferous Deciduous Forest Type
FOC98	Forest - Mixed Coniferous Deciduous Forest Type
FOC99	Forest - Mixed Coniferous Deciduous Forest Type
FOC100	Forest - Mixed Coniferous Deciduous Forest Type

Background from Ontario Ministry of Natural Resources

Scale: 0 100 200 400 600 800 Meters

UTM Zone 17N, NAD 83

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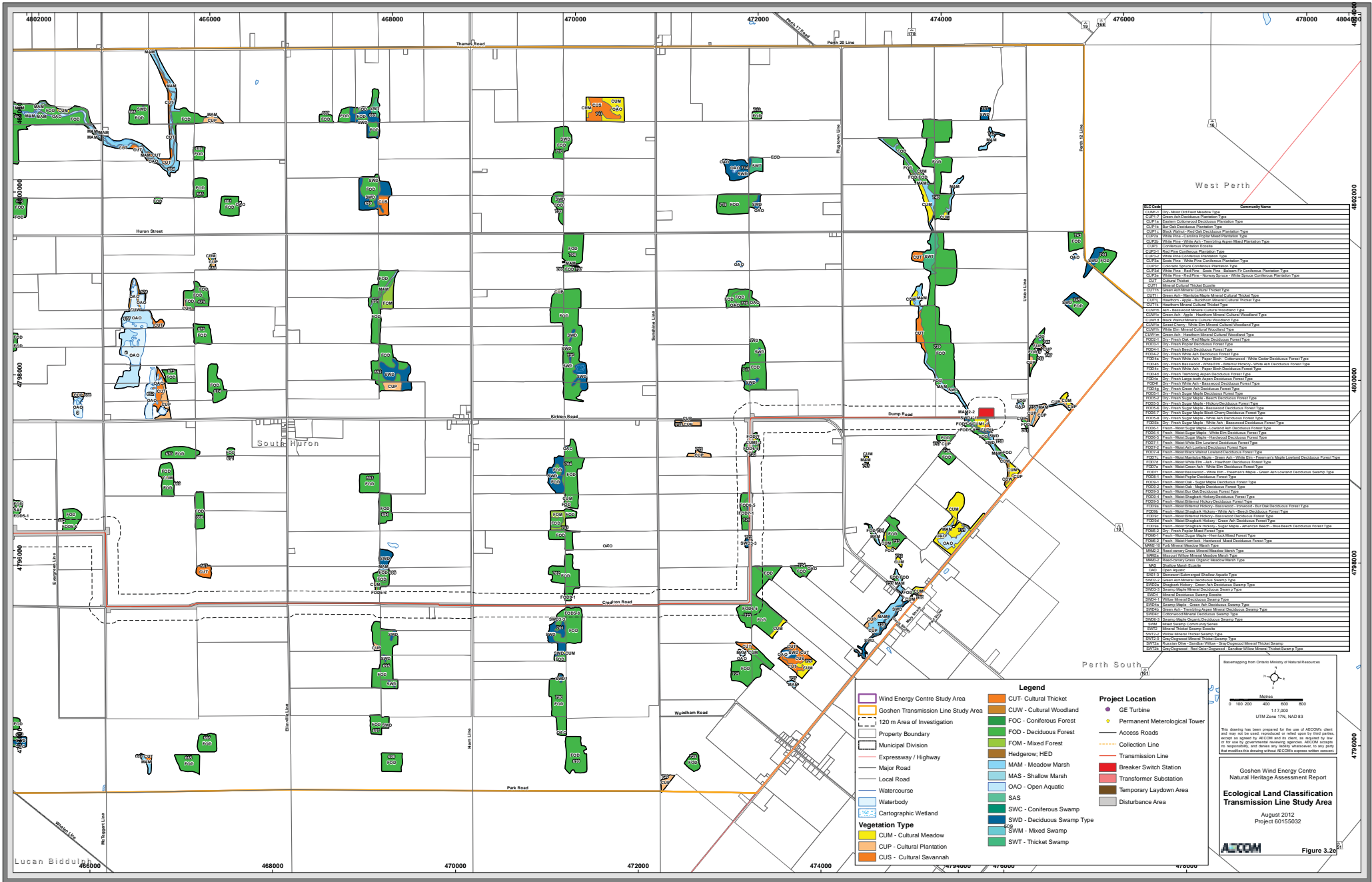
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Goshen Wind Energy Centre
Natural Heritage Assessment Report

**Ecological Land Classification
Transmission Line Study Area**

August 2012
Project 60155032

ALCOM Figure 3.2d



ELC Code	Community Name
ELC001	Open Grassland
ELC002	Open Grassland
ELC003	Open Grassland
ELC004	Open Grassland
ELC005	Open Grassland
ELC006	Open Grassland
ELC007	Open Grassland
ELC008	Open Grassland
ELC009	Open Grassland
ELC010	Open Grassland
ELC011	Open Grassland
ELC012	Open Grassland
ELC013	Open Grassland
ELC014	Open Grassland
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ELC095	Open Grassland
ELC096	Open Grassland
ELC097	Open Grassland
ELC098	Open Grassland
ELC099	Open Grassland
ELC100	Open Grassland

Legend

- Wind Energy Centre Study Area
- Goshen Transmission Line Study Area
- 120 m Area of Investigation
- Property Boundary
- Municipal Division
- Expressway / Highway
- Major Road
- Local Road
- Watercourse
- Waterbody
- Cartographic Wetland
- Vegetation Type
 - CUM - Cultural Meadow
 - CUP - Cultural Plantation
 - CUS - Cultural Savannah
 - CUT - Cultural Thicket
 - CUW - Cultural Woodland
 - FOC - Confirer Forest
 - FOD - Deciduous Forest
 - FOM - Mixed Forest
 - Hedgrows; HED
 - MAM - Meadow Marsh
 - MAS - Shallow Marsh
 - OAO - Open Aquatic
 - SAS
 - SWC - Confirer Swamp
 - SWD - Deciduous Swamp Type
 - SWM - Mixed Swamp
 - SWT - Thicket Swamp

Project Location

- GE Turbine
- Permanent Meteorological Tower
- Access Roads
- Collection Line
- Transmission Line
- Breaker Switch Station
- Transformer Substation
- Temporary Laydown Area
- Disturbance Area

Scale: 0 100 200 400 600 800 METERS

UTM Zone 17N, NAD 83

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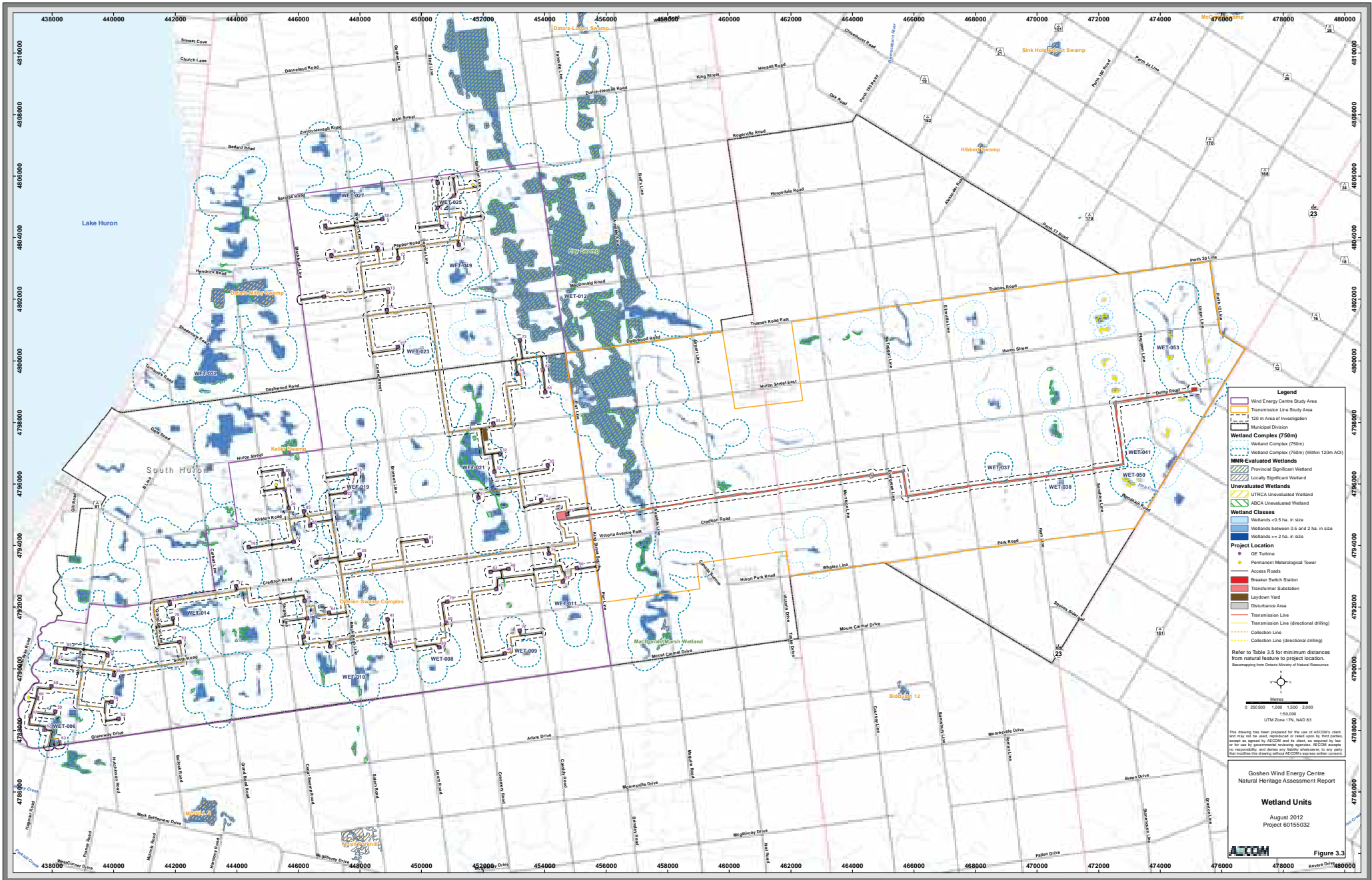
Goshen Wind Energy Centre
Natural Heritage Assessment Report

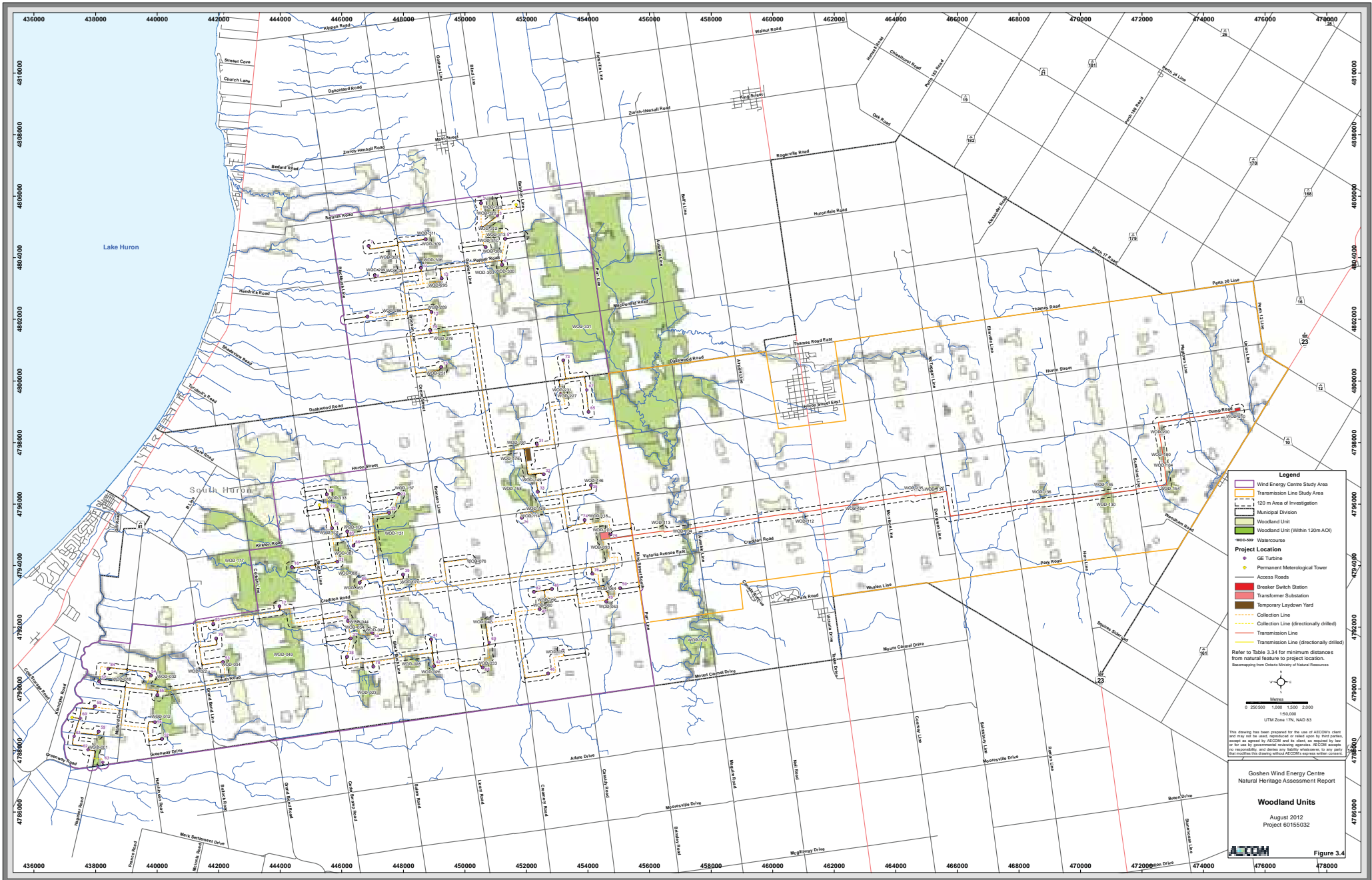
**Ecological Land Classification
Transmission Line Study Area**

August 2012
Project 60155032

AECOM

Figure 3.2e





Legend

- Wind Energy Centre Study Area
- Transmission Line Study Area
- 120 m Area of Investigation
- Municipal Division
- Woodland Unit
- Woodland Unit (Within 120m AOI)
- Watercourse

Project Location

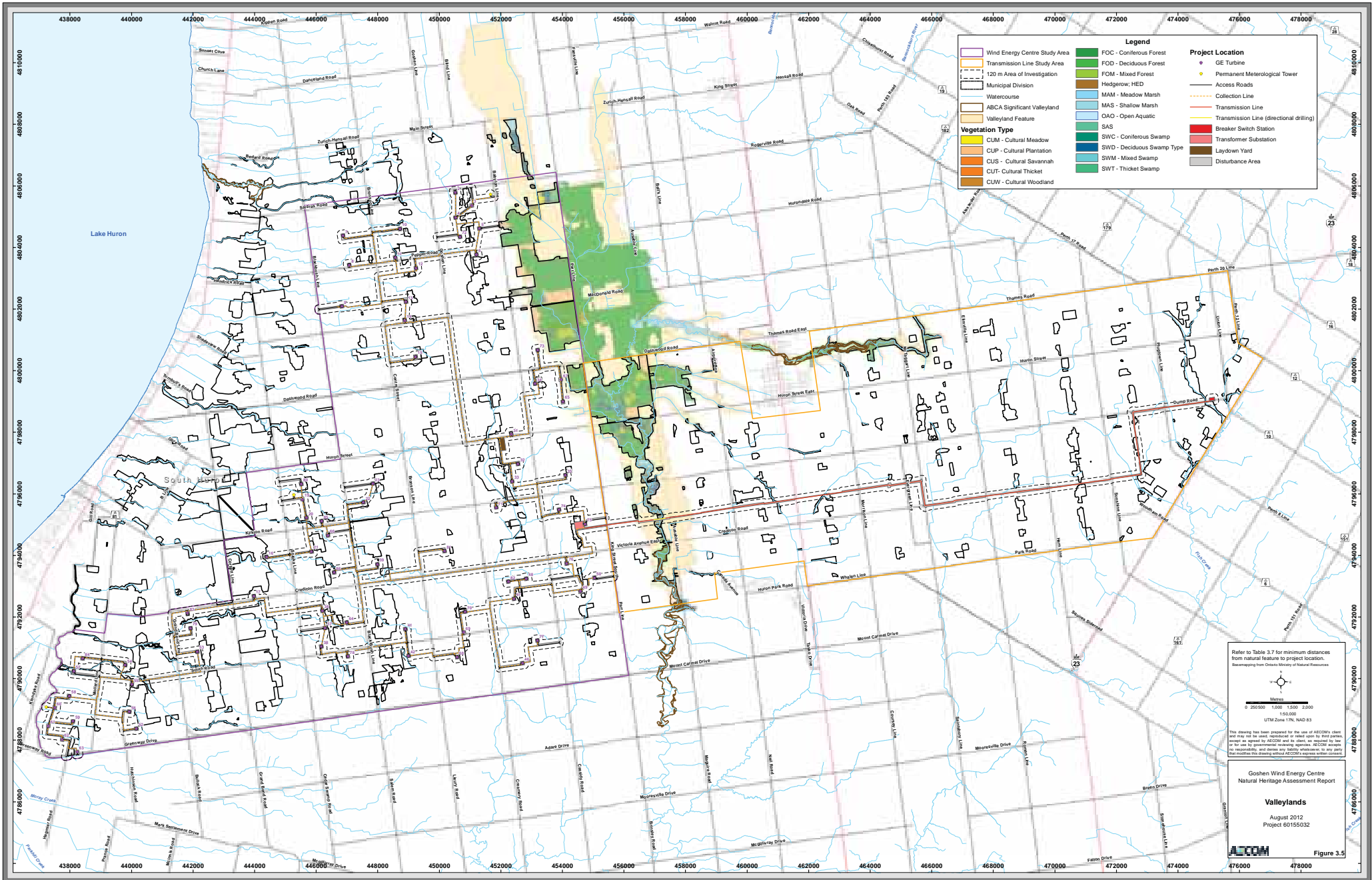
- GE Turbine
- Permanent Meteorological Tower
- Access Roads
- Breaker Switch Station
- Transformer Substation
- Temporary Laydown Yard
- Collection Line
- Collection Line (directionally drilled)
- Transmission Line
- Transmission Line (directionally drilled)

Refer to Table 3.34 for minimum distances from natural features to project location.

Map Scale: 1:50,000
 UTM Zone 17N, NAD 83

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 Natural Heritage Assessment Report

Woodland Units
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 Project 60155032



Refer to Table 3.7 for minimum distances from natural feature to project location.

Recreating Lakes Districts Ministry of Natural Resources

Scale: 1:50,000
UTM Zone 17N, NAD 83

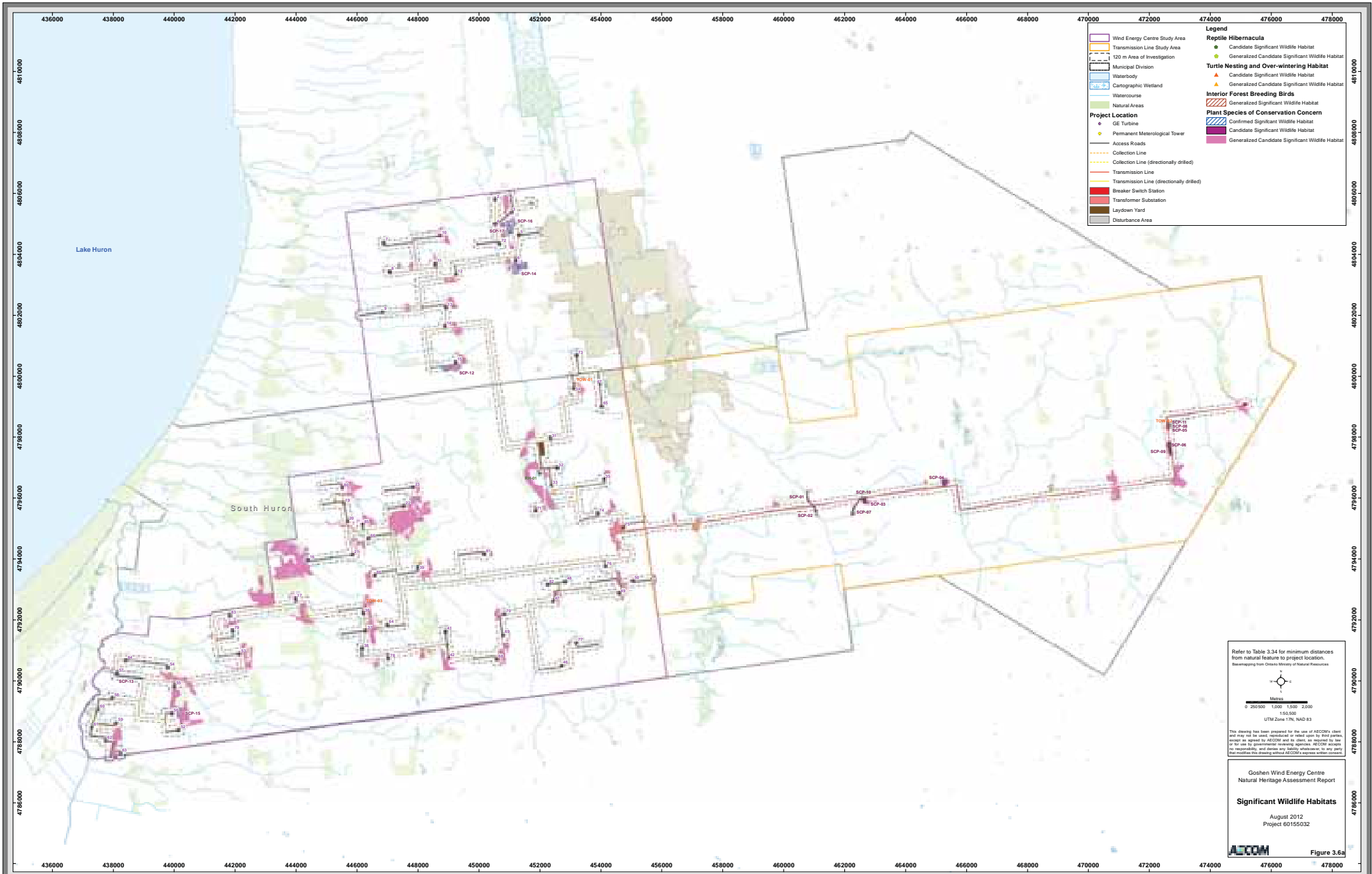
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Goshen Wind Energy Centre
Natural Heritage Assessment Report

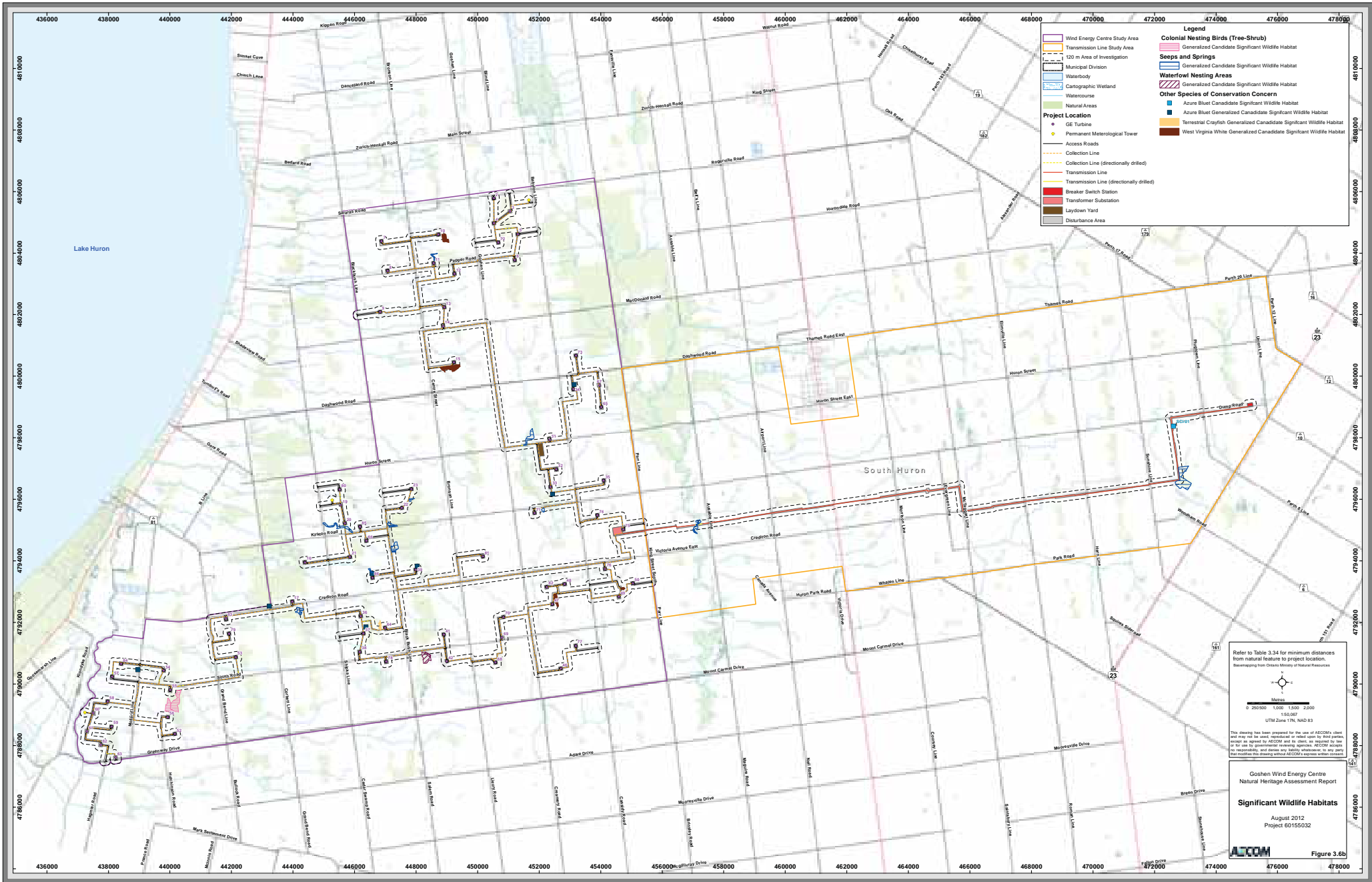
Valleylands
August 2012
Project 60155032

ACCOM Figure 3.5

Map Source: City of Goshen GIS Data, 2012. Data provided by Goshen GIS Department. Map prepared by ACCOM, 2012. All other data provided by ACCOM.



Map Document: G:\Projects\60155032\Map\60155032_SignificantWildlifeHabitats.mxd, Mapping: 07/12/12, Drawn: Natural Heritage Assessment



Refer to Table 3.34 for minimum distances from natural features to project location.
 Resurveying from Ontario Ministry of Natural Resources

UTM Zone 17N, NAD 83
 150,000

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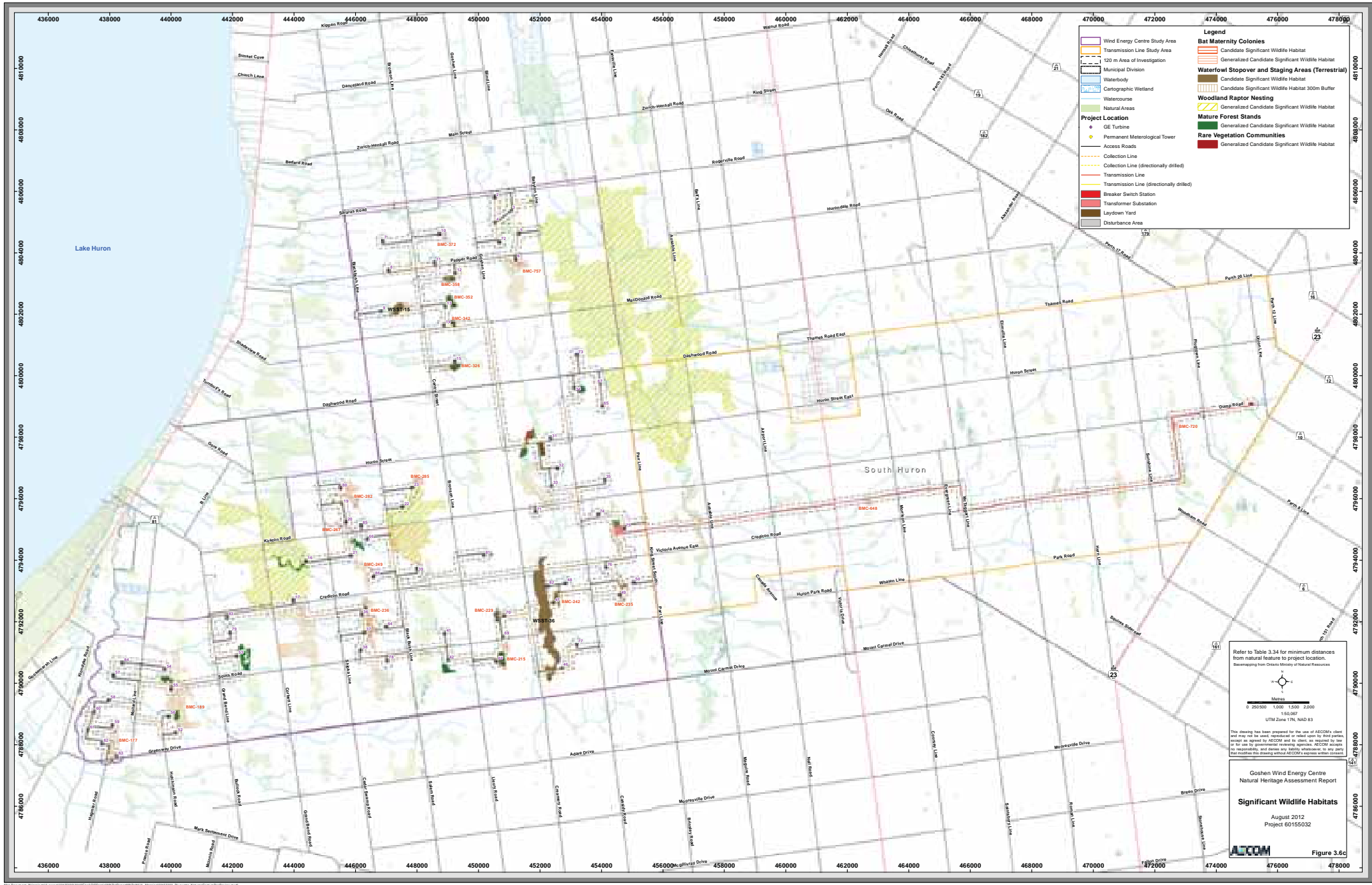
Goshen Wind Energy Centre
 Natural Heritage Assessment Report

Significant Wildlife Habitats

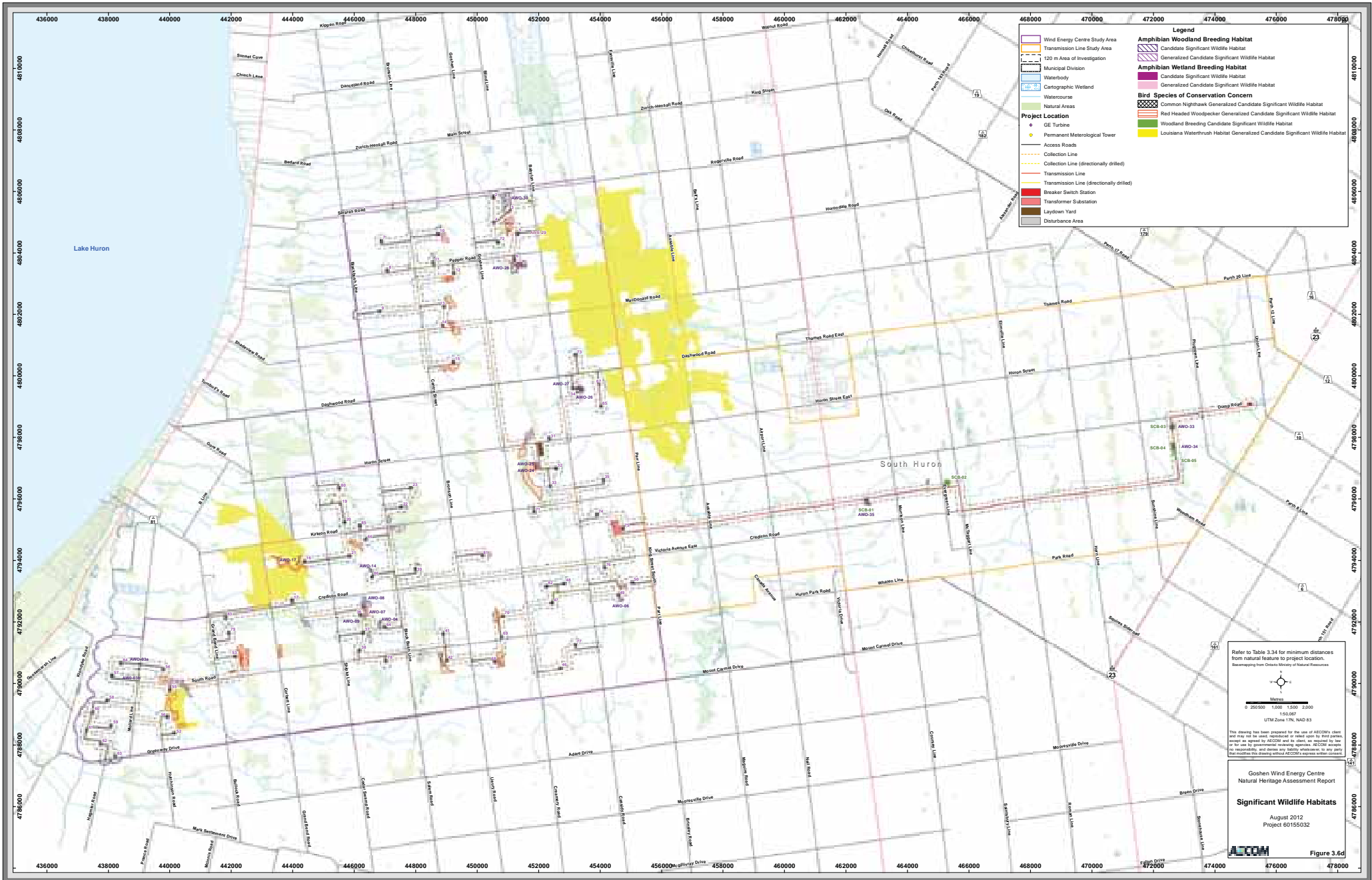
August 2012
 Project 60155032




Figure 3.6b



Map Source: 2012 aerial photography, 2012 data. © 2012 ACCOM. All rights reserved. Reproduction, distribution, or use for any purpose other than that for which it was originally intended is prohibited without the written consent of ACCOM.



Refer to Table 3.34 for minimum distances from natural features to project location. Base mapping from Ontario Ministry of Natural Resources



 Scale: 0 25000 1000 1500 2000
 1:50,000
 UTM Zone 17N, NAD 83

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Goshen Wind Energy Centre
 Natural Heritage Assessment Report

Significant Wildlife Habitats

August 2012
 Project 60155032

Map Document: 20120820_001.mxd; Project: 60155032; Date: 2012-08-20; Author: ACCOM; Scale: 1:50,000; Units: UTM; Projection: UTM Zone 17N, NAD 83

4. Evaluation of Significance

4.1 REA Requirements

Under the REA process, applicants are required to identify natural features in the vicinity of the proposed Project Location and determine whether prohibitions and setbacks apply (O. Reg. 359/09, Sections 37 and 38). In instances where the Project is proposed within such a setback, the applicant must prepare an Environmental Impact Study (EIS) report (Section 38) to identify and assess the potential negative environmental effects that may result from the proposed renewable energy project, identify appropriate mitigation measures and describe how the potential effects will be addressed through the environmental effects monitoring plan and construction plan.

In order to determine whether development prohibitions and setbacks apply, applicants are required to determine whether natural features identified in the Project Location or within 120 m of the Project Location (herein defined as the 120 m Area of Investigation) are Significant or Provincially Significant according to procedures or criteria established or accepted by the Ministry of Natural Resources (MNR). Under Part IV, Section 27 of O. Reg. 359/09, establishing the significance of a natural feature is only a requirement if the Project Location is proposed within 120 m of the natural feature (*i.e.*, wetland, woodland, valleyland, candidate Significant Wildlife Habitat or Life Science ANSI), or within 50 m of an Earth Science ANSI. As an alternative, applicants may choose to treat a natural feature as significant and amend the Project Location to be outside the established setback from the natural feature, in which case an Evaluation of Significance and EIS are not required.

In conducting an Evaluation of Significance, Part IV, Section 27 of O. Reg. 359/09 requires that applicants make use of any available information related to the natural feature including information obtained through the Records Review, through Site Investigations or alternative Site Investigations, and through consultations. If a feature is evaluated and determined to be neither significant nor Provincially Significant, the feature is not subject to development prohibitions.

For some features (e.g., wetlands located outside the Project Location but within the 120 m Area of Investigation, or generalized candidate Significant Wildlife Habitat), MNR has deemed it reasonable for the applicant to treat the feature as significant and carry it forward to the EIS without undertaking an evaluation of significance. In these cases, the applicant must follow criteria and procedures established by MNR to ensure that those attributes of the feature that are necessary to prepare an EIS are considered.

4.2 Methods

The following is a description of the criteria and procedures used to evaluate the significance of features carried forward from the Records Review and Site Investigation to the Evaluation of Significance phase of this NHA.

4.2.1 Wetlands

A total of 14 wetland complexes (or features) were identified within the 120 m Area of Investigation through the Records Review and Site Investigation process and were carried forward to the Evaluation of Significance. In the context of the REA process, wetland features can be assessed in two ways: i) by undertaking a full evaluation according to the MNR's Ontario Wetland Evaluation System (3rd edition; December, 2002), or ii) by treating any unevaluated wetland within 120 m of the proposed Project Location (but not within the Project Location itself) as if it is Provincially Significant. More details regarding these two approaches are provided below.

4.2.1.1 *Ontario Wetland Evaluation System*

Section 6.2.1 of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011) states that, "Provincially Significant Wetlands are those areas identified or confirmed by MNR as being the most valuable within the landscape." Wetlands are scored using a point-based ranking system found in the Ontario Wetland Evaluation System (OWES). Points are based on four components: Biological, Hydrological, Social and Special Features. A Provincially Significant Wetland is defined as any OWES-evaluated wetland which scores a total of 600 or more points or 200 or more points in either the Biological Component or the Special Features Component.

A wetland that has been evaluated using the criteria outlined in the OWES is known as an "evaluated wetland" and will have a wetland record relating to it. There are two evaluated wetlands at least partially located within the Project Study Area, however, not within the 120 m Area of Investigation. Hay Swamp, a Provincially Significant Wetland, is located within the eastern portion of the Wind Energy Centre Study Area, and O'Brien Swamp, a Locally Significant Wetland, is located within the southwestern portion of the Wind Energy Centre Study Area. Both of these wetlands have been evaluated by MNR and descriptions are provided as part of our background review in the Records Review section of this Natural Heritage Assessment (refer to section 2.2.2.1).

Several unevaluated wetlands, as identified by the Upper Thames River Conservation Area (UTRCA) and the Ausable Bayfield Conservation Authority (ABCA), are also located within the Project Study Area. These are described in the Records Review section of this Natural Heritage Assessment and can be seen on Figure 2.1. The presence and boundaries of these unevaluated wetlands was assessed during site investigations. Changes made to unevaluated wetland boundaries as determined through Site Investigations are summarized in the corrections to the Records Review section of this report (refer to section 3.4).

The OWES Southern Manual, outlines rules for the complexing of wetlands. Complexing is a desk-top practice of combining individual wetlands that are geographically close into one large wetland complex. The intent of complexing is to recognize the ecological, hydrological, and hydrogeological interrelationships between wetland patches that are in close proximity to one another. By applying these rules, Hay Swamp and O'Brien Swamp, as well as three other evaluated wetlands, Provincially Significant McDonald Marsh Wetland, Locally Significant Keller Swamp, and Locally Significant Datars-Miller Swamp, form a portion of three different wetland complexes. Hay Swamp and McDonald Marsh Wetland form a portion of WET-012, Keller Swamp and Datars-Miller Swamp form a portion of WET-032 and O'Brien Swamp Wetlands forms a portion of WET-010. These three wetland complexes are partially located within the 120 m Area of Investigation (Figure 3.3); therefore these five evaluated wetlands are components of three wetland features within the 120 m Area of Investigation.

4.2.1.2 *Treatment of Unevaluated Wetlands as Significant without a full OWES*

Within the REA process, an unevaluated wetland within 120 m of a proposed project but not within the Project Location can be treated as a Provincially Significant Wetland for the purposes of the Natural Heritage Assessment and EIS Report. However, it should be noted that treating a wetland as significant will not officially define the status of the wetland (either as significant or not significant). Official significance can only be determined through the completion of an Ontario Wetland Evaluation as per the Ministry of Natural Resources Wetland Evaluation System by provincially certified wetland evaluators. An EIS must be conducted on these wetland features that are treated as significant using the procedures outlined in Appendix C of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011). This assessment focuses on several sections contained within the OWES manual and is to be used as the main reference in determining the character and function of each wetland. Each characteristic/ecological function, its corresponding OWES Manual Section, and a brief description of each is presented below in Table 4.1.

Table 4.1 Wetland Evaluation Criteria

Characteristic/ Ecological Function	OWES Southern Manual Section	Description																
Wetland Size	n/a	• Size of entire wetland including portions outside of the Project Study Area.																
Biological Component																		
Wetland Type	1.1.2	<ul style="list-style-type: none"> • The four wetland types are: Bog, Fen, Marsh and Swamp. • Wetland types are determined in the field on the basis of the major plant associations and physical and hydrological information in the wetland and adjacent communities. 																
Site Type	1.1.3	<ul style="list-style-type: none"> • There are 3 main site types: Isolated Palustrine, and Riverine <ul style="list-style-type: none"> ▶ Isolated: wetlands with no surface flow. ▶ Palustrine: containing either absent or intermittent inflow and either intermittent or permanent outflow. ▶ Riverine: includes a channel of continuously moving water to a 2 m depth, as well as adjacent wetlands and normal floodplain of rivers and permanent streams. 																
Vegetation Communities	1.2.2	<ul style="list-style-type: none"> • Vegetation communities are documented through notation of dominant forms that represent at least 25% of the community. Plant species for each form, observed during field investigations, are also documented. Forms include: <table border="0" style="margin-left: 40px;"> <tr> <td style="padding-right: 20px;">h: deciduous trees</td> <td>m: mosses</td> </tr> <tr> <td>c: coniferous trees</td> <td>re: robust emergents</td> </tr> <tr> <td>dh: dead deciduous trees</td> <td>ne: narrow-leaved emergents</td> </tr> <tr> <td>dc: dead coniferous trees</td> <td>be: broad-leaved emergents</td> </tr> <tr> <td>ts: tall shrub (1 to 6 m in height)</td> <td>f: floating plants</td> </tr> <tr> <td>ls: low shrub (<1 m in height)</td> <td>ff: free floating plants</td> </tr> <tr> <td>ds: dead shrubs</td> <td>su: submerged plants</td> </tr> <tr> <td>gc: herbs (herbs)</td> <td>U: unvegetated</td> </tr> </table> 	h: deciduous trees	m: mosses	c: coniferous trees	re: robust emergents	dh: dead deciduous trees	ne: narrow-leaved emergents	dc: dead coniferous trees	be: broad-leaved emergents	ts: tall shrub (1 to 6 m in height)	f: floating plants	ls: low shrub (<1 m in height)	ff: free floating plants	ds: dead shrubs	su: submerged plants	gc: herbs (herbs)	U: unvegetated
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gc: herbs (herbs)	U: unvegetated																	
Proximity to other wetlands	1.2.4	• Distance between two wetland features																
Interspersion	1.2.5	• Provides an idea of the presence and length of ecotones or edges that exist between different vegetation communities. As the interspersion of wetland vegetation increases, biodiversity within the wetland is increased.																
Open Water Types	1.2.6	<ul style="list-style-type: none"> • There are 8 different Open Water Types <ul style="list-style-type: none"> ▶ Type 1: open water occupies less than 5% of the wetland area, ▶ Type 2: Open water occupies less than 5-25% of the wetland area, occurring in a central pattern, ▶ Type 3: Open water occupies 5-25% of the wetland area, occurring in ponds of various sizes, vegetation occurs in dense patches or diffuse open stands, ▶ Type 4: Open water occupies 26-75% of the wetland area occurring over a central area, ▶ Type 5: Open water occupies 26-75% of the wetland area, occurring in a pattern where small ponds and embayments are common, ▶ Type 6: Open water occupies 76-95% of the wetland area, occurring in a large central area, vegetation is peripheral ▶ Type 7: Open water occupies 76-95% of the wetland area, vegetation occurs in patches or diffuse, open stands, ▶ Type 8: Open water occupies more than 95% of the wetland. 																
Hydrological Component																		
Flood attenuation	3.1	<ul style="list-style-type: none"> • Ability of a wetland to temporarily hold back water which would otherwise flow downstream. This applies to both riverine and palustrine site types as isolated wetlands have a high flood attenuation by virtue of being isolated. • A High, Medium or Low ranking system was used to describe this criterion. A High rank indicates the wetland feature alleviates flooding downstream, whereas a Low rank indicates that the wetland feature does not contribute to the control of downstream flooding. 																
Water Quality Improvement	3.2	<ul style="list-style-type: none"> • Ability of the wetland to improve water quality. <ul style="list-style-type: none"> ▶ Short-term water quality improvement is based on site type, watershed land and dominant vegetation form ▶ Long-term water quality improvement is based on the wetland type and soil type. • A High, Medium or Low ranking system was used to describe this criterion based on drain classifications received from ABCA and UTRCA. A Low rank indicates the wetland feature does not or has minimal influence to water quality downstream (i.e., not connected to a larger watercourse or lake). Whereas a High ranking score would indicate the wetland feature does contribute to downstream water quality (i.e., connected to a larger watercourse or lake), a moderate ranking score was assigned where drains were classified as intermittent. 																

Table 4.1 Wetland Evaluation Criteria

Characteristic/ Ecological Function	OWES Southern Manual Section	Description
Shoreline Erosion Control	3.4	<ul style="list-style-type: none"> Wetland vegetation improves the effects of flowing water and wave action, eliminating or reducing soil erosion. More established vegetation with strong root systems is more resistant and resilient to erosive forces. A High, Medium or Low ranking system was used to describe this criterion. A High rank would indicate shoreline erosion is controlled by the presence of the wetland. A low ranking score would indicate shoreline erosion is not affected by the presence of the wetland.
Groundwater Recharge (Total)	3.5	<ul style="list-style-type: none"> A wetland is considered a groundwater recharge area if a component of groundwater flow is downward from the wetland to underlying soils Geological and Hydrological Model Project mapping from six conservation authorities (ABCA, UTRCA, Maitland, St-Clair, Lower Thames, and Essex; 2004) were used to determine groundwater recharge areas within the Project Study Area.
Special Features Component		
Species Rarity (Total)	4.1.2	<ul style="list-style-type: none"> A rare species includes any indigenous species of flora or fauna that occurs sporadically or in a very restricted area of Ontario, or at the fringe of its range. There are four levels of significance: <ul style="list-style-type: none"> Federally and Provincially Endangered and Threatened – as determined by COSSARO and COSEWIC, Provincially Significant- as determined by Ontario Ministry of Natural Resources, Regionally Significant (Site Region) – as determined by the municipality or area Conservation Authority Locally Significant (Site District) – as determined by the municipality or area Conservation Authority
Significant Features and Habitat (Total)	4.2	<ul style="list-style-type: none"> Wetland may have special importance as wildlife habitat because of their geographic position or the unusual nature of their habitat (i.e., important winter cover for wildlife, important habitat for colonial birds, important habitat for waterfowl staging and/or molting etc.).
Fish Habitat	4.2.6	<ul style="list-style-type: none"> Based on presence of spawning and nursery habitat, and the presence of staging and migration habitat.

As identified through the Records Review and Site Investigation phases of this NHA, those wetland features which fall within 120 m Area of Investigation, but are located outside the Project Location, include the following fourteen (14) wetland complexes (which together include five evaluated wetlands): WET-006, WET-008, WET-009, WET-010, WET-011, WET-12, WET-014, WET-019, WET-021, WET-025, WET-032, WET-038, WET-049 and WET-053, as presented in Figure 3.3. These were treated as Provincially Significant without going through a full OWES evaluation and were, therefore, assessed using the Wetland Characteristics and Ecological Functions Assessment for Renewable Energy Projects (MNR, 2011) found in Appendix C.

Field data required to complete these assessments were collected during Site Investigations. The dates of these field investigations are provided in Table 3.3. Detailed field notes are provided in Appendix B and the qualifications of field personnel are provided in Appendix C. The wetlands assessment was undertaken by an OWES certified biologist, Jessica Piette. The results of this assessment are provided in Section 4.3.1 below.

4.2.2 Woodlands

A total of 75 woodlands were confirmed within the 120 m Area of Investigation through the Site Investigations and carried forward to the Evaluation of Significance. The locations of these woodlands are shown on Figure 3.4. Each woodland feature was evaluated following the criteria set out in Table 8: Significant Woodland Evaluation Criteria and Standards of the REA regulation under Section 6 - Evaluation of Significance of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011). The following table (Table 4.2) presents the criteria used to evaluate each woodland feature along with a description of the sources used. This evaluation system is based on the percentage of woodland cover found within the corresponding municipality where the Project is located. The Project Study Area overlaps two municipal boundaries; therefore, two woodland cover percentages were taken into account, based on the location of individual woodland features. The Municipality of Bluewater has approximately 16.5%

woodland cover, according to the Municipality of Bluewater Official Plan (2005). The Municipality of South Huron has approximately 9.4% woodland cover, calculated by dividing the total area of the Municipality by the area of the Land Information Ontario Wooded Areas data layer (MNR, 2010). For woodland features partially located in both municipalities, the more conservative woodland cover (South Huron: 9.4%) was used.

Table 4.2 Woodland Evaluation Criteria

Criterion	Sources
1 Woodland Size	Completed through a combination of: <ul style="list-style-type: none"> • Aerial photograph interpretation; • Boundary confirmation during field investigations; and • GIS interpretation and calculations.
2 a) Woodland Interior	Completed through: <ul style="list-style-type: none"> • GIS calculations for individual features within the larger woodland features.
b) Proximity to Other Significant Woodland or Habitats	Completed through a combination of: <ul style="list-style-type: none"> • GIS interpretation and calculations; • Input from Records Review and data collected through Site Investigations for Significant Wildlife Habitat, Significant Wetlands, Significant Valleylands and Provincially Significant ANSIs; and • Input from biologists undertaking Site Investigations for the Goshen Wind Energy Centre Water Assessment and Water Body Report (AECOM, 2011).
c) Linkages	Completed through a combination of: <ul style="list-style-type: none"> • Input from Significant Wildlife Habitat Section and Records Review data; and • GIS interpretation and calculations.
d) Water Protection	Completed through a combination of: <ul style="list-style-type: none"> • Use of Map 4.3 – Ausable Bayfield SPA, Significant Groundwater Recharge Areas (ABCA, 2011); • Data collected through Site Investigations; • GIS interpretation and calculations; and • Groundwater indicator species observed during field investigations.
e) Woodland Diversity Representation	Completed through: <ul style="list-style-type: none"> • ELC data collected during Site Investigations; and • Inferences on larger woodland composition based on data collected.
3 Uncommon Characteristics	Completed through a combination of: <ul style="list-style-type: none"> • NHIC database ELC community rankings; • Data collected through Site Investigations; and • NHIC database on Coefficient of Conservatism

Details regarding woodland size, age, species composition, ecological function and uncommon characteristics were collected through a combination of vegetation community surveys and GIS analysis. The water protection criterion was evaluated by overlaying ABCA's Source Water Protection Map 4.3 (ABCA, 2011) for significant groundwater recharge/discharge areas with woodlands identified through the Site Investigation in a mapping environment. The dates of field investigations are shown in Table 3.3, field notes are provided in Appendix B, and the qualifications of field personnel are provided in Appendix C. The Evaluation of Significance for woodlands was undertaken by a Registered Professional Forester, Sam Gildiner. The results of this evaluation are provided in Section 4.3.2 below.

4.2.3 Significant Valleylands

Following the Records Review and Site Investigation process, one candidate Significant Valleyland (VAL-02) was identified within the 120 m Area of Investigation. Section 6.2.3 of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011) outlines the criteria to be used for evaluating valleylands. Within this section, criteria for evaluating and identifying valleylands include:

- Surface water functions;
- Degree of naturalness;
- Linkage functions; and
- Restoration: Existing/committed projects.

Information required to complete the Evaluation of Significance was collected through a combination of Site Investigation surveys and GIS analysis. The dates of field investigations are shown in Table 3.3, field notes are provided in Appendix B, and the qualifications of field personnel are provided in Appendix C. The Evaluation of Significance for valleylands was undertaken by Jennifer Paterson. The results of this evaluation are provided in Section 4.3.3 below.

4.2.4 Significant Wildlife Habitat

The following methods have or will be used to evaluate candidate Significant Wildlife Habitats identified through the Records Review and Site Investigation process in order to determine whether these qualify as Significant Wildlife Habitat according to procedures or criteria established or accepted by MNR. As listed below, nine types of candidate Significant Wildlife Habitat were identified within 120 m of qualifying infrastructure and carried forward to the Evaluation of Significance from the Site Investigation phase of the NHA:

- Waterfowl stopover and staging areas (terrestrial) (WSST-15 and WSST-36);
- Reptile hibernacula (RH-01);
- Bat maternity colonies (BMC-177, BMC-189, BMC-215, BMC-229, BMC-235, BMC-236, BMC-242, BMC-249, BMC-267, BMC-282, BMC-285, BMC-326, BMC-342, BMC-352, BMC-358, BMC-372, BMC-757, BMC-648 and BMC-720);
- Amphibian woodland breeding habitat (AWO-03, AWO-04, AWO-06, AWO-07, AWO-08, AWO-09, AWO-14, AWO-17, AWO-24, AWO-25, AWO-26, AWO-30, AWO-35, AWO-33, AWO-34, AWO-28 and AWO-27);
- Amphibian wetland breeding habitat (AWE-29);
- Turtle overwintering habitat (TOW-01, TOW-02 and TOW-03);
- Habitats of plant species of conservation concern (SCP-01, SCP-02, SCP-03, SCP-04, SCP-05, SCP-06, SCP-07, SCP-08, SCP-09, SCP-10, SCP-11, SCP-12, SCP-13, SCP-14, SCP-15, SCP-16 and SCP-17);
- Habitats of bird species of conservation concern (SCB-01, SCB-02, SCB-03, SCB-04 and SCB-05); and,
- Habitats of insect species of conservation concern (SCI-01).

As described in Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011), these candidate Significant Wildlife Habitats must be evaluated to determine the significance of the habitat or treated as significant with a commitment made to undertake a study of habitat use within 120 m of the habitat prior to construction. The results of these evaluations are provided in Section 4.3.4 below.

In addition, the following potential Significant Wildlife Habitats were identified within the 120 m Area of Investigation but not within 120 m of qualifying project infrastructure, and were therefore carried forward to the Evaluation of Significance as generalized candidate Significant Wildlife Habitat:

- Colonial-nesting Bird Breeding Habitat (Tree/Shrub) (natural area 189);
- Waterfowl nesting areas (natural area 209);
- Reptile hibernacula (natural areas 232, 609 and 695);
- Bat maternity colonies (numerous; refer to Section 3 of this report);
- Amphibian woodland breeding habitat (natural areas 209, 210, 232, 236, 245, 255, 258, 266, 269, 280, 309, 342, 375 and 661);
- Amphibian wetland breeding habitat (natural areas 609 and 754);
- Rare vegetation communities (natural area 309);
- Habitat for area sensitive species: interior forest breeding birds (WOD-331);
- Mature forest stands (numerous; refer to Section 3 of this report);

- Turtle nesting habitat (natural area 209);
- Turtle overwintering habitat (natural areas 209, 255, 266, 609, 661 and 754);
- Woodland raptor nesting habitat (Woodland features WOD-117, WOD-131 and WOD-331);
- Seeps and springs (natural areas 232, 249, 267, 266, 273, 280, 309, 369, 609 and 723); and,
- Habitats of species of conservation concern (numerous; refer to Section 3 of this report).

As described in Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011), generalized candidate Significant Wildlife Habitat within 120 m of the Project Location were treated as significant and carried forward to the EIS.

4.2.4.1 Protocols to Evaluate or Study Candidate Significant Wildlife Habitat

As determined through consultation with MNR, the evaluation of candidate Significant Wildlife Habitat or studies of habitat use must be based on repeatable field protocols, with field work being conducted at the appropriate time of year. The following protocols have or will be used to assess the candidate Significant Wildlife Habitats for which an Evaluation of Significance or study of habitat use is required. These protocols are based on the evaluation criteria outlined in the Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000) and the Ecoregion Criteria Schedules addendum to the SWHTG for Ecoregion 6E and Ecoregion 7E (MNR, 2011b), and have been approved by MNR. All field investigations have or will be conducted by qualified biologists. Appendix B contains detailed field notes. Appendix C contains qualifications (i.e., curriculum vitae) for all investigators.

Waterfowl Stopover and Staging Areas (Terrestrial)

Two candidate Tundra Swan stopover and staging areas (WSST-15 and WSST-36) were carried forward to the Evaluation of Significance due to their proximity to a proposed turbine, visible evidence of annual spring flooding and presence of forage crops.

Information regarding habitat use by Tundra Swans in these features was collected during spring Tundra Swan migration surveys completed in 2010 and 2012 and through consultation with local residents, as described in the Records Review of this Natural Heritage Assessment (refer to sections 2.1.3.1 and 2.2.2.4). This information will be used in conjunction with additional surveys to evaluate the significance of these features.

The Evaluation of Significance surveys will be conducted in March 2013 on three occasions approximately one week apart during the peak migratory period, which typically occurs in March but can range from mid-February to mid-April. Surveys will be conducted between sunrise and noon, during the most active period for Tundra Swans, and under calm, clear weather conditions, to the extent possible. Weather conditions (wind, cloud cover, temperature), start time and end time will all be recorded during each survey. One survey station will be placed per 0.5 km of candidate Tundra Swan stopover and staging habitat and be monitored for approximately 15 minutes. During each survey all observed waterfowl will be recorded along with their approximate location, age and behaviour.

The number and density of observed waterfowl will be calculated to determine if these sites meet the target for Significant Wildlife Habitat (i.e., contains aggregations of 100 or more Tundra Swans, and is likely to do so annually).

Reptile Hibernacula

One feature (RH-01) was identified as candidate significant reptile hibernacula requiring Evaluation of Significance because it contains a large rock pile in the centre of a large area of open habitat that is also near a forest edge and is within 120 m of a proposed turbine location (refer to Figure 3.5). The rock pile appears to be potentially suitable hibernacula. If hibernating snakes are present, they may occasionally be seen on the pile or nearby grass in spring

or autumn. However, snakes are often partially or entirely concealed in the grass or they may be among the loose stones or debris in the pile, so they are difficult to detect even if present. The presence of snakes can be easier to confirm by using cover objects since many species readily take cover under boards or tin sheets, particularly during spring and early autumn.

The vicinity of the rock pile (RH-01) will be examined on three occasions between mid-April and mid-May, 2013. To the extent possible, surveys will be conducted under ideal weather conditions, being calm, clear or partly cloudy and with a temperature in the range of 10 to 20 degrees Celsius. On each visit the rock pile will be approached slowly and scanned for the presence of snakes with binoculars from several metres back. An area search will be conducted by slowly walking a circle 5 m out from the edge of the pile while scanning the ground for snakes. The hibernacula will be searched for a minimum of 20 minutes. If large stones or other cover objects (e.g., boards) are present, these will be overturned carefully since snakes may be hiding under them. Any snakes found will be visually identified, approximate length estimated, and visually sexed by amount of tail tapering (if possible). This will be done to identify individuals which will help determine the number of snakes present if other snakes are found on subsequent visits. A field sheet will be prepared to record weather, habitat conditions, location of cover objects, UTM coordinates of observations, details of any encountered snakes as well as time and date.

Snake hibernacula used by 5 or more individuals or 2 or more species of snakes, or congregations of 5 or more individuals or 2 or more species of snakes near potential hibernacula are to be considered significant.

Bat Maternity Colonies

Candidate significant bat maternity colonies in the Project Study Area were evaluated by NRSI (Natural Resource Solutions Inc.). NRSI biologists conducted through-the-night acoustic bat monitoring at 8 locations in woodlands within 120 m of proposed wind turbines in 2010 and 2011, according to the 2010 draft guidance document *Bats and Bat Habitats: Guidelines for Wind Power Projects* (MNR 2010a). This monitoring was conducted from dusk until 5 hours after (i.e., 2000–0100hrs) on a total of 42 and 40 nights for 2010 and 2011 respectively, totaling more than 713 hours of monitoring data. In addition, active visual and acoustic monitoring was undertaken to establish if any woodlands monitored may contain bat maternity colonies. These surveys were conducted between sunset and midnight, and consisted of ten minute surveys at each point count location. Details pertaining to the survey methods, dates, locations and field personnel are provided in the *Goshen Wind Energy Centre Bat Monitoring Report and Environmental Impact Study* (NRSI, 2012), appended to this report (Appendix G).

The Evaluation of Significance was conducted using evaluation criteria outlined in applicable guidance documents, including the SWHTG, and the Ecoregion Criteria Schedules addendum to the SWHTG, for Ecoregions 6E and 7E. Details regarding the Evaluation of Significance for bat maternity colonies are provided in Appendix G.

As a result of site investigations which were completed after the end of the 2011 bat monitoring period, an additional 11 woodlands were identified to contain suitable habitat for a bat maternity colony but could not be evaluated for significance during the appropriate monitoring season. For the purposes of this report, these habitats have been treated as significant with the commitment to conduct pre-construction monitoring within these habitats to confirm whether these features are significant. Pre-construction monitoring will be conducted in accordance with the July 2011 *Bat and Bat Habitats* provincial guidelines as follows.

“Acoustic bat monitoring will occur at 10-30 candidate maternity colony trees in each woodland. Each tree will be surveyed once in June prior to construction from one half hour before dusk until one hour after dusk to observe evidence of bats exiting. Monitoring will use high-powered spotlights and acoustic detectors to record species calls.”

Significant maternity colonies include at least 20 northern long-eared bats (*Myotis septentrionalis*) or little brown bats (*Myotis lucifugus*), 10 big brown bats (*Eptesicus fuscus*), or 5 adult, female, silver-haired bats (*Lasionycteris noctivagans*) (MNR 2011b). The number of individuals observed exiting or entering candidate trees, combined with species recorded and their representation of total calls recorded at each tree, will be used to determine the number of individuals of each species utilizing a candidate tree.

Amphibian Breeding Habitat (Woodlands)

AECOM conducted amphibian breeding surveys in order to identify Significant Wildlife Habitat and assess potential impacts of the wind power project on specific natural areas. Amphibian surveys were conducted in April, May, and June 2012. Field notes are provided in Appendix B. These surveys were undertaken by qualified biologists (qualifications of field personnel are provided in Appendix C).

The general locations of amphibian woodland breeding habitats were identified by ELC polygons and a more detailed assessment of habitat conditions was made as follows. The first step was to characterize vernal pools (i.e., temporary pools of water) or permanent ponds within the 120 m Area of Investigation, early in the amphibian breeding season. The following characteristics were documented:

- a) UTM;
- b) Maximum water depth;
- c) Presence of emergent and submergent vegetation: type and amount;
- d) Presence of fringing shrubs: type and amount;
- e) Presence of logs (size, quantity) within or near vernal pools;
- f) Apparent water quality (visual observations only);
- g) Disturbance nearby;
- h) Any amphibian observations; and
- i) Search for salamander or frog egg masses if conditions appear suitable.

Vernal pools that were too shallow, small or degraded to have potential for amphibian breeding (i.e., did not have potential to hold water until at least July in most years) were identified and removed from further study or consideration, as described in the Site Investigation section of this Natural Heritage Assessment (refer to section 3.3.6.1). Pools that contained sufficient water depth and habitat conditions were investigated further.

Evidence of vernal woodland pools or ponds was observed within the 120 m Area of Investigation in a number of natural areas during the 2012 Site Investigations. Seventeen candidate significant features (AWO-03, AWO-04, AWO-06, AWO-07, AWO-08, AWO-09, AWO-14, AWO-17, AWO-24, AWO-25, AWO-26, AWO-27, AWO-28, AWO-30, AWO-33, AWO-34 and AWO-35) are located within 120 m of a proposed access road and have vernal pools or ponds that appeared to be substantial enough during Site Investigations to provide breeding habitat. Spring 2012 surveys were conducted at fourteen of these locations and three sites (AWO-33, AWO-34 and AWO-35) will be surveyed in the spring of 2013 as described below.

Surveys to target vocalizing amphibians (i.e., frogs) were conducted using the following protocol. Each feature was surveyed three times in 2012 between April 1st and June 30th, with at least 15 days between each survey. Monitoring stations were established at the edge of vernal pools or ponds that potentially contained breeding amphibians during vernal pool habitat characterization as described above. Surveys were conducted between one half-hour after sunset and 2:00 am and, to the extent possible, during evenings with little wind and minimum night air temperatures of 5°C (41°F), 10°C (50°F) and 14°C (57°F) for each of the three respective survey periods. An effort was made to conduct the third survey when the minimum night air temperature was 17°C however it is recognized that this may not be possible in all years. To the extent possible, surveys were conducted on nights that were clear, cloudy, damp, foggy, or had light rain. Moderate to heavy rainfall was avoided. After waiting one minute upon

arrival at a station to allow for amphibians to start calling again after being disturbed, a 3-minute listening survey was completed at each station. Surveys were conducted using an unlimited distance semi-circular sampling area in which the estimated distance and direction of calling amphibian species was recorded, indicating whether calls are originating from within or beyond the defined 100 m area surveyed. Call counts were recorded using the codes established for the Marsh Monitoring Protocol.

Surveys to target non-vocalizing amphibians (i.e., salamanders) were conducted using one of the following three protocols:

1. Adult Salamander Survey

Nocturnal surveys were completed for adult salamanders if the amphibian calling surveys could be done either on, or within two days of a relatively warm rainy night in late March to early April. Adult salamanders will remain in the pond for several days following a warm rain. Headlamps were used to search waters in the pond and a D-ring dipnet was used to scoop sample leaf litter from the bottom of ponds. Ten representative scoops were taken at each site. The litter in each scoop was carefully searched for the presence of salamanders. Any salamanders found were identified, measured and released.

2. Egg Mass Survey

Egg mass surveys for salamanders were conducted in conjunction with vernal pool habitat characterization as described above. Egg mass searches were conducted during daylight hours in early spring with the first visit in March after a relatively warm rain. If eggs were not found on the first survey, a second egg mass survey was conducted in conjunction with the second amphibian call survey in April. Area searches generally included walking within or along the perimeter of the vernal pool/wetland looking for egg masses, carefully checking any submerged sticks or shrubs standing in the water to which eggs may be attached. A minimum search effort of 30 minutes was applied for each station, or a complete check of locations where egg masses may occur, whichever is less. The number of individuals or egg masses of each amphibian species observed was recorded and the life stage (e.g., egg mass or adult) noted.

3. Larval Survey

Larval surveys were conducted in May or June to search for presence of larvae of salamanders. A D-ring dipnet was used to scoop sample leaf litter on the bottom of ponds. Ten representative scoops were taken at each site. The litter in each scoop was placed into a bucket and carefully searched for the presence of salamander larvae. Any larvae found were identified, measured and released. Any other encountered amphibians were recorded and released. Area searches for adult or transformed salamanders were also conducted by overturning logs and walking along the perimeter of the vernal pool or wetland. A minimum search effort of 30 minutes was applied for each station, or a complete check of locations where larvae may occur, whichever is less. Larvae were identified using a field guide or key (e.g., http://www.umesc.usgs.gov/terrestrial/amphibians/mknutson_5003869_field_guide.html). Water depth and other relevant characteristics of the vernal pools were recorded. Logs or debris in the vicinity of the pools were overturned for the presence of salamanders.

Field sheets were prepared to record weather, vernal pool conditions, UTM's, and amphibian observations as well as time and date.

Features containing breeding population of 1 or more of the following species with at least 20 individuals are to be considered significant: Eastern Newt, Blue-spotted Salamander, Spotted Salamander, Gray Treefrog, Spring Peeper, Chorus Frog, and Wood Frog. Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be significant.

Where Significant Wildlife Habitat for woodland breeding amphibians was identified, the landscape context was evaluated to identify potential or likely movement corridors based on configuration of woodlots, hedgerows and breeding sites. The location of probable corridors was examined to determine if they occur within 120 m of a project component.

Amphibian Breeding Habitat (Wetlands)

AECOM conducted amphibian surveys in order to identify Significant Wildlife Habitat and assess potential impacts of the wind power project on specific natural areas. Amphibian surveys were conducted in April, May and June 2012. Field notes are provided in Appendix B. These surveys were undertaken by qualified biologists (qualifications of field personnel are provided in Appendix C).

The first step was to characterize the conditions in open wetlands within the 120 m Area of Investigation during the daytime in April 2012, early in the breeding season to determine the extent of potentially suitable standing water. The following characteristics were documented:

- a) UTM;
- b) Maximum water depth;
- c) Presence of emergent and submergent vegetation: type and amount;
- d) Presence of fringing shrubs: type and amount;
- e) Presence of logs (size, quantity) within or near vernal pools;
- f) Apparent water quality (visual observations only);
- g) Disturbance nearby; and
- h) Any amphibian observations.

Ponded areas that were too shallow, small or degraded to be considered to have potential for significant amphibian breeding (i.e., did not have potential to hold water until at least July in most years) were identified and removed from further study or consideration, as described in the Site Investigation section of this Natural Heritage Assessment (refer to section 3.3.6.1). Pools that contained sufficient water depth and habitat conditions were investigated further.

Evidence of potentially suitable amphibian breeding in open wetlands was observed within the 120 m Area of Investigation during 2012 Site Investigations. One natural feature (AWE-29) was located within 120 m of a proposed access road and appeared to be substantial enough to provide wetland breeding habitat.

Surveys to target vocalizing amphibians (i.e., frogs) were conducted using the following protocol. Each feature was surveyed three times in 2012 between April 1st and June 30th, with at least 15 days between each survey. Monitoring stations were established at the edge of vernal pools or ponds that potentially contained breeding amphibians during vernal pool habitat characterization as described above. Surveys were conducted between one half-hour after sunset and 2:00 am and, to the extent possible, during evenings with little wind and minimum night air temperatures of 5°C (41°F), 10°C (50°F) and 14°C (57°F) for each of the three respective survey periods. An effort was made to conduct the third survey when the minimum night air temperature is 17°C however it is recognized that this may not be possible in all years. To the extent possible, surveys were conducted on nights that are clear, cloudy, damp, foggy, or have light rain are suitable. Moderate to heavy rainfall was avoided. After waiting one minute upon arrival at a station to allow for amphibians to start calling again after being disturbed, a 3-minute listening survey was completed at each station. Surveys were conducted using an unlimited distance semi-circular sampling area in which the estimated distance and direction of calling amphibian species was recorded, indicating whether calls are originating from within or beyond the defined 100 m area surveyed. Call counts were recorded using the codes established for the Marsh Monitoring Protocol.

Surveys to target non-vocalizing amphibians (i.e., salamanders) were conducted using one of the following three protocols:

1. Adult Salamander Survey

Nocturnal surveys were completed for adult salamanders if the amphibian calling surveys could be done either on, or within two days of a relatively warm rainy night in late March to early April. Adult salamanders will remain in the pond for several days following a warm rain. Headlamps were used to search waters in the pond and a D-ring dipnet was used to scoop sample leaf litter from the bottom of ponds. Ten representative scoops were taken at each site. The litter in each scoop was carefully searched for the presence of salamanders. Any salamanders found were identified, measured and released.

2. Egg Mass Survey

Egg mass surveys for salamanders were conducted in conjunction with vernal pool habitat characterization as described above. Egg mass searches were conducted during daylight hours in early spring with the first visit in March after a relatively warm rain. If eggs were not found on the first survey, a second egg mass survey was conducted in conjunction with the second amphibian call survey in April. Area searches generally included walking within or along the perimeter of the vernal pool/wetland looking for egg masses, carefully checking any submerged sticks or shrubs standing in the water to which eggs may be attached. A minimum search effort of 30 minutes was applied for each station, or a complete check of locations where egg masses may occur, whichever is less. The number of individuals or egg masses of each amphibian species observed was recorded and the life stage (e.g., egg mass or adult) noted.

3. Larval Survey

Larval surveys were conducted in May or June to search for presence of larvae of salamanders. A D-ring dipnet was used to scoop sample leaf litter on the bottom of ponds. Ten representative scoops were taken at each site. The litter in each scoop was placed into a bucket and carefully searched for the presence of salamander larvae. Any larvae found were identified, measured and released. Any other encountered amphibians were recorded and released. Area searches for adult or transformed salamanders were also conducted by overturning logs and walking along the perimeter of the vernal pool or wetland. A minimum search effort of 30 minutes was applied for each station, or a complete check of locations where larvae may occur, whichever is less. Larvae were identified using a field guide or key (e.g., http://www.umesc.usgs.gov/terrestrial/amphibians/mkknutson_5003869_field_guide.html). Water depth and other relevant characteristics of the vernal pools were recorded. Logs or debris in the vicinity of the pools were overturned for the presence of salamanders.

Field sheets were prepared to record weather, vernal pool conditions, UTM's, and amphibian observations as well as time and date.

Features containing breeding population of 1 or more of the following salamander species or two or more of the frog/toad species with at least 20 individuals are to be considered significant: Eastern Newt, Blue-spotted Salamander, Four-toed Salamander, Spotted Salamander, American Toad, Gray Treefrog, Chorus Frog, Northern Leopard Frog, Pickerel Frog, Green Frog or Mink Frog. Any wetland with confirmed breeding by American Bullfrog is to be considered significant.

Where Significant Wildlife Habitat for wetland breeding amphibians was identified, the landscape context was evaluated to identify potential or likely movement corridors based on configuration of woodlots, hedgerows and breeding sites. The location of probable corridors was examined to determine if they occur within 120 m of a project component.

Amphibian Movement Corridors

AECOM conducted amphibian surveys in order to identify Significant Wildlife Habitat and assess potential impacts of the wind power project on specific natural areas.

Important breeding locations that would qualify as Significant Wildlife Habitat under the amphibian woodland breeding and/or amphibian wetland breeding habitat criteria were identified. Significant breeding areas were then examined in the context of the landscape by making assumptions about where amphibians are migrating from and also identifying likely movement corridors based on connecting vegetation, riparian links, and nearness of natural areas or context of roads. Narrow strips of vegetation connecting two larger blocks of habitat where at least one was identified as a significant breeding location were identified as candidate significant amphibian corridors.

Turtle Over-wintering Habitat

Three features (TOW-01, TOW-02 and TOW-03) were identified as candidate significant turtle over-wintering habitat requiring Evaluation of Significance or habitat use study because they consists of permanent ponds that are approximately 3 m (TOW-01 and TOW-03) and 1 m (TOW-02) deep and are located within 120 m of a proposed access road (TOW-01 and TOW-03) or within a natural area where tree removal is proposed for the transmission line (TOW-02) (refer to Figure 3.6a).

The probability of observing or finding a hibernating turtle in the field is extremely low, and as such monitoring via field observation would not be effective and therefore is not recommended. These features (TOW-01, TOW-02 and TOW-03) were treated as significant and carried forward to the EIS phase of this Natural Heritage Assessment.

Habitat of Plant Species of Conservation Concern

Candidate Significant Wildlife Habitats were identified for Burning Bush, Green Dragon, Hairy Bedstraw, Pawpaw, Pillose Evening Primrose, Round-leaved Groundsel, Round-leaved Hawthorn and Slim-flowered Muhly within 120 m Area of Investigation in natural areas where the transmission line is proposed inside suitable habitat of the species (SCP-01, SCP-02, SCP-03, SCP-04, SCP-05, SCP-06, SCP-07, SCP-08, SCP-09, SCP-10, SCP-11).

Field investigations to identify plant Species of Conservation Concern and their habitats were conducted in conjunction with Ecological Land Classification (ELC) mapping and vascular plant surveys (refer to Section 3.2.1 of this report for a more detailed description of protocols). These surveys were conducted from May 2011 to July 2012. In cases where suitable habitat was identified but Site Investigations were not conducted during the appropriate time of year when the species are present or easily identifiable, candidate Significant Wildlife Habitat sites were revisited between mid-May and mid-July 2012 to confirm species presence or absence. Taking into consideration all of the plant species of conservation concern and their various blooming periods, this optimal survey period was selected in order to capture the greatest number of species detectable either in flower, fruit or by vegetative characters. GPS co-ordinates and habitat description were recorded in instances where plant species of conservation concern were encountered during 2012 Site Investigations.

Confirmed Significant Wildlife Habitats for plant species of conservation concern were also identified during 2011 and 2012 Site Investigations, where the following plant species of conservation concern were recorded: Field Thistle, Burning Bush, Cream Violet, Narrow-leaved Sedge and Perfoliate Bellwort (SCP-12, SCP-13, SCP-14, SCP-15, SCP-16 and SCP-17). These features were carried forward to the EIS phase of this Natural Heritage Assessment.

Habitat of Bird Species of Conservation Concern

Field investigations to identify candidate Significant Wildlife Habitat, including habitat features required for bird species of conservation concern, were conducted in conjunction with ELC mapping and vascular plant surveys during the 2011 and 2012 field seasons. Forest communities with ELC codes FOD, CUW, and CUT were assessed for habitat features during the Site Investigation of this Natural Heritage Assessment, and five features where tree removal is proposed in association with the transmission line (SCB-01, SCB-02, SCB-03, SCB-04 and SCB-05) were carried forward to the Evaluation of Significance for habitat of bird species of conservation concern (refer to Sections 3.2.6 and 3.3.6.4).

Breeding bird surveys were conducted in these features according to the Forest Bird Monitoring Protocol, with additions from the Ontario Breeding Bird Atlas Methods.

Woodlands were selected to be surveyed if tree removal was proposed for placement of above-ground infrastructure. Point count stations within the woodland were located within the area of disturbance, and at least 200 m from the forest edge, where forest interior existed. Stations within large woodlands were at least 250 m apart. For wooded areas with no forest interior (less than 200 m from edge), point counts were located in the centre of the forest patch. For wooded features crossing roadways, point counts were located 125 m from the right-of-way on each side of the roadway, allowing 250 m between stations. Locations of point count stations were marked on an aerial map, flagged in the field, and UTM data was recorded.

Three separate surveys were conducted at each station. Surveys were completed between May 24 and July 10, with at least 10 days between each visit. Surveys were conducted in the morning, between one half hour before dawn and 10 am, when weather conditions were without precipitation and winds were calm. Weather conditions (temperature, sky conditions, wind speed and direction) at each point count were recorded.

Each point count was composed of two 5-minute intervals. During each point count all signs and vocalizations of birds were recorded as well as the direction from which the call came. The approximate location of the bird species, breeding activity, and flyovers were recorded on station maps. Surveyors also assessed the distance of the calls, either within a 50 m radius, between 50-100 m or greater than 100 m from the point count location. Habitat within 100 m of the point count station was evaluated using the habitat coding system from the Ontario Nest Records Scheme to provide station specific habitat information.

Forest areas identified to contain suitable habitat for bird species of conservation concern and in respect of which such species were identified utilizing the area during the 2012 breeding season were considered Significant Wildlife Habitat and carried forward to the EIS.

Habitat of Insect Species of Conservation Concern

One feature (SCI-01) was identified as candidate significant Azure Bluet habitat requiring Evaluation of Significance or habitat use study because it consists of a permanent pond that is located within a natural area where tree removal is proposed for the transmission line (refer to Figure 3.6b).

This pond was carried forward to the EIS as it has also been identified as candidate significant amphibian woodland breeding habitat and was treated as significant turtle over-wintering habitat. The mitigation measures prescribed to protect the form and function of this feature as turtle over-wintering and amphibian breeding habitat are considered sufficient to protect its function as Azure Bluet habitat as well. This feature (SCI-01) was therefore treated as significant and carried forward to the EIS phase of this Natural Heritage Assessment.

4.3 Results of Evaluation of Significance

The following sections summarize the Evaluation of Significance for all natural features carried forward from the Records Review and Site Investigation.

4.3.1 Wetlands

Provincially Significant Wetlands (PSWs) are those areas identified by the MNR as being the most valuable within the landscape based on the OWES. Unevaluated wetlands within 120 m of Project components were treated as Provincially Significant without undertaking a full OWES if they were located outside the Project Location, and an EIS was completed as described in Section 5 of this report. A total of 14 wetland complexes occur within the 120 m Area of Investigation identified during site investigations, all of which were treated as Provincially Significant and assessed according to the characteristics/ecological functions described in Appendix C of the Natural Heritage Assessment Guide. A detailed description of each wetland complex and its associated characteristics is described in Table 4.3. The locations of these wetlands (WET-006, WET-008, WET-009, WET-010, WET-011, WET-012, WET-014, WET-019, WET-021, WET-025, WET-033, WET-038, WET-049 and WET -053) are shown on Figure 3.3.

All wetlands assessed are considered riverine, palustrine or isolated, and are comprised of swamp with some associated marsh communities. The marsh communities are typically found along stream systems whereas the swamp communities are found both along stream systems and isolated amongst agricultural fields.

Table 4.3 presents the 14 wetland complexes that were treated as Provincially Significant and carried forward to the EIS.

4.3.2 Woodlands

An assessment of each woodland within the 120 m Area of Investigation was undertaken based on the criteria and standards described in the Natural Heritage Assessment Guide. As described therein, woodlands meeting any one of the evaluation criteria are to be considered significant provided they meet minimum width requirements (e.g., average minimum width of 40 m measured to crown edges where the size criterion threshold is 0.5 to 4 ha). The results of the woodlands evaluation are documented in Table 4.4.

A total of 75 woodlands occurring within the 120 m Area of Investigation were evaluated following the criteria described within Section 4.2.2 above (refer to Figure 3.4 for the locations of woodland features). Of these, 65 woodlands are considered significant based on meeting at least one of the criteria used in the evaluation process and minimum width requirements. These woodlands were therefore carried forward to the EIS. Details regarding the specific criteria/criterion met by each woodland feature are provided in Table 4.4.

Table 4.3 Wetland Characteristics and Ecological Functions Assessment

Wetland # (refer to Figure 3.3)	Distance from Project Location	Wetland Size	Wetland Type	Site Type	Vegetation Communities	Proximity to Other Wetlands	Interspersion	Open Water Types	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitats	Fish Habitat	Determination of Significance
WET-006	>0.1 m (access road)	25 ha	swamp	isolated and riverine	S1 (FOD7-2): <i>h</i> ^{af} , green ash; ² Freeman's maple, white elm, <i>ts</i> , American prickly ash; nannyberry, common buckthorn, and currant species	Approximately 46 m	47	n/a no open water observed	Moderate	High	Low	Low/moderate	0	Environmentally Significant Area: • STE-17-C	Yes	Treated as Significant
WET-008	38 m (collection line)	6.6 ha	swamp	isolated and palustrine	S ¹ (SWD3-3): <i>h</i> [*] , Freeman's maple; green ash, <i>gc</i> , sensitive fern, false nettle, lady fern, woodland strawberry, northern dewberry, <i>ne</i> , fowl manna grass; bladder sedge	Approximately 1974 m	35	n/a no open water observed	Moderate	Low	n/a	Moderate/high	0	None	No	Treated as Significant
WET-009	100 m (collection line)	3.3 ha	swamp	isolated	S1 (FOD7-2): <i>h</i> [*] , green ash; white elm, ironwood and basswood <i>ts</i> , hawthorn species; red maple, white elm. S2 (SWD3-1): <i>h</i> [*] , red maple; white elm, green ash, cottonwood, <i>ne</i> , sedge species.	Approximately 309 m	17	Type 1	High	Low	n/a	Moderate/high	0	None	No	Treated as Significant
WET-010	3 m (collection line)	78.6 ha	swamp and marsh	riverine and isolated	S1 (SWD2-2): <i>h</i> [*] , green ash; Freeman's maple, shagbark hickory, <i>ts</i> , white elm; basswood S2 (SWD3-3): <i>h</i> [*] , Freeman's maple; shagbark hickory, <i>ts</i> , white elm, Freeman's maple; green ash, <i>ne</i> , hop sedge, fowl manna grass, rice-cut grass, dwarf raspberry S3 (SWD2-2): <i>h</i> [*] , green ash; <i>ne</i> , reed canary grass S4 (SWT2): <i>ts</i> [*] , spicebush S5 (SWD3-3): <i>h</i> [*] , Freeman's maple; shagbark hickory, black ash, <i>ts</i> , Freeman's maple; white elm W ¹ (SAS1-3): <i>su</i> [*] , stonewort M ¹ (MAM2-2): <i>ne</i> [*] , reed canary grass	Approximately 646 m	91	Type 3	High	High	n/a	Moderate/high	0	• Locally Significant O'Brien Swamp Wetland • Deer wintering habitat within Locally Significant Wetland • Generalized candidate significant Waterfowl Nesting Habitat (refer to Site Investigation of this NHA)	Yes	Treated as Significant
WET-011	>0.1 m (access road)	18.6 ha	swamp	riverine and isolated	S1 (SWD3-3/SWD4a): <i>h</i> [*] , Freeman's maple; green ash S2 (FOD7-2): <i>h</i> [*] , green ash; white elm, bur oak, basswood, <i>ts</i> , white elm; basswood, sugar maple, <i>gc</i> , tall white aster, running strawberry bush, herb-robert, <i>ne</i> , graceful sedge S3 (SWD3-3): <i>h</i> [*] , Freeman's maple, green ash, <i>ts</i> , Freeman's maple, white elm	Approximately 157 m	33	Type 1	High	Low	Low	Moderate/high	0	None	Yes	Treated as Significant
WET-012	>0.1 m (transmission line)	238.8 ha	swamp	riverine, palustrine, and isolated	S1 (SWD3-3): <i>h</i> [*] , Freeman's maple; white elm, <i>gc</i> , sensitive fern, <i>ne</i> , sedge species S2 (SWD2-2): <i>h</i> [*] , green ash S3 (SWD2-2): <i>h</i> [*] , green ash; Freeman's maple, <i>gc</i> , wood nettle spotted-touch me not, goldenrod species, iris species S4 (SWT2-2): <i>ts</i> [*] , sandbar willow; alternate-leaved dogwood, red-osier dogwood, <i>ne</i> , reed canary grass, <i>gc</i> , wood nettle, spotted-touch me not, goldenrod species M1 (MAM2-2): <i>ne</i> [*] , reed canary grass, sedge species, spotted-touch-me-not, garlic mustard.	Approximately 321 m	107	Type 3	High	High	High	Moderate/high	0	• Provincially Significant Hay Swamp Wetland, • Provincially Significant MacDonald Wetland • Regionally Significant Deer Wintering Habitat • Waterfowl Breeding habitat within MacDonald Marsh • Habitat for Colonial Waterbirds within Hay Swamp	Yes	Treated as Significant
WET-014	>0.1 m (collection line)	198.7 ha	swamp	riverine, palustrine and isolated	S1 (FOD7-2): <i>h</i> [*] , green ash; Manitoba maple, white elm, <i>ts</i> , green ash; Manitoba maple, hawthorn species S2 (FOD7-2): <i>h</i> [*] , green ash; white ash, <i>ts</i> , green ash; pin cherry, staghorn sumac, alternate-leaved dogwood, <i>ts</i> , grey dogwood, <i>gc</i> , giant ragweed; Canada goldenrod. S3 (SWD2-2): <i>h</i> [*] , green ash; white elm, shagbark hickory, bitternut hickory, <i>ts</i> , white elm; bitternut hickory, green ash, <i>gc</i> , moneywort, poison ivy S4 (FOD7-2): <i>h</i> [*] , green ash; basswood, white elm, <i>ts</i> , sugar maple; blue beech, multiflora rose, grey dogwood, <i>gc</i> , white avens; herb-robert, running strawberry bush, Virginia strawberry, <i>ne</i> , graceful sedge S5 (SWD3-3): <i>h</i> [*] , Freeman's maple; green ash, <i>ts</i> , red-osier dogwood; choke cherry, buckthorn, <i>ne</i> , long-stalked sedge S6 (SWD2-2): <i>h</i> [*] , green ash S7 (SWD3-3): <i>h</i> [*] , Freeman's maple S8 (FOD7-2): <i>h</i> [*] , green ash; Manitoba maple, white elm, <i>ts</i> , hawthorn species, green ash, Manitoba maple, <i>gc</i> , common dandelion, garlic mustard, Manitoba maple, wild strawberry.	Directly adjacent	142	Type 3	High	High	Low	Low/moderate	0	Environmentally Significant Area: • STE-14-C • STE-10-A • STE-11-A	Yes	Treated as Significant

Table 4.3 Wetland Characteristics and Ecological Functions Assessment

Wetland # (refer to Figure 3.3)	Distance from Project Location	Wetland Size	Wetland Type	Site Type	Vegetation Communities	Proximity to Other Wetlands	Interspersion	Open Water Types	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitats	Fish Habitat	Determination of Significance
WET-019	>0.1 m (collection line)	56.3 ha	swamp	riverine, palustrine, and isolated	S1 (SWT2a): <i>ts</i> *, Russian olive; sandbar willow, gray dogwood, <i>ts</i> , green ash, Freeman's maple, <i>ne</i> , reed canary grass; sedge species S2 (SWD3-3): <i>h</i> *, Freeman's maple; green ash, paper birch, black ash, <i>ts</i> , spicebush, white elm, <i>gc</i> , wild lily-of-the-valley; sensitive fern S3 (FOD7-2): <i>h</i> *, green ash; cottonwood, Freeman's maple, <i>ts</i> , white ash; nannyberry, spicebush, <i>gc</i> , white avens; black currant S4 (SWD4b): <i>h</i> *, green ash, trembling aspen, blue beech, white elm, <i>ts</i> , spicebush S5 (FOD7-2): <i>h</i> *, green ash; white elm, trembling aspen, <i>ts</i> , spicebush, green ash, <i>gc</i> , thicket creeper; enchanter's nightshade, black raspberry, white avens S6 (SWD4c): <i>h</i> *, cottonwood S7 (SWD2-2): <i>h</i> * green ash; Freeman's maple, white elm, <i>ts</i> , spicebush; green ash	Approximately 2185 m	69	Type 3	High	Moderate	Low	Moderate/high	0	Environmentally Significant Area: • STE-7	Yes	Treated as Significant
WET-021	>0.1 m (collection line)	117.4 ha	marsh and swamp	riverine and palustrine	S1 (SWD6-3): <i>h</i> *, Freeman's maple; green ash, white elm, Manitoba maple, cottonwood S2 (SWD4a): <i>h</i> *, Freeman's maple, green ash; <i>ts</i> , white elm, green ash, Freeman's maple, <i>gc</i> , tall white aster, <i>ne</i> , sedge species, fowl manna grass S3 (SWD3-3): <i>h</i> *, Freeman's maple; white elm S4 (FOD7-2): <i>h</i> *, green ash; basswood, <i>ts</i> , white elm, spicebush, <i>gc</i> , wild strawberry; white avens. S5 (SWD3-3): <i>h</i> *, Freeman's maple; green ash, <i>gc</i> , black nightshade, pale smartweed, <i>ne</i> , sedge species. S6 (SWD3-3): <i>h</i> *, Freeman's maple ; black walnut, white ash, white elm, <i>gc</i> , spotted jewelweed, garlic mustard, stinging nettle, tall meadow rue, running strawberry bush S7 (SWT2b): <i>ts</i> *, gray dogwood, red-osier dogwood; sandbar willow, <i>gc</i> , common dandelion, garlic mustard; an avens species, Virginia strawberry. S8 (SWD4-1): <i>h</i> *, hybrid crack willow S9 (SWD3-3): <i>h</i> * Freeman's maple, cottonwood, trembling aspen M1 (MAM3-2): <i>ne</i> *, reed canary grass, <i>gc</i> , goldenrod species, aster species	Approximately 895 m	78	Type 3	High	High	moderate	Moderate/high	0	Environmentally Significant Area: • STE-4-A	Yes	Treated as Significant
WET-025	16 m (access road)	5.3 ha	marsh and swamp	isolated	S1 (SWD3-3): <i>h</i> *, Freeman's maple, green ash, <i>ts</i> , Freeman's maple, white elm, basswood S2 (SWD3-3): <i>h</i> *, Freeman's maple; green ash, <i>ts</i> , Freeman's maple, green ash, poison ivy, <i>gc</i> , red-osier dogwood; poison ivy, sensitive fern. S3 (SWD3-3): <i>h</i> * Freeman's maple, willow species; green ash M1 (MAM2a): <i>re</i> *, common reed grass; cattail, <i>ne</i> , reed canary grass, <i>gc</i> , panicked aster, path rush, marsh fern, northern water-horehound, meadow horsetail	Approximately 465 m	34	Type 1	High	Low	n/a	high	0	None	No	Treated as Significant
WET-032	>0.1 m (collection line)	549.8	Swamp	riverine, palustrine and isolated	S1 (SWD2-2): <i>h</i> *, green ash; white elm, <i>ne</i> , reed canary grass S2 (FOD7-2): <i>h</i> *, green ash; trembling aspen, <i>ts</i> , green ash, hawthorn species, <i>gc</i> , enchanter's nightshade, tall white aster S3 (SWD2-2): <i>h</i> *, green ash; shagbark hickory, <i>ts</i> , green ash, white elm, <i>gc</i> , panicked aster, <i>ne</i> , fowl manna grass, sedge species S3 (FOD7-2): <i>h</i> *, green ash; white elm, bur oak, shagbark hickory, <i>ts</i> , white elm; sugar maple, <i>gc</i> , garlic mustard; white avens, herb-robert, giant goldenrod S4 (SWD2-2): <i>h</i> *, green ash; Freeman's maple S5 (SWD4a): <i>h</i> * Freeman's maple, green ash; white elm, <i>ts</i> , white elm, <i>ne</i> , sedge species, fowl manna grass, <i>gc</i> , tall white aster	Approximately 73 m	108	Type 1	High	High	moderate	Moderate/high	0	• Locally Significant Datar's-Miller Swamp Wetland • Locally Significant Keller Swamp Wetland • Deer wintering habitat within Datar's-Miller Swamp	Yes	Treated as Significant
WET-038	114 m (transmission line)	4.2 ha	swamp	isolated	S1 (SWD3-3): <i>h</i> *, Freeman's maple; green ash, <i>ts</i> , Freeman's maple, green ash, <i>ts</i> , white elm; blue beech, black ash, <i>gc</i> , white avens; spotted geranium, false solomon's seal.	Approximately 1288 m	45	Type 1	High	Low	n/a	Moderate/high	0	None	No	Treated as Significant
WET-049	13 m (turbine construction footprint)	26.2 ha	swamp	palustrine, and isolated	S1 (SWD2-2): <i>h</i> *, green ash; basswood, <i>ts</i> , spicebush; green ash.	Approximately 1369 m	68	Type 2	High	Moderate	n/a	high	0	None	No	Treated as Significant
WET-053	>0.1 m (transmission line)	20.3 ha	swamp	riverine	S1 (SWD4-1): <i>h</i> *, hybrid crack willow, <i>ts</i> , alternate-leaved dogwood, <i>ne</i> , reed-canary grass, <i>gc</i> , spotted jewelweed M1 (MAM2-2): <i>ne</i> *, reed canary grass	Approximately 73 m	44	Type 1	High	High	moderate	Moderate/high	0	None	Yes	Treated as Significant

- Notes:
1. Denotes dominant form within community
 2. Denotes dominant species within each form by the use of a semi colon between species names
 3. S: Refers to swamp communities
 4. W: Refers to aquatic communities
 5. M: Refers to marsh communities

Table 4.4 Determination of Significance for Woodlands

Woodland Feature ID	Natural Area #	Municipality	Evaluation Criteria and Standards (Based on 16.5% woodland cover within the Municipality of Bluewater and 9.4% cover within the Municipality of South Huron)												# of Criteria Met to Date	Determination of Significance		
			1. Woodland Size		2.a) Woodland Interior		2.b) Proximity to Other Significant Woodlands/Habitats		2.c) Linkages		2.d) Water Protection		2.e) Woodland Diversity Representation (composition)				3. Uncommon Characteristics	
			Must be at least		Must have woodland interior at least ¹		Must be located within 30 m of a significant natural feature or fish habitat ² and be at least		Must be located between 2 other significant features each of which are 120 m apart and be at least		Must be located within 50 m of a sensitive groundwater discharge ³ , recharge, headwater, watercourse or fish habitat and be at least		Must be dominated singly or in combination by native naturally occurring Ms, Mb, Msi, Mr, By, H, Ba, Ab, Wb, Ta, Sp, Pi, Oa, Ba, He, and be at least				Must have rare vegetation community (S1, S2, S3) and be more than 0.5 ha in size OR Habitat of a rare, uncommon, or restricted woodland plant species with 10 individual stems or 100 m of leaf coverage and be more than 0.5 ha in size OR Characteristics of older woodlands with larger tree size structure in native species and be more than	
			Municipality of Bluewater: 20 ha in size		Municipality of Bluewater: 2 ha in size		Municipality of Bluewater: 4 ha in size		Municipality of Bluewater: 4 ha in size		Municipality of Bluewater: 2 ha in size		Municipality of Bluewater: 4 ha in size				Municipality of Bluewater: 2 ha in size	
Municipality of South Huron: 4 ha in size		Municipality of South Huron: Any size		Municipality of South Huron: 1 ha in size		Municipality of South Huron: 1 ha in size		Municipality of South Huron: 0.5 ha in size		Municipality of South Huron: 1 ha in size		Municipality of South Huron: 1 ha in size						
Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met						
Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description					
WOD-001	177	South Huron	Y	17.4 ha	Y	1.1 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	4	Significant
WOD-012	189	South Huron	Y	63.4 ha	Y	22.8 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Dominated by listed species	N	Does not meet criteria	5	Significant
WOD-018	198	South Huron	Y	7.1 ha	N	0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	3	Significant
WOD-023	203	South Huron	Y	39.9 ha	Y	7.5 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Dominated by listed species	N	Does not meet criteria	4	Significant
WOD-026	206	South Huron	Y	11.2 ha	N	0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	3	Significant
WOD-028	209	South Huron	Y	12.6 ha	Y	0.7 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Dominated by listed species	N	Does not meet criteria	5	Significant
WOD-032	190/210	South Huron	Y	46.9 ha	Y	2.1 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-033	215	South Huron	Y	12.5 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Not within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-034	216	South Huron	Y	25.0 ha	Y	2.6 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-035	217	South Huron	N	1.3 ha	N	0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	N	Not dominated by listed species	N	Does not meet criteria	0	Not Significant
WOD-042	225	South Huron	N	3.5 ha	N	0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	0	Not Significant
WOD-044	236	South Huron	N	0.4 ha	N	0 ha	N	Does not meet size requirement	N	Does not meet criteria	N	Does not meet criteria	N	Not dominated by listed species	N	Does not meet criteria	0	Not Significant
WOD-047	229	South Huron	Y	4.3 ha	N	0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-049	232	South Huron	Y	118.0 ha	Y	39.8 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-053	235	South Huron	N	1.6 ha	N	0.0 ha	Y	Within 30 m of a significant natural feature	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	1	Significant
WOD-054	236	South Huron	Y	28.4 ha	Y	0.2 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-055	240	South Huron	N	0.7 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	0	Not Significant
WOD-060	242	South Huron	N	3.5 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	Y	Dominated by listed species	N	Does not meet criteria	1	Significant
WOD-063	244	South Huron	Y	8.7 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-064	245	South Huron	Y	6.9 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	4	Significant
WOD-068	249	South Huron	Y	7.8 ha	N	0.1 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	3	Significant
WOD-070	250	South Huron	Y	10.3 ha	Y	0.1 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-076	251	South Huron	N	2.0 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	1	Significant
WOD-087	259	South Huron	Y	19.6 ha	Y	3.4 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	3	Significant
WOD-093	261	South Huron	Y	9.5 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-101	267	South Huron	Y	5.1 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	3	Significant
WOD-103	269	South Huron	N	3.7 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	1	Significant
WOD-104	609	South Huron	N	1.0 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	2	Significant
WOD-106	271	South Huron	Y	6.2 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	4	Significant
WOD-109	609	South Huron	Y	45.1 ha	Y	22.8 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	4	Significant
WOD-112	637	South Huron	N	1.1 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	2	Significant
WOD-113	611	South Huron	Y	4.5 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	4	Significant
WOD-114	273	South Huron	N	0.9 ha	N	0.0 ha	N	Does not meet size requirement	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Does not meet size requirement	N	Does not meet criteria	1	Significant
WOD-117	255/258	South Huron	Y	455.3 ha	Y	249.8 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-118	275	South Huron	Y	8.1 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-120	648	South Huron	N	2.8 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	3	Significant
WOD-129	279/274	South Huron	Y	8.8 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	3	Significant
WOD-130	701	South Huron	Y	14.4 ha	Y	2.2 ha	Y	Within 30 m of a significant natural feature	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	4	Significant
WOD-131	266/280	South Huron	Y	199.8 ha	Y	122.4 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-133	282	South Huron	Y	20.6 ha	Y	0.6 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-134	662	South Huron	Y	4.4 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-135	661	South Huron	N	1.5 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-136	695	South Huron	Y	5.4 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	3	Significant
WOD-137	285	South Huron	Y	5.8 ha	Y	0.1 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	N	Not dominated by listed species	N	Does not meet criteria	2	Significant
WOD-145	702	South Huron	Y	8.9 ha	Y	0.000147 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-146	290	South Huron	N	3.5 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-149	291	South Huron	N	3.8 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	3	Significant
WOD-154	723	South Huron	Y	18.6 ha	Y	1.3 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	5	Significant
WOD-158	300	South Huron	Y	46.7 ha	Y	8.8 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse and a recharge area	N	Not dominated by listed species	N	Does not meet criteria	4	Significant
WOD-164	722	South Huron	N	0.7 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	0	Not Significant
WOD-176	300	South Huron	Y	5.6 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a recharge area	N	Not dominated by listed species	N	Does not meet criteria	3	Significant
WOD-180	721	South Huron	Y	4.8 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-191	309	South Huron	Y	8.7 ha	Y	0.3 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse and a recharge area	Y	Some areas dominated by listed species	N	Does not meet criteria	4	Significant

Table 4.4 Determination of Significance for Woodlands

Woodland Feature ID	Natural Area #	Municipality	Evaluation Criteria and Standards (Based on 16.5% woodland cover within the Municipality of Bluewater and 9.4% cover within the Municipality of South Huron)												# of Criteria Met to Date	Determination of Significance		
			1. Woodland Size	2.a) Woodland Interior	2.b) Proximity to Other Significant Woodlands/Habitats	2.c) Linkages	2.d) Water Protection	2.e) Woodland Diversity Representation (composition)	3. Uncommon Characteristics									
			Must be at least	Must have woodland interior at least ¹	Must be within 30 m of a significant natural feature or fish habitat ² and be at least	Must be located between 2 other significant features each of which are 120 m apart and be at least	Must be located within 50 m of a sensitive groundwater discharge ³ , recharge, headwater, watercourse or fish habitat and be at least	Must be dominated singly or in combination by native naturally occurring Ms, Mb, Msi, Mr, By, H, Ba, Ab, Wb, Ta, Sp, Pi, Oa, Ba, He, and be at least	Must have rare vegetation community (S1, S2, S3) and be more than 0.5 ha in size OR Habitat of a rare, uncommon, or restricted woodland plant species with 10 individual stems or 100 m of leaf coverage and be more than 0.5 ha in size OR Characteristics of older woodlands with larger tree size structure in native species and be more than									
			Municipality of Bluewater: 20 ha in size	Municipality of Bluewater: 2 ha in size	Municipality of Bluewater: 4 ha in size	Municipality of Bluewater: 4 ha in size	Municipality of Bluewater: 2 ha in size	Municipality of Bluewater: 4 ha in size	Municipality of Bluewater: 2 ha in size									
			Municipality of South Huron: 4 ha in size	Municipality of South Huron: Any size	Municipality of South Huron: 1 ha in size	Municipality of South Huron: 1 ha in size	Municipality of South Huron: 0.5 ha in size	Municipality of South Huron: 1 ha in size	Municipality of South Huron: 1 ha in size									
			Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met							
			Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description	Y/N	Description				
WOD-200	720	South Huron	N	2.3 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-210	738	South Huron	N	3.2 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	3	Significant
WOD-227	321	South Huron	Y	4.4 ha	Y	0.0029 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a recharge area	Y	Some areas dominated by listed species	N	Does not meet criteria	4	Significant
WOD-231	759	South Huron	N	0.6 ha	N	0.0 ha	N	Does not meet size criteria	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Does not meet size requirement	N	Does not meet criteria	1	Significant
WOD-251	326/331	Bluewater	N	14.3 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse and a recharge area	Y	Some areas dominated by listed species	N	Does not meet criteria	3	Significant
WOD-278	339/342	Bluewater	N	15.8 ha	N	0.8 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a recharge area	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-286	349/346	Bluewater	N	3.5 ha	N	0.0 ha	N	Does not meet size requirement	N	Does not meet criteria	Y	Within 50 m of a watercourse and a recharge area	N	Does not meet size requirement	N	Does not meet criteria	1	Significant
WOD-289	352	Bluewater	N	7.2 ha	N	0.0 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse and a recharge area	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-295	358	Bluewater	N	4.1 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a recharge area	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-299	362	Bluewater	N	2.0 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	0	Not Significant
WOD-300	757	Bluewater	N	11.7 ha	N	0.3 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a watercourse	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-301	361	Bluewater	N	2.5 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a recharge area	N	Does not meet size requirement	N	Does not meet criteria	1	Significant
WOD-303	364	Bluewater	N	9.6 ha	N	0.016 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	1	Significant
WOD-306	369	Bluewater	N	13.7 ha	N	0.6 ha	Y	Within 30 m of fish habitat	N	Does not meet criteria	Y	Within 50 m of a watercourse	N	Not dominated by listed species	N	Does not meet criteria	2	Significant
WOD-307	370	Bluewater	N	1.4 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	0	Not Significant
WOD-309	372	Bluewater	N	4.0 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a recharge area	Y	Some areas dominated by listed species	N	Does not meet criteria	2	Significant
WOD-310	375	Bluewater	N	3.0 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	0	Not Significant
WOD-311	373	Bluewater	N	0.9 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	0	Not Significant
WOD-312	375	Bluewater	N	2.1 ha	N	0.0 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet size requirement	N	Does not meet criteria	0	Not Significant
WOD-313	375	Bluewater	N	13.2 ha	N	0.5 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	1	Significant
WOD-328	392	Bluewater	N	9.7 ha	N	0.1 ha	N	Does not meet criteria	N	Does not meet criteria	N	Does not meet criteria	Y	Some areas dominated by listed species	N	Does not meet criteria	1	Significant
WOD-331	379	Bluewater	Y	1,992.9 ha	Y	1257.9 ha	N	Does not meet criteria	N	Does not meet criteria	Y	Within 50 m of a watercourse, Within 30 m of fish habitat	Y	Some areas dominated by listed species	N	Does not meet criteria	4	Significant

Notes: 1. Area of Interior Forest for each woodland feature is not necessarily contiguous. I.e. pockets of interior forest within a single woodland may be isolated from one another. Therefore for the purposes of this criterion interior woodland sizes were calculated by natural area.
2. The numbers in parentheses indicate watercourse numbers referred to in the Water Assessment and Water Body Report.
3. Groundwater indicator species observed during field investigations were used to determine presence/absence of groundwater discharge areas.

4.3.3 Valleylands

One valleyland feature was identified through the Site Investigation and Records Review. The location of this valleyland is shown on Figure 3.5. Following the evaluation criteria as outlined within the Natural Heritage Assessment Guide, VAL-02 was evaluated as significant considering that it satisfied the following criteria: landform prominence, surface water functions, high degree of naturalness, community and species diversity and linkage (Table 4.5). This valleyland was therefore carried forward to the EIS.

Table 4.5 Determination of Significance for Valleylands

Valleyland Feature #	Distance from Project Location	Landform-Related Functions	Ecological Features		Restored Ecological Functions	Determination of Significance
			Degree of Naturalness	Linkage Function		
VAL-02	>0.1 m (transmission line)	The total catchment area of the surface water feature through the valleyland is 32,249 ha. Associated wetlands are identified within the boundaries of the valleyland. Groundwater indicator species observed through valleyland associated with Hay Swamp.	Areas of contiguous woodland are present and consist predominately of deciduous forest (FOD) communities. The area contains greater than 25% natural cover. The area contains wetland communities. Disturbances include agricultural land uses and old roadways, logging, and plantations.	Through aerial photograph interpretation, contiguous natural vegetation with a minimum of 100 m in width occur for most of the valley length.	No known restoration projects are already underway or planned and awaiting implementation.	Significant considering degree of naturalness and linkage function

4.3.4 Significant Wildlife Habitat

4.3.4.1 Waterfowl Stopover and Staging Areas (Terrestrial)

A flock of approximately 1,860 Tundra Swans was observed during the second round of the 2012 spring migration survey at WSST-15 on March 12, 2012. No swans were observed at this location during the first or third round surveys. No swans were observed at WSST-36 during spring migration surveys conducted in the 2010 or 2012 monitoring seasons. Information provided by local residents indicates that water levels at this site in 2012 were significantly lower than in a representative year and that this site is typically used annually by Tundra Swan during spring migration. A summary of the results of the 2012 Tundra Swan migration surveys at WSST-15 and WSST-36 is provided in Table 4.6.

Table 4.6 Tundra Swan Use of Candidate Waterfowl Stopover and Staging Areas

Feature No.	Round 1 Results March 6, 2012	Round 2 Results March 12, 2012	Round 3 Results March 16, 2012	Carried Forward to EIS	Rationale
WSST-15	No Tundra Swans observed.	A flock of approximately 1,860 Tundra Swans observed resting or feeding in a field of corn stubble well away from roads. A second flock of an additional 160 individuals later observed. A few birds observed flying in and increasing the flock size.	No Tundra Swans observed.	Yes	Very large number of Tundra Swans observed, suggests that it is likely used annually.
WSST-36	No Tundra Swans observed.	No Tundra Swans were observed.	No Tundra Swans observed.	Yes	Multiple reports from surrounding landowners indicate that this location is used annually by several flocks of Tundra Swans during migration.

Additional surveys to complete the evaluation of candidate stopover and staging areas are proposed for March 2013 to continue to monitor these areas for use by Tundra Swans. These surveys are proposed in part to evaluate the use of these sites over multiple years and to compensate for the unseasonably warm and dry spring which affected several aspects of the Tundra Swan migration. It is assumed that the lack of flooding in 2012 resulted in swans using a number of fields that they normally might not. Since the species prefers flooded fields, the lack of water in 2012 appears not to have concentrated them in their usual locations. Consequently some fields where Tundra Swans were observed were not identified as candidate Significant Wildlife Habitat.

For the purpose of this submission, the two candidate stopover and staging areas identified (WSST-15 and WSST-36) were treated as significant and carried forward to the EIS with the commitment to complete pre-construction Evaluation of Significance surveys as described in Section 4.2.4.1. The locations of these features are shown on Figure 3.6c.

4.3.4.2 *Reptile Hibernacula*

One candidate significant reptile hibernaculum (RH-01) will be evaluated following completion of the Evaluation of Significance field studies described in Section 4.2.4.1. For the purpose of this submission, this candidate Significant Wildlife Habitat was treated as significant and carried forward to the EIS, with the commitment to complete pre-construction Evaluation of Significance surveys as described in Section 4.2.4.1. The location of this feature is shown on Figure 3.6a.

4.3.4.3 *Bat Maternity Colonies*

Of the 19 candidate significant bat maternity colonies identified either within 120 m of proposed turbine locations (17 locations) or proposed to be overlapped by the transmission line (2 location), a total of eight have been evaluated according to the methods described in section 4.2.4.1. Of these, five were determined to be significant through the Evaluation of Significance (BMC-189, BMC-229, BMC-326, BMC-342 and BMC- 757) (NRSI, 2012). These features were carried forward to the EIS. The locations of these features are shown on Figure 3.6c.

A commitment is made herein to evaluate a total of 11 additional candidate significant bat maternity colonies (BMC-235, BMC-242, BMC-249, BMC-267, BMC-282, BMC-285, BMC-352, BMC-358, BMC-372, BMC-648 and BMC-720) that were introduced to the project area as a result of project changes after 2011 monitoring had completed, and therefore could not be surveyed during the appropriate monitoring season prior to this submission (NRSI, 2012). Refer to Appendix G for the complete bat monitoring report. For the purposes of this submission, these candidate Significant Wildlife Habitats were treated as significant and carried forward to the EIS, with the commitment to complete pre-construction Evaluation of Significance surveys as described in Section 4.2.4.1. The locations of these features are shown on Figure 3.6c.

4.3.4.4 *Amphibian Woodland Breeding Habitat*

The first round of amphibian surveys was conducted in April 2012 at the time when Spring Peepers and Wood Frogs were at their peak calling period and woodland pools were at their deepest levels. These are the two most vociferous and widespread of the woodland breeding amphibians. Pools that support Spotted or Blue-spotted Salamanders nearly always also contain breeding Wood Frogs or Spring Peepers. If no calling amphibians were recorded on the first visit when water was deepest, it was concluded that the woodland pools did not provide good habitat, and probably did not have a sufficient hydroperiod or sufficient food for larvae. Consequently, pools which had no frogs on the first visit were not resurveyed and are not considered to be Significant Wildlife Habitat in this category. While it is possible that some of these pools contain some breeding amphibians, it is unlikely that they

would have met the trigger for significance (*i.e.*, 20 breeding individuals). Similarly, if there were only very few calling amphibians on the first visit, they were not treated as significant. If the first round of surveys had not been conducted and if pools were present but no frogs were heard, sites were treated as significant and carried forward to the EIS with additional pre-construction survey commitments.

A summary of the results of 2012 amphibian call surveys is provided in Table 4.7 for candidate significant amphibian woodland breeding habitat. A total of seven features were carried forward to the EIS. These include four confirmed significant features (AWO-14, AWO-25, AWO-27 and AWO-30) and three features treated as significant and carried forward to the EIS (AWO-33, AWO-34 and AWO-35), with commitments for additional pre-construction Evaluation of Significance surveys as described in Section 4.2.4.1. The locations of these features are shown on Figure 3.6d.

Table 4.7 Evaluation of Candidate Amphibian Woodland Breeding Habitats

Feature ID	2012 Amphibian Survey Results	Pre-construction Monitoring Commitments	Carried Forward to EIS
AWO-03	<p>Surveys targeting non-vocalizing amphibians No amphibians were seen during the egg mass survey. Northern Leopard Frog (1) and Green Frog (3) were observed during the larval survey.</p> <p>Surveys targeting vocalizing amphibians Spring Peepers (3) were heard calling in April, Green Frogs (2) were heard calling in May and Green Frogs (5) were heard calling in June.</p> <p>Well below threshold of 20 calling and lack of amphibians observed indicates that feature is not likely significant.</p>	None required.	No – not Significant Wildlife Habitat
AWO-04	<p>Surveys targeting non-vocalizing amphibians No amphibians were seen during the egg mass survey.</p> <p>Surveys targeting vocalizing amphibians No calls heard on April survey.</p> <p>Lack of amphibians observed indicates that feature is not likely significant.</p>	None required.	No – not Significant Wildlife Habitat
AWO-06	<p>Surveys targeting non-vocalizing amphibians Adult Wood Frog (2), adult Green Frog (1), and adult Western Chorus Frog (1) were observed during the egg mass survey. No amphibians were seen during the larval survey.</p> <p>Surveys targeting vocalizing amphibians Spring Peepers (3) were heard calling during the April survey. No other amphibians were heard during the May or June surveys.</p> <p>Well below threshold of 20 calling and lack of amphibians observed indicates that feature is not likely significant.</p>	None required.	No – not Significant Wildlife Habitat
AWO-07	<p>Surveys targeting non-vocalizing amphibians Red-spotted Newt larvae (<10), adult Green Frogs (3), unknown tadpoles (>20) and unknown adult frog (4) were observed during the egg mass survey. Green Frog tadpoles (>50), Green Frog adults (3) and adult Northern Leopard Frogs (>5) observed during larval survey.</p> <p>Surveys targeting vocalizing amphibians Spring Peepers (7) were heard calling during the April survey. Grey Tree Frogs (3), Spring Peepers (2) and Green Frogs (2) were heard calling during the May survey. A Green Frog and one Grey Tree Frog were heard calling during the June survey.</p> <p>Well below threshold of 20 calling and lack of amphibians observed indicates that feature is not likely significant. Green Frog is not listed as a target species for this habitat type.</p>	None required.	No – not Significant Wildlife Habitat

Table 4.7 Evaluation of Candidate Amphibian Woodland Breeding Habitats

Feature ID	2012 Amphibian Survey Results	Pre-construction Monitoring Commitments	Carried Forward to EIS
AWO-08	<p>Surveys targeting non-vocalizing amphibians An adult Wood Frog was observed during the egg mass survey. Green Frog tadpoles (>50), adult Green Frogs (3) and adult Northern Leopard Frogs (5) were observed during the larval survey.</p> <p>Surveys targeting vocalizing amphibians Grey Tree Frogs (3), Spring Peepers (2) and Green Frogs (2) heard calling during the May survey. No amphibians were heard during the April or June survey.</p> <p>Well below threshold of 20 calling and lack of amphibians observed indicates that feature is not likely significant.</p>	None required.	No – not Significant Wildlife Habitat
AWO-09	<p>Surveys targeting non-vocalizing amphibians A Green Frog and an unknown adult frog (3) were observed during the egg mass survey. An unknown adult frog and Wood Frog tadpoles (13) were observed during the Larval survey.</p> <p>Surveys targeting vocalizing amphibians Spring Peepers (3) and a Western Chorus Frog were heard during the April survey. Spring Peepers (6) and Grey Tree Frogs (6) were heard during the May survey. No amphibians were heard during the June survey.</p> <p>Well below threshold of 20 calling and lack of amphibians observed indicates that feature is not likely significant.</p>	None required.	No – not Significant Wildlife Habitat
AWO-14	<p>Surveys targeting non-vocalizing amphibians Egg mass and larval surveys were not completed due to access restrictions.</p> <p>Surveys targeting vocalizing amphibians A <u>chorus of Spring Peepers</u> was heard during the April survey. Spring Peepers (6) and American Toad (2) heard during the May survey. Green Frogs (3) were heard during the June survey.</p> <p>Feature likely to contain breeding population of 1 or more target species with at least 20 individuals therefore considered significant.</p>	None required	Yes – confirmed significant
AWO-17	<p>Surveys targeting non-vocalizing amphibians No amphibians observed during the egg mass survey.</p> <p>Surveys targeting vocalizing amphibians No calls heard during the April survey.</p> <p>Lack of amphibians observed indicates that feature is not likely significant.</p>	None required.	No – not Significant Wildlife Habitat
AWO-24	<p>Surveys targeting non-vocalizing amphibians No amphibians observed during egg mass and larval surveys.</p> <p>Surveys targeting vocalizing amphibians Spring Peeper (3), Green Frog (1) and Grey Tree Frog (4) were heard calling during the May survey. No calls were heard during the April and June surveys.</p> <p>Well below threshold of 20 calling and lack of amphibians observed indicates that feature is not likely significant.</p>	None required.	No – not Significant Wildlife Habitat
AWO-25	<p>Surveys targeting non-vocalizing amphibians No amphibians observed during egg mass and larval surveys.</p> <p>Surveys targeting vocalizing amphibians A <u>chorus of Spring Peepers</u> was heard during the April survey. Spring Peeper (3), Green Frog (1), and Grey Tree Frogs (4) were heard calling during the May survey. No amphibians were heard during the June survey.</p> <p>Feature likely to contain breeding population of 1 or more target species with at least 20 individuals therefore considered significant.</p>	None required.	Yes – confirmed significant