

Varna Wind, Inc.

## **Amendment to the Design and Operations Report – Bluewater Wind Energy Centre**

**Prepared by:**

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**Project Number:**

60301207

**Date:**

September, 2013

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## Glossary of Terms

- EIS ..... Environmental Impact Study
- MNR ..... Ministry of Natural Resources
- MTCS ..... Ministry of Tourism, Culture and Sport
- mVA ..... mega Volt-Ampere
- NextEra ..... NextEra Energy Canada, ULC
- NHA ..... Natural Heritage Assessment
- O.Reg. 359/09..... Ontario Regulation 359/09
- POI ..... Point of Interconnect
- The Project..... Bluewater Wind Energy Centre
- REA..... Renewable Energy Approval

# 1. Introduction

Varna Wind, Inc. (Varna) is proposing to construct a wind energy centre in the Municipality of Bluewater and the Municipality Huron East in Huron County, Ontario. The following sections of this Renewable Energy Approval (REA) Amendment Report describe the proposed modifications to this Project and resulting updates to the Design and Operations Report.

## 1.1 The Proponent

The Project will be owned and operated by Varna, a wholly owned subsidiary of NextEra Energy Canada, ULC (NextEra). NextEra's indirect parent company is NextEra Energy Resources, LLC. The proponent has not changed from the initial REA submission.

The primary contacts for the Project are as follows:

Project Proponent	Project Consultant
Nicole Geneau Project Director NextEra Energy Canada, ULC 390 Bay Street, Suite 1720 Toronto, ON M5H 2Y2  Phone:.....1-416-364-9714 Email: .....Bluewater.Wind@NextEraEnergy.com Website:...www.NextEraEnergyCanada.com	Marc Rose Senior Environmental Planner AECOM 105 Commerce Valley Drive West, Floor 7 Markham, ON, Canada L3T 7W3  Phone: .....905-747-7793 Email:.....marc.rose@aecom.com

## 1.2 Project Study Area

The proposed Project is located in the Municipality of Bluewater and the Municipality Huron East in Huron County, Ontario (refer to **Figure 2-1**). The Project Study Area has not changed from the initial REA submission.

The following co-ordinates define the external boundaries of the Project Study Area:

Longitude	Latitude
<b>-81.680043</b>	43.553413
<b>-81.350138</b>	43.534437
<b>-81.402727</b>	43.471275
<b>-81.679229</b>	43.433866

## 2. Proposed Project Modifications

Varna is proposing modifications to the Project. These proposed Project modifications are categorized as follows:

- Construction disturbance area modified to reduce or eliminate impacts to Conservation Authority regulation limit; and,
- Infrastructure or construction disturbance area added or changed to optimize project design/constructability.

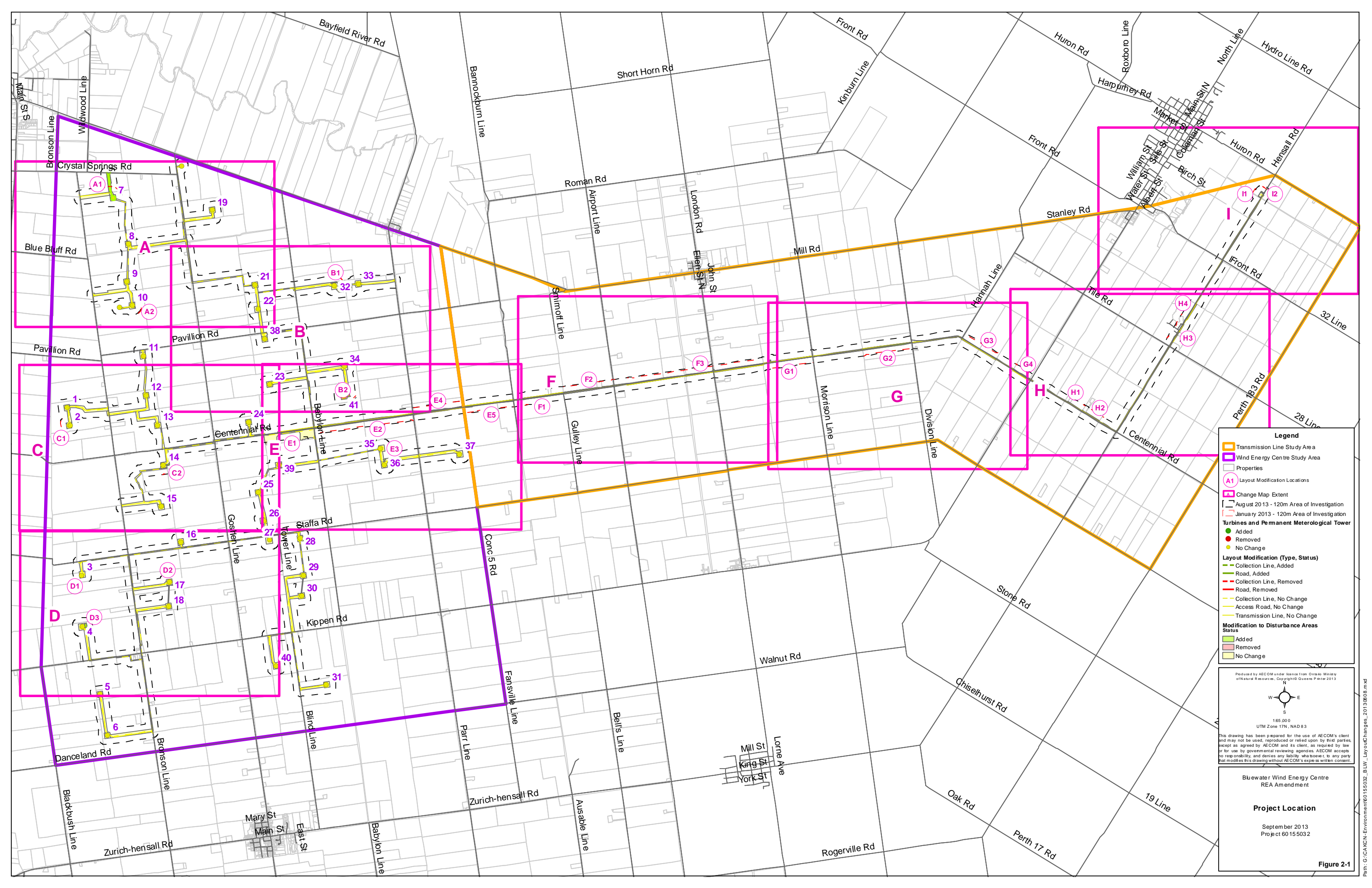
**Table 2-1** summarizes and documents the following about each of the proposed modifications:

1. A description of the modification and a rationale for why the modification is proposed; and
2. New potential environmental effects and corresponding mitigation measures.

**Figure 2-1** illustrates the modified Project Location. **Appendix A** contains a series of figures showing the details for each of the modifications.

**Table 2-1 Summary of Project Modifications**

Label on Figure 2-1	Proposed Modification	Rationale for Proposed Modification	New Potential Environmental Effects	New Mitigation Measures
A1	Addition of road to Turbine 7 to travel north towards Crystal Springs Road	Infrastructure or construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
A2	Removal of construction disturbance area to the south east of Turbine 10	Construction disturbance area modified to reduce or eliminate impacts to Conservation Authority regulation limit	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
B1	Addition of construction disturbance area to the north of Turbine 32	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage features within 120 m; area previously studied for cultural heritage and water body features	N/A
B2	Addition of construction disturbance area to the east of Turbine 41	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage features within 120 m; area previously studied for cultural heritage and water body features	N/A
C1	Addition of construction disturbance area to the west of Turbine 2	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
C2	Addition of construction disturbance area to the south and east of Turbine 14	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
D1	Removal of construction disturbance area to the south west of Turbine 3	Construction disturbance area modified to reduce or eliminate impacts to Conservation Authority regulation limit	None – no new natural heritage features within 120 m; area previously studied for cultural heritage and water body features	N/A
D2	Addition of construction disturbance area to the south of Turbine 17	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
D3	Addition of construction disturbance area to the east of Turbine 4	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
E1 – E2	Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage features within 120 m; area previously studied for cultural heritage and water body features	N/A
E3	Addition of construction disturbance area to the north of Turbine 36	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
E4	Addition of construction disturbance area for the transmission line on private property to the north of Centennial Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
E5	Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
F1	Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage features within 120 m; area previously studied for cultural heritage and water body features	N/A
F2	Addition of construction disturbance area for the transmission line on private property to the north of Centennial Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
F3	Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road.	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
G1 – G4	Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Centennial Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
H1	Addition of construction disturbance area for the transmission line on private property to the north of Centennial Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
H2	Addition of construction disturbance area for the transmission line on private properties to the north of Centennial Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
H3 – H4	Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Hensall Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage features within 120 m; area previously studied for cultural heritage and water body features	N/A
I1	Addition of construction disturbance area for the transmission line POI to the north of the existing disturbance area	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
I2	Addition of construction disturbance area for the transmission line in the municipal road right-of-way along Hensall Road	Construction disturbance area added or changed to optimize project design/ constructability	None – no new natural heritage or water body features within 120 m; area previously studied for cultural heritage	N/A
N/A	Use of a spare 170 mVA transformer to be stored within the existing footprint of the Jericho Wind Energy Centre substation	N/A	N/A	N/A



**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- Layout Modification Locations
- Change Map Extent
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

**Turbines and Permanent Meteorological Tower**

- Added
- Removed
- No Change

**Layout Modification (Type, Status)**

- Collection Line, Added
- Road, Added
- Collection Line, Removed
- Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change

**Modification to Disturbance Areas Status**

- Added
- Removed
- No Change

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**Bluewater Wind Energy Centre  
REA Amendment**

**Project Location**

September 2013  
Project 60155032

Figure 2-1

Path: G:\CA\KCN-Environment\60155032\_BLV\_Lay\LayoutChanges\_20130608.mxd

### 3. Edits to the Design and Operations Report

**Table 3-1** documents the edits to the Design and Operations Report resulting from the modifications described above. The table includes the text from the original REA submission (*AECOM, June 2012*) and the *Addendum to the Design and Operations Report – Bluewater Wind Energy Centre (AECOM, March 2013)*, and edits to the text (underlined text represents additions and strikethrough text represents deletions). Updated figures are included in **Appendix B** of this Amendment Report.



**Table 3-1 Edits to the Design and Operations Report**

Section / Page	Original Text*	Revised Text* (underlined text represents additions and strikethrough text represents deletions)
Section 2 / page 5	The proposed Project Location is shown on Figure 2-1, 2-2 and 2-3 in Appendix B, and includes the components of the Project listed below: <ul style="list-style-type: none"> <li>Approximately 37 km of turbine access roads; and</li> </ul>	The proposed Project Location is shown on Figure 2-1, 2-2 and 2-3 in Appendix B, and includes the components of the Project listed below: <ul style="list-style-type: none"> <li>Approximately <u>37</u> <del>38</del> km of turbine access roads; and</li> </ul>
Section 3.5 / page 11	All substation grounding equipment will meet the Ontario Electrical Safety Code.	All substation <u>and breaker switch station</u> grounding equipment will meet the Ontario Electrical Safety Code.
Section 4.4 / page 13	The collector lines and substation will require periodic preventative maintenance activities. Routine maintenance will include condition assessment for above-ground infrastructure and protective relay maintenance of the substation, in addition to monitoring of the secondary containment system for traces of oil. Finally, vegetation control will be required around the transmission line to prevent any damage to the line and ensure safe operation.	The collector lines and substation will require periodic preventative maintenance activities. Routine maintenance will include condition assessment for above-ground infrastructure and protective relay maintenance of the substation, in addition to monitoring of the secondary containment system for traces of oil. Finally, vegetation control will be required around the transmission line to prevent any damage to the line and ensure safe operation.  <u>In the event of a transformer failure, a spare transformer (stored within the existing footprint of the Jericho Wind Energy Centre substation) will be installed at the same location as the transformer proposed for the Bluewater WEC.</u>
Section 6.1 / page 16		<u>In 2013, a third phase of the Stage 2 archaeological assessment was conducted in the wind energy centre study area. A total of 2 additional sites were recorded, neither of which were recommended for a Stage 3 archaeological assessment. The additional Stage 2 archaeological assessment was submitted to the MTCS on August 28, 2013, and sign-off was received from the MTCS on September 9, 2013.</u>
Section 6.1 / page 16	A Cultural Heritage Assessment was also completed to address built heritage and cultural heritage landscape resources related to the Euro-Canadian land use in the area dating prior to 1970. All work was carried out in accordance with the Ontario Heritage Act, the Provincial Policy Statement, and the Environmental Assessment Act. The report identified 76 structures (45 houses and 31 barns) as greater than 40 years old within the Project Study Area and as having general historical interest as they contribute to the character of the vernacular rural landscape. When applying the criteria set out in Ontario Regulation 9/06, none of these structures were determined to have cultural heritage value or interest. This report was submitted to the MTCS for review and comment. Sign-off from the Ministry confirming that the report is satisfactory was received on March 22, 2012.	A Cultural Heritage Assessments was also completed to address built heritage and cultural heritage landscape resources related to the Euro-Canadian land use in the area dating prior to 1970. All work was carried out in accordance with the Ontario Heritage Act, the Provincial Policy Statement, and the Environmental Assessment Act. The report <u>and its three addendums (August 2012, December 2012 and September 2013)</u> identified <u>76</u> <del>80</del> structures (45 houses and <u>34</u> <del>35</del> barns) as greater than 40 years old within the Project Study Area and as having general historical interest as they contribute to the character of the vernacular rural landscape. When applying the criteria set out in Ontario Regulation 9/06, none of these structures were determined to have cultural heritage value or interest. <del>This</del> <u>The third heritage assessment addendum</u> report was submitted to the MTCS for review and comment on September 6, 2013. Sign-off from the Ministry confirming that the report is satisfactory was received on September 11, 2013.
Section 6.2 / page 17	Sign-off from the MNR confirming that the report is satisfactory was received on March 28, 2012.	Sign-off from the MNR confirming that the report is satisfactory was received on March 28, 2012. <u>AECOM later prepared a Natural Heritage Assessment and Environmental Impact Study Report Amendment in order to fulfill the requirements of the REA process and O. Reg. 359/09 with respect to modifications to the Project Location proposed after the original submission of the NHA and EIS to MNR. The MNR issued a re-confirmation letter for the NHA Amendment on January 11, 2013. A second NHA Amendment was submitted to the MNR on August 29, 2013 to address additional modifications to the Project proposed after MNR confirmation and re-confirmation of the NHA and first NHA Amendment.</u>
Table 6-1 / page 17	Features treated as significant for the purpose of this submission (a determination as to whether the mitigation measures described in the EIS will be applied will be made based on the outcome of evaluation of significance studies to be completed prior to construction): <ul style="list-style-type: none"> <li>Reptile hibernacula (RH-01 and RH-02);</li> <li>Bat maternity colonies (BMC-02, BMC-03, BMC-10, BMC-12, BMC-14, <i>and</i> BMC-15);</li> <li>Amphibian woodland breeding habitat (AWO-03, AWO-04, AWO-05, AWO-06, AWO-08 <i>and</i> AWO-12); and</li> <li>Amphibian wetland breeding habitat (AWE-01).</li> </ul>	Features treated as significant for the purpose of this submission (a determination as to whether the mitigation measures described in the EIS will be applied will be made based on the outcome of evaluation of significance studies to be completed prior to construction): <ul style="list-style-type: none"> <li>Reptile hibernacula (RH-01 and RH-02);</li> <li>Bat maternity colonies (BMC-02, <del>BMC-03</del>, BMC-10, BMC-12, BMC-14, <i>and</i> BMC-15);</li> <li>Amphibian woodland breeding habitat (AWO-03, AWO-04, AWO-05, AWO-06, AWO-08 <i>and</i> <del>AWO-12</del> <u>AWO-13</u>); and</li> <li>Amphibian wetland breeding habitat (AWE-01).</li> </ul>
Table 6-1 / page 17	The following candidate significant wildlife habitats were identified within the 120 m Area of Investigation however not within 120 m of qualifying project infrastructure, and were therefore carried forward to the EIS as <i>Generalized Candidate Significant Wildlife Habitat</i> : <ul style="list-style-type: none"> <li>Reptile hibernacula (Natural Area 541);</li> <li>Bat maternity roosts (Natural Areas 426, 439, 456, 475, 487, 488, 494, 512, 514, 520, 539, 545, 551, 552, 555, 556 and 561);</li> <li>Amphibian woodland breeding habitat (Natural Areas 450, 463, 483, 510, 534, and 541);</li> <li>Amphibian wetland breeding habitat (Natural Areas 494, 564 and 565);</li> <li>Old growth and mature forest stands (Natural Areas 456, 483, 487, 510, 514, 541 and 542);</li> <li>Woodland raptor nesting habitat (Woodland Unit N);</li> <li>Seeps and springs (Natural Areas 437, 439, 463, 510, 518, 532, 534, and 539);</li> <li>Marsh bird breeding habitat (Natural Area 495); and</li> <li>Habitats of species of conservation concern (numerous).</li> </ul>	The following candidate significant wildlife habitats were identified within the 120 m Area of Investigation however not within 120 m of qualifying project infrastructure, and were therefore carried forward to the EIS as <i>Generalized Candidate Significant Wildlife Habitat</i> : <ul style="list-style-type: none"> <li>Reptile hibernacula (Natural Area 541);</li> <li>Bat maternity roosts (Natural Areas 426, 439, 456, 475, 487, 488, 494, 512, 514, 520, 539, 545, 551, 552, 555, 556 and 561);</li> <li>Amphibian woodland breeding habitat (Natural Areas <del>450</del>, 463, 483, 510, 534, and 541);</li> <li>Amphibian wetland breeding habitat (Natural Areas 494, 564 and 565);</li> <li>Old growth and mature forest stands (Natural Areas 456, 483, 487, 510, <del>514</del>, 541 and 542);</li> <li>Woodland raptor nesting habitat (Woodland Unit N);</li> <li>Seeps and springs (Natural Areas 437, 439, 463, 510, 518, 532, 534, and 539);</li> <li>Marsh bird breeding habitat (Natural Area 495); and</li> <li>Habitats of species of conservation concern (numerous).</li> </ul>
Section 6.2.1 / page 18	Potential effects from operational and maintenance activities on Significant Wildlife Habitat, Significant Woodlands, Significant Valleylands, and Provincially Significant Wetlands include: <ul style="list-style-type: none"> <li>Bats may be disturbed by noise from operations (Features BMC-01, BMC-07, BMC-08, BMC-13 BMC-02, BMC-03, BMC-10, BMC-12 and BMC-14);</li> <li>No anticipated operational effects to amphibian woodland breeding habitat (Features AWO-03, AWO-04, AWO-05, AWO-06, AWO-08, AWO-11 <i>and</i> AWO-12) although potential exists for amphibian mortality due to vehicular collisions along nearby access roads during operations; <i>and</i></li> </ul>	Potential effects from operational and maintenance activities on Significant Wildlife Habitat, Significant Woodlands, Significant Valleylands, and Provincially Significant Wetlands include: <ul style="list-style-type: none"> <li>Bats may be disturbed by noise from operations (Features BMC-01, BMC-07, BMC-08, BMC-13 BMC-02, <del>BMC-03</del>, BMC-10, BMC-12 and BMC-14);</li> <li>No anticipated operational effects to amphibian woodland breeding habitat (Features AWO-03, AWO-04, AWO-05, AWO-06, AWO-08, AWO-11 <i>and</i> <del>AWO-12</del> <u>AWO-13</u>) although potential exists for amphibian mortality due to vehicular collisions along nearby access roads during operations; <i>and</i></li> </ul>
Table 6-2 / page 19	<b>Potential Effect</b> Bats may be disturbed by noise from operation (BMC-01, BMC-07, BMC-08, BMC-13, BMC-02, BMC-03, BMC-10, BMC-12 and BMC-14).  <b>Monitoring Plan and Contingency Measures</b> <ul style="list-style-type: none"> <li>Conduct 3 years of post-construction acoustic monitoring for Features BMC-03, BMC-02, BMC-10, BMC-12, BMC-14 where located within 30 m of construction activities according to protocol described for pre-construction survey (as described in July 2011 version of Bats and Bat Habitats: Guidelines for Wind Power Projects) including:</li> </ul>	<b>Potential Effect</b> Bats may be disturbed by noise from operation (BMC-01, BMC-07, BMC-08, BMC-13, BMC-02, <del>BMC-03</del> , BMC-10, BMC-12 and BMC-14).  <b>Monitoring Plan and Contingency Measures</b> <ul style="list-style-type: none"> <li>Conduct 3 years of post-construction acoustic monitoring for Features <del>BMC-03</del>, BMC-02, BMC-10, BMC-12, <del>BMC-14</del> <u>BMC-15</u> where located within 30 m of construction activities according to protocol described for pre-construction survey (as described in July 2011 version of Bats and Bat Habitats: Guidelines for Wind Power Projects) including:</li> </ul>
Table 6-2 / page 20	<b>Potential Effect</b> <i>Absence of confirmed significant cavity trees or other suitable, but not studied, cavity trees removed during construction of access road within Bat</i>	<b>Potential Effect</b> <i>Absence of confirmed significant cavity trees or other suitable, but not studied, cavity trees removed during construction of <u>an access road</u> <del>the</del></i>



**Table 3-1 Edits to the Design and Operations Report**

Section / Page	Original Text*	Revised Text* (underlined> text represents additions and strikethrough text represents deletions)																																								
	<p>Maternity Colony (BMC-15).</p> <p><b>Mitigation Strategy</b></p> <ul style="list-style-type: none"> <li>For each suitable cavity tree to be removed, a bat house will be installed in the closest suitable woodland habitat (the remainder of the woodland for the affected habitat).</li> <li>Details of bat box construction and placement will be provided to MNR for approval prior to installation.</li> <li>If a significant maternity colony must be removed, timing, location, and bat house design will be of utmost importance for the colony to successfully re-establish, and will be discussed with the MNR.</li> </ul> <p><b>Monitoring Plan and Contingency Measures</b></p> <ul style="list-style-type: none"> <li>Conduct 3 years of post-construction monitoring of any bat boxes installed by a qualified Biologist, to determine the success of the implemented mitigation measures.</li> <li>Conduct 3 years of post-construction monitoring of all remaining cavity trees within BMC-15 (if determined to be significant) following pre-construction survey methods, as described in July 2011 version of Bats and Bat Habitats: Guidelines for Wind Power Projects by a qualified Biologist, including: <ul style="list-style-type: none"> <li>Conduct monitoring of roost trees through exit surveys through June.</li> <li>Conduct active visual and acoustic monitoring at the cavity opening or crevice from 30 minutes before dusk until 60 minutes after dusk in June.</li> </ul> </li> <li>Contingency Measures <ul style="list-style-type: none"> <li>If significant declines or disappearance of species is detected, determine whether likely to have been caused by the project. If so, corrective measures will be taken, to be determined through consultation with MNR.</li> </ul> </li> </ul>	<p><u>transmission line within Bat Maternity Colony (BMC-15).</u></p> <p><b>Mitigation Strategy</b></p> <ul style="list-style-type: none"> <li><del>For each suitable cavity tree to be removed, a bat house will be installed in the closest suitable woodland habitat (the remainder of the woodland for the affected habitat).</del></li> <li><del>Details of bat box construction and placement will be provided to MNR for approval prior to installation.</del></li> <li><del>If a significant maternity colony must be removed, timing, location, and bat house design will be of utmost importance for the colony to successfully re-establish, and will be discussed with the MNR.</del></li> <li><u>Clusters of cavity trees (4 cavity trees/ 12.6 m radius of habitat) will not be removed as a result of their high value as maternity roost sites. If this is not possible, MNR will be consulted regarding mitigation measures that may be required.</u></li> </ul> <p><b>Monitoring Plan and Contingency Measures</b></p> <ul style="list-style-type: none"> <li><del>Conduct 3 years of post-construction monitoring of any bat boxes installed by a qualified Biologist, to determine the success of the implemented mitigation measures.</del></li> <li>Conduct 3 years of post-construction monitoring of all remaining cavity trees within BMC-15 (if determined to be significant) following pre-construction survey methods, as described in July 2011 version of Bats and Bat Habitats: Guidelines for Wind Power Projects by a qualified Biologist, including: <ul style="list-style-type: none"> <li>Conduct monitoring of roost trees through exit surveys through June.</li> <li>Conduct active visual and acoustic monitoring at the cavity opening or crevice from 30 minutes before dusk until 60 minutes after dusk in June.</li> </ul> </li> <li>Contingency Measures <ul style="list-style-type: none"> <li>If significant declines or disappearance of species is detected, determine whether likely to have been caused by the project. If so, corrective measures will be taken, to be determined through consultation with MNR.</li> </ul> </li> </ul>																																								
Table 6-2 / page 20	<p><b>Mitigation Strategy</b></p> <ul style="list-style-type: none"> <li>Perform maintenance operations such as vegetation clearing outside the breeding season of May 1 to July 31. If vegetation clearing takes place during this timing window, nest searches will be conducted by qualified Biologist.</li> </ul>	<p><b>Mitigation Strategy</b></p> <ul style="list-style-type: none"> <li><del>Perform maintenance operations such as vegetation clearing outside the breeding season of May 1 to July 31. If vegetation clearing takes place during this timing window, nest searches will be conducted by qualified Biologist.</del></li> <li>Schedule maintenance operations such as vegetation clearing to occur outside the breeding season of May 1 to July 31.</li> </ul>																																								
Table 6-2 / page 20	<p><b>Mitigation Strategy</b></p> <ul style="list-style-type: none"> <li>Vegetation clearing will take place outside the breeding season of May 1 to July 31.</li> <li>If vegetation clearing takes place during this timing window, nest searches will be conducted by qualified Biologist.</li> </ul>	<p><b>Mitigation Strategy</b></p> <ul style="list-style-type: none"> <li><del>Vegetation clearing will take place outside the breeding season of May 1 to July 31.</del></li> <li><del>If vegetation clearing takes place during this timing window, nest searches will be conducted by qualified Biologist.</del></li> <li>Schedule maintenance operations such as vegetation clearing to occur outside the breeding season of May 1 to July 31.</li> </ul>																																								
Table 6-2 / page 21	<p><b>Potential Effect</b></p> <p>Loss of forest cover (up to 0.5 ha) through vegetation clearing in Significant Woodlands due to transmission line establishment.</p>	<p><b>Potential Effect</b></p> <p>Loss of forest cover (up to 0.5 ha) through vegetation clearing in Significant Woodlands <u>AJ, AO and AP</u> due to transmission line establishment.</p>																																								
Table 6-2 / page 21	<p><b>Potential Effect</b></p> <p>Clearing of vegetation for maintenance of the transmission line, resulting in accidental damage to Significant Woodlands</p>	<p><b>Potential Effect</b></p> <p>Clearing of vegetation for maintenance of the transmission line, resulting in accidental damage to Significant Woodlands <u>AJ, AO and AP.</u></p>																																								
Section 6.3.1.1 / page 22	<p>High Sensitivity: C35 (Project Component: Turbine).</p>	<p>High Sensitivity: C35 (Project Component: Turbine); <u>C10-A (Project Component: Collection Line)</u></p>																																								
Section 6.7 / page 29	<p>There are three authorized aggregate resources located within the Project Study Area. The first aggregate resource is a 36 ha site owned by Huron County and has a Class A Licence for over 20,000 tonnes. This is located 1,510 m from the nearest Project infrastructure (access road to Turbine 33). The second aggregate resource is a 19 ha site owned by G. Heard Construction Limited and has a Class B Licence for 20,000 tonnes or less. This is located 402 m from the nearest Project infrastructure (access road to Turbine 7). The third aggregate resource is a 4 ha Class B site licensed to Donald G. Heard, but has since been surrendered. This is located 242 m from the nearest Project infrastructure (transmission line).</p>	<p>There are three authorized aggregate resources located within the Project Study Area. The first aggregate resource is a 36 ha site owned by Huron County and has a Class A Licence for over 20,000 tonnes. This is located 1,510 m from the nearest Project infrastructure (access road to Turbine 33). The second aggregate resource is a 19 ha site owned by G. Heard Construction Limited and has a Class B Licence for 20,000 tonnes or less. This is located 402 m from the nearest Project infrastructure (access road to Turbine 7). The third aggregate resource is a 4 ha Class B site licensed to Donald G. Heard, but has since been surrendered. This is located 242 m from the nearest Project infrastructure (transmission line). <u>The third aggregate resource is a 19 ha site owned by G. Heard Construction Limited. This is an active authorized aggregate resource with a Class B License for 20,000 tonnes or less and is located adjacent to the proposed access road to Turbine 7 along Crystal Springs Road. As the resource is situated to the north of the road allowance (Crystal Springs Road), and the access road is proposed to constructed running north to south on the south side of the road allowance, no effects as a result of operational activities are anticipated.</u></p>																																								
Appendix A Section 4 / page 2		<p><u>In the event of a transformer failure, a spare transformer will be installed at the same location as that presented in the Noise Impact Assessment. The proposed spare transformer will be a Prolec GE 102/136/170 MVA transformer.</u></p> <p><u>The Bluewater Wind Energy Centre Noise Impact Assessment was conducted using a Prolec GE 51/65/85 MVA transformer. While this transformer is smaller in capacity and geometry, the proposed spare transformer will have lower noise emissions than the approved transformer in the Noise Impact Assessment Report. As illustrated in the table below, the overall noise emissions (overall Sound Power level) of the proposed spare transformer to be stored at the Jericho Wind Energy Centre are less than those from the Bluewater transformer.</u></p> <table border="1" data-bbox="2076 1709 2874 1858"> <thead> <tr> <th colspan="10">Transformer Sound Power<sup>1</sup> (dBA)</th> </tr> <tr> <th colspan="10">Octave Band Centre Frequency (Hz)</th> </tr> <tr> <th>31.5</th> <th>63</th> <th>125</th> <th>250</th> <th>500</th> <th>1000</th> <th>2000</th> <th>4000</th> <th>8000</th> <th>Overall (dBA)</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Transformer Sound Power <sup>1</sup> (dBA)										Octave Band Centre Frequency (Hz)										31.5	63	125	250	500	1000	2000	4000	8000	Overall (dBA)										
Transformer Sound Power <sup>1</sup> (dBA)																																										
Octave Band Centre Frequency (Hz)																																										
31.5	63	125	250	500	1000	2000	4000	8000	Overall (dBA)																																	

**Table 3-1 Edits to the Design and Operations Report**

Section / Page	Original Text*	Revised Text* ( <u>underlined</u> text represents additions and <del>strikethrough</del> text represents deletions)																						
		<table border="1" data-bbox="1799 284 2878 354"> <tr> <td><b>Bluewater Transformer</b></td> <td><u>62.0</u></td> <td><u>81.2</u></td> <td><u>93.3</u></td> <td><u>95.8</u></td> <td><u>101.2</u></td> <td><u>98.4</u></td> <td><u>94.6</u></td> <td><u>89.4</u></td> <td><u>80.3</u></td> <td><b>104.8</b></td> </tr> <tr> <td><b>Spare Transformer</b></td> <td><u>61.0</u></td> <td><u>80.2</u></td> <td><u>92.3</u></td> <td><u>94.8</u></td> <td><u>100.2</u></td> <td><u>97.4</u></td> <td><u>93.6</u></td> <td><u>88.4</u></td> <td><u>79.3</u></td> <td><b>103.8</b></td> </tr> </table> <p data-bbox="1728 364 2271 389">1. <u>Transformer Sound Power includes 5 dB tonal penalty.</u></p>	<b>Bluewater Transformer</b>	<u>62.0</u>	<u>81.2</u>	<u>93.3</u>	<u>95.8</u>	<u>101.2</u>	<u>98.4</u>	<u>94.6</u>	<u>89.4</u>	<u>80.3</u>	<b>104.8</b>	<b>Spare Transformer</b>	<u>61.0</u>	<u>80.2</u>	<u>92.3</u>	<u>94.8</u>	<u>100.2</u>	<u>97.4</u>	<u>93.6</u>	<u>88.4</u>	<u>79.3</u>	<b>103.8</b>
<b>Bluewater Transformer</b>	<u>62.0</u>	<u>81.2</u>	<u>93.3</u>	<u>95.8</u>	<u>101.2</u>	<u>98.4</u>	<u>94.6</u>	<u>89.4</u>	<u>80.3</u>	<b>104.8</b>														
<b>Spare Transformer</b>	<u>61.0</u>	<u>80.2</u>	<u>92.3</u>	<u>94.8</u>	<u>100.2</u>	<u>97.4</u>	<u>93.6</u>	<u>88.4</u>	<u>79.3</u>	<b>103.8</b>														

Note: \* *Italics denotes changes from the Addendum to the Design and Operations Report – Bluewater Wind Energy Centre (AECOM, March 2013)*

## 4. Summary and Conclusions

The Project modifications described in this REA Amendment do not change the overall conclusion of the Design and Operations Report which states that “this Project can be operated without any significant adverse residual effects. Post-construction monitoring related to effects on wildlife, including birds and bats, will be undertaken to confirm this conclusion”.

# Appendix A

## Project Modifications

**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- A1 Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

**Turbines and Permanent Meteorological Tower**

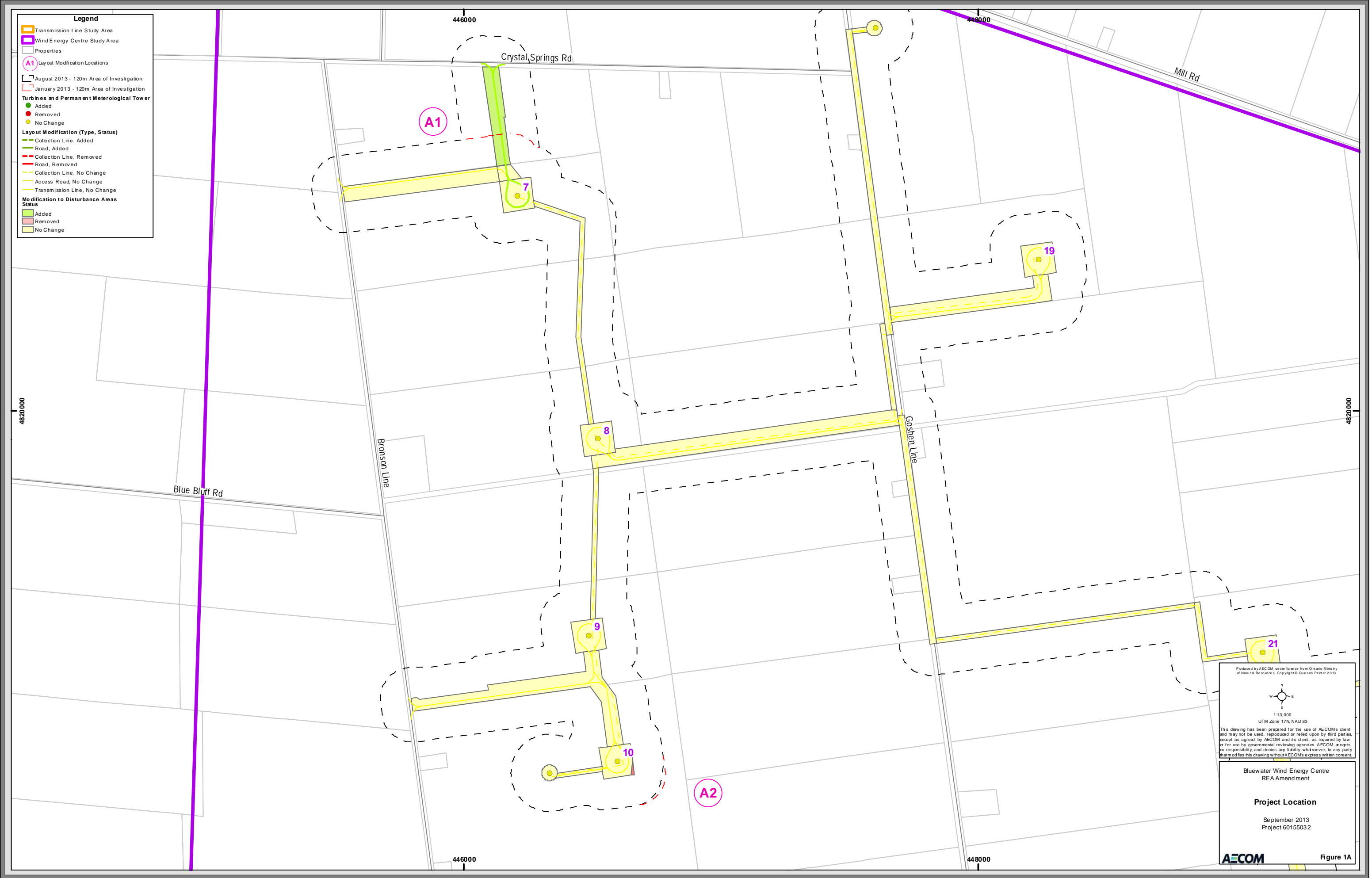
- Added
- Removed
- No Change

**Layout Modification (Type, Status)**

- Collection Line, Added
- Road, Added
- Collection Line, Removed
- Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change

**No modification to Disturbance Areas Status**

- Added
- Removed
- No Change



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Bluewater Wind Energy Centre  
REA Amendment


**Project Location**

September 2013  
Project 60155032

- Legend**
- Transmission Line Study Area
  - Wind Energy Centre Study Area
  - Properties
  - A1 Layout Modification Locations
  - August 2013 - 120m Area of Investigation
  - January 2013 - 120m Area of Investigation
  - Turbines and Permanent Meteorological Tower**
  - Added
  - Removed
  - No Change
  - Layout Modification (Type, Status)**
  - Collection Line, Added
  - Collection Line, Removed
  - Road, Added
  - Road, Removed
  - Collection Line, No Change
  - Access Road, No Change
  - Transmission Line, No Change
  - No modification to Disturbance Areas Status**
  - Added
  - Removed
  - No Change



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**Bluewater Wind Energy Centre  
REA Amendment**

**Project Location**

September 2013  
Project 60155032




Figure 1B



**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- A1 Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

**Turbines and Permanent Meteorological Tower**

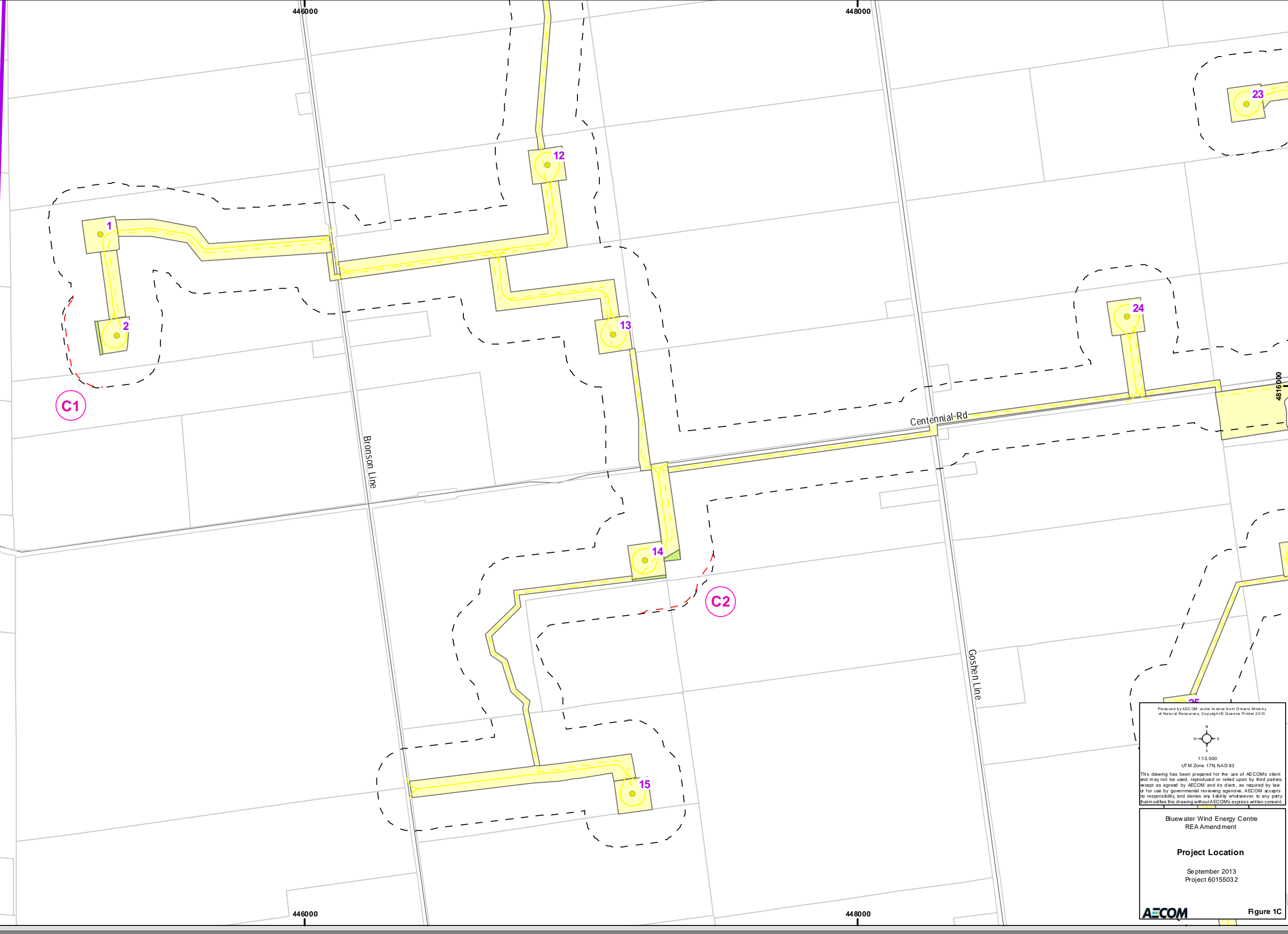
- Added
- Removed
- No Change

**Layout Modification (Type, Status)**


- Collection Line, Added
- Road, Added
- Collection Line, Removed
- Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change

**Modification to Disturbance Areas Status**

- Added
- Removed
- No Change



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**Bluewater Wind Energy Centre  
REA Amendment**

**Project Location**

September 2013  
Project 60155032


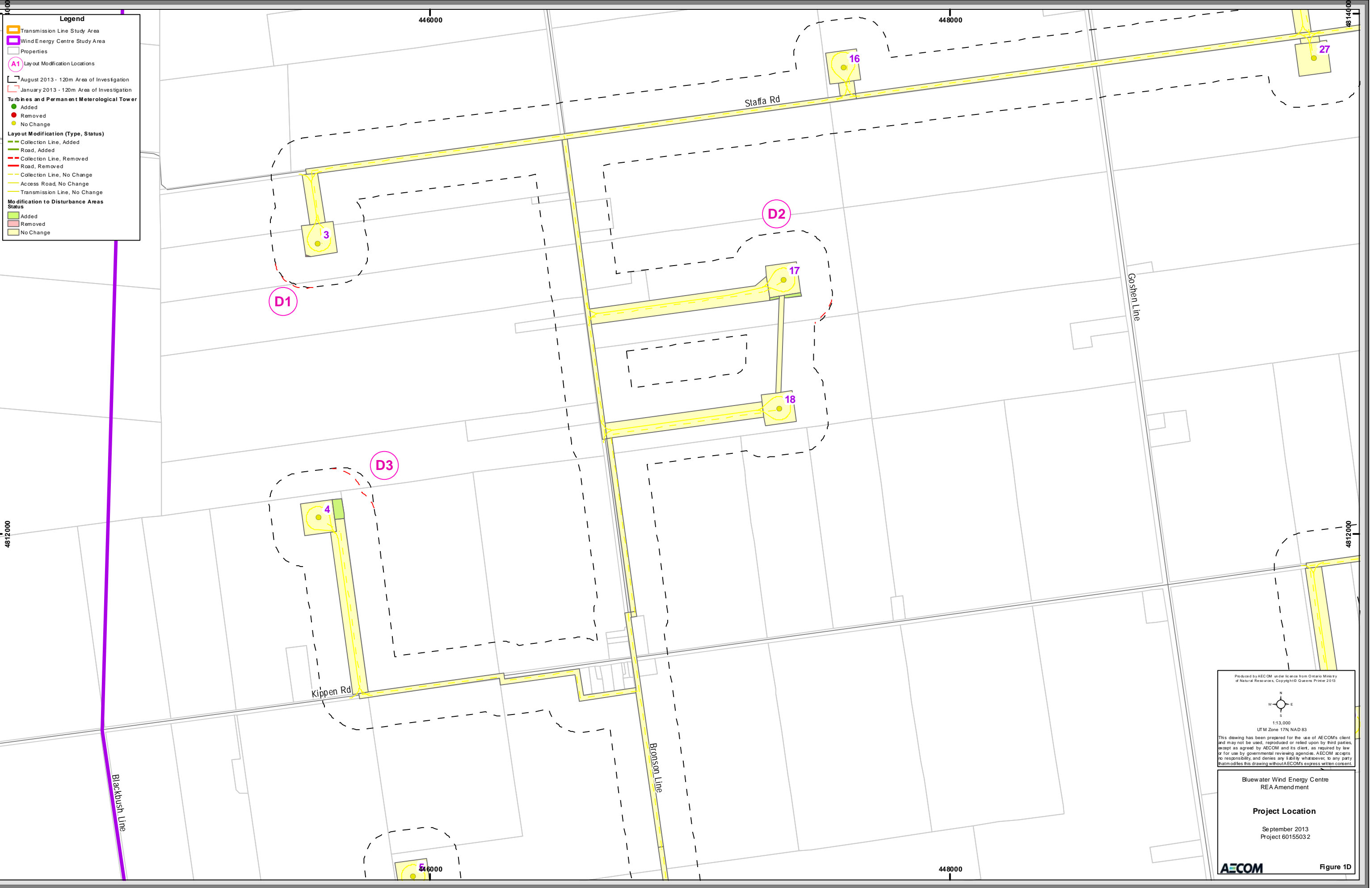


Figure 1C



**Legend**

- Transmission Line Study Area
- Wind Energy Centre Study Area
- Properties
- A1 Layout Modification Locations
- August 2013 - 120m Area of Investigation
- January 2013 - 120m Area of Investigation

**Turbines and Permanent Meteorological Tower**

- Added
- Removed
- No Change

**Layout Modification (Type, Status)**

- Collection Line, Added
- Road, Added
- Collection Line, Removed
- Road, Removed
- Collection Line, No Change
- Access Road, No Change
- Transmission Line, No Change

**No Modification to Disturbance Areas Status**

- Added
- Removed
- No Change

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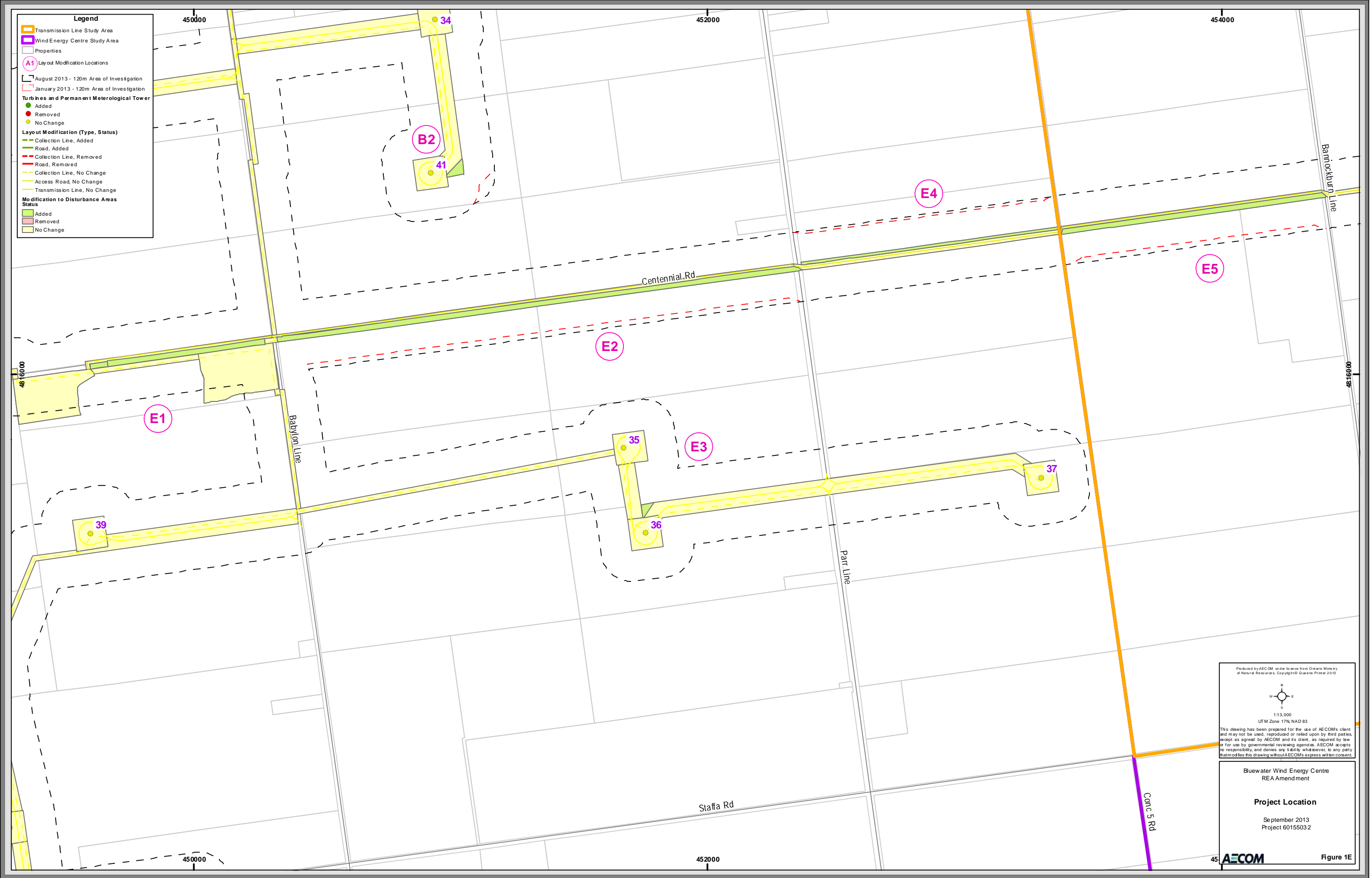
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Bluewater Wind Energy Centre  
REA Amendment

**Project Location**

September 2013  
Project 60155032

**AECOM** **Figure 1D**



- Legend**
- Transmission Line Study Area
  - Wind Energy Centre Study Area
  - Properties
  - A1 Layout Modification Locations
  - August 2013 - 120m Area of Investigation
  - January 2013 - 120m Area of Investigation
  - Turbines and Permanent Meteorological Tower**
  - Added
  - Removed
  - No Change
  - Layout Modification (Type, Status)**
  - Collection Line, Added
  - Road, Added
  - Collection Line, Removed
  - Road, Removed
  - Collection Line, No Change
  - Access Road, No Change
  - Transmission Line, No Change
  - No modification to Disturbance Areas Status**
  - Added
  - Removed
  - No Change

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Bluewater Wind Energy Centre  
REA Amendment




















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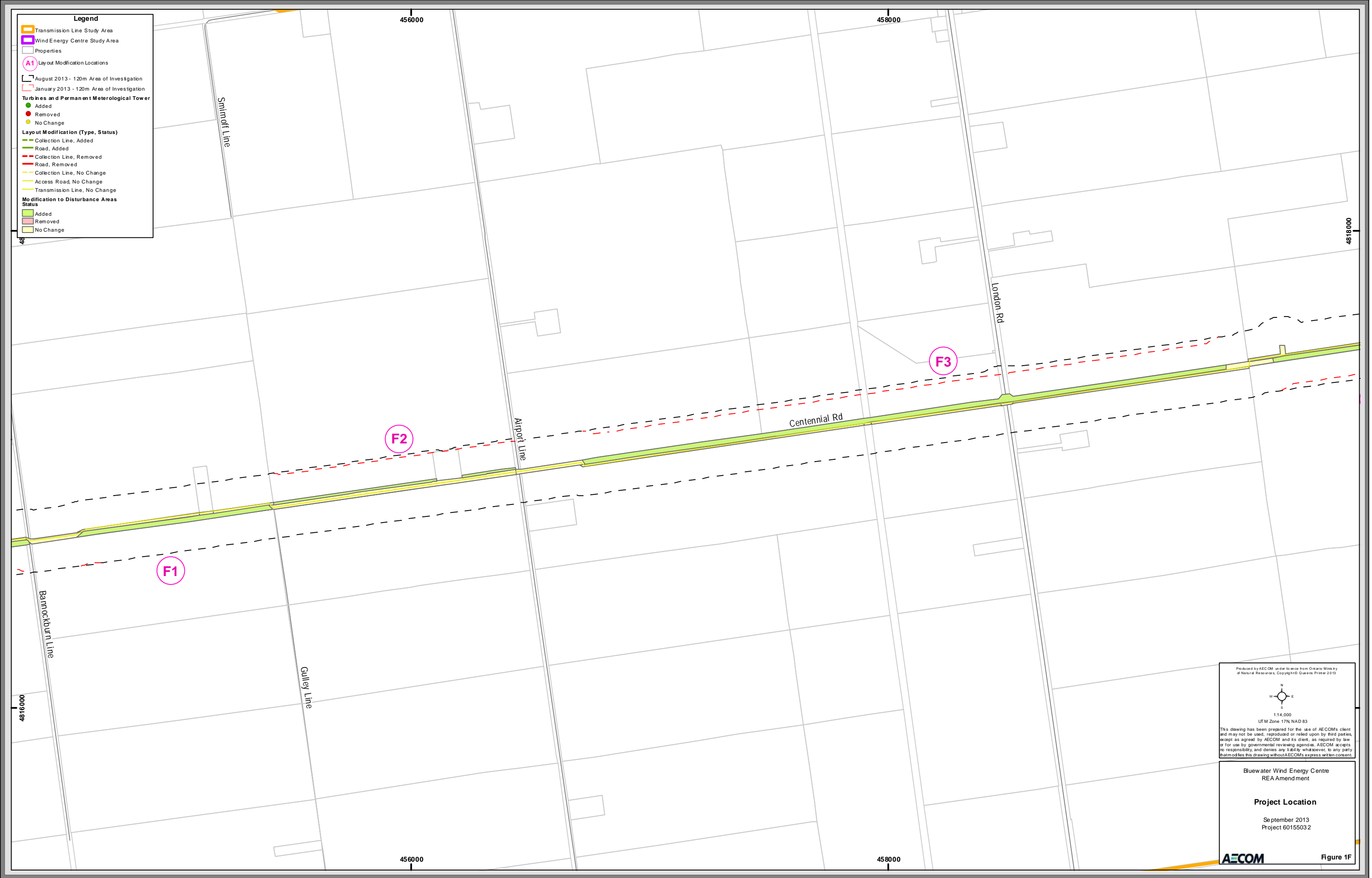
September 2013  
Project 60155032

**AECOM**

Figure 1E

**Legend**

-  Transmission Line Study Area
-  Wind Energy Centre Study Area
-  Properties
-  A1 Layout Modification Locations
-  August 2013 - 120m Area of Investigation
-  January 2013 - 120m Area of Investigation
- Turbines and Permanent Meteorological Tower**
-  Added
-  Removed
-  No Change
- Layout Modification (Type, Status)**
-  Collection Line, Added
-  Road, Added
-  Collection Line, Removed
-  Road, Removed
-  Collection Line, No Change
-  Access Road, No Change
-  Transmission Line, No Change
- Modification to Disturbance Areas Status**
-  Added
-  Removed
-  No Change



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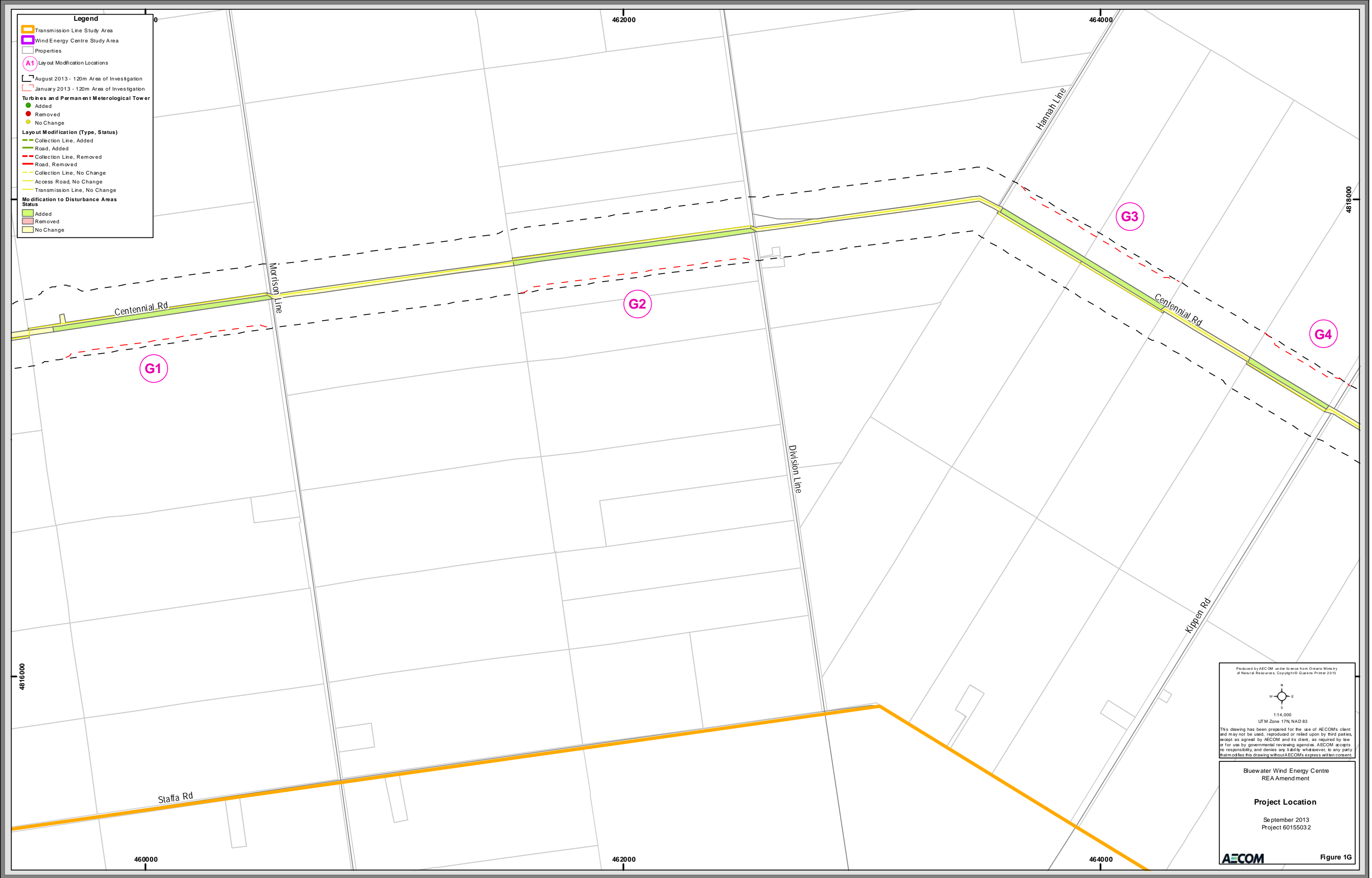
Bluewater Wind Energy Centre  
REA Amendment

**Project Location**

September 2013  
Project 60155032

**AECOM**

Figure 1F



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

Bluewater Wind Energy Centre  
REA Amendment

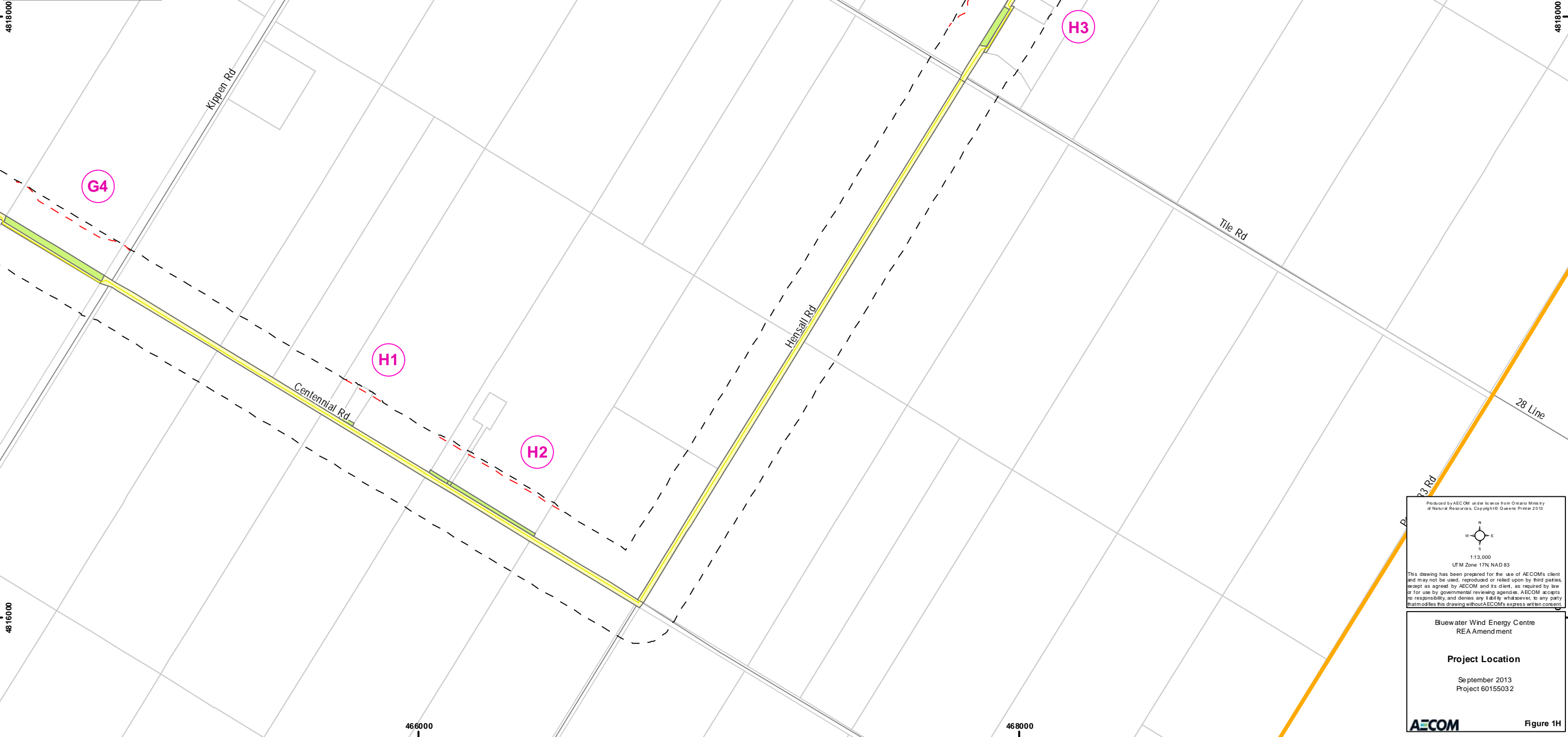
**Project Location**

September 2013  
Project 60155032

**AECOM** **Figure 1G**

**Legend**

-  Transmission Line Study Area
-  Wind Energy Centre Study Area
-  Properties
-  A1 Layout Modification Locations
-  August 2013 - 120m Area of Investigation
-  January 2013 - 120m Area of Investigation
- Turbines and Permanent Meteorological Tower**
-  Added
-  Removed
-  No Change
- Layout Modification (Type, Status)**
-  Collection Line, Added
-  Road, Added
-  Collection Line, Removed
-  Road, Removed
-  Collection Line, No Change
-  Access Road, No Change
-  Transmission Line, No Change
- Modification to Disturbance Areas Status**
-  Added
-  Removed
-  No Change



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Bluewater Wind Energy Centre  
REA Amendment

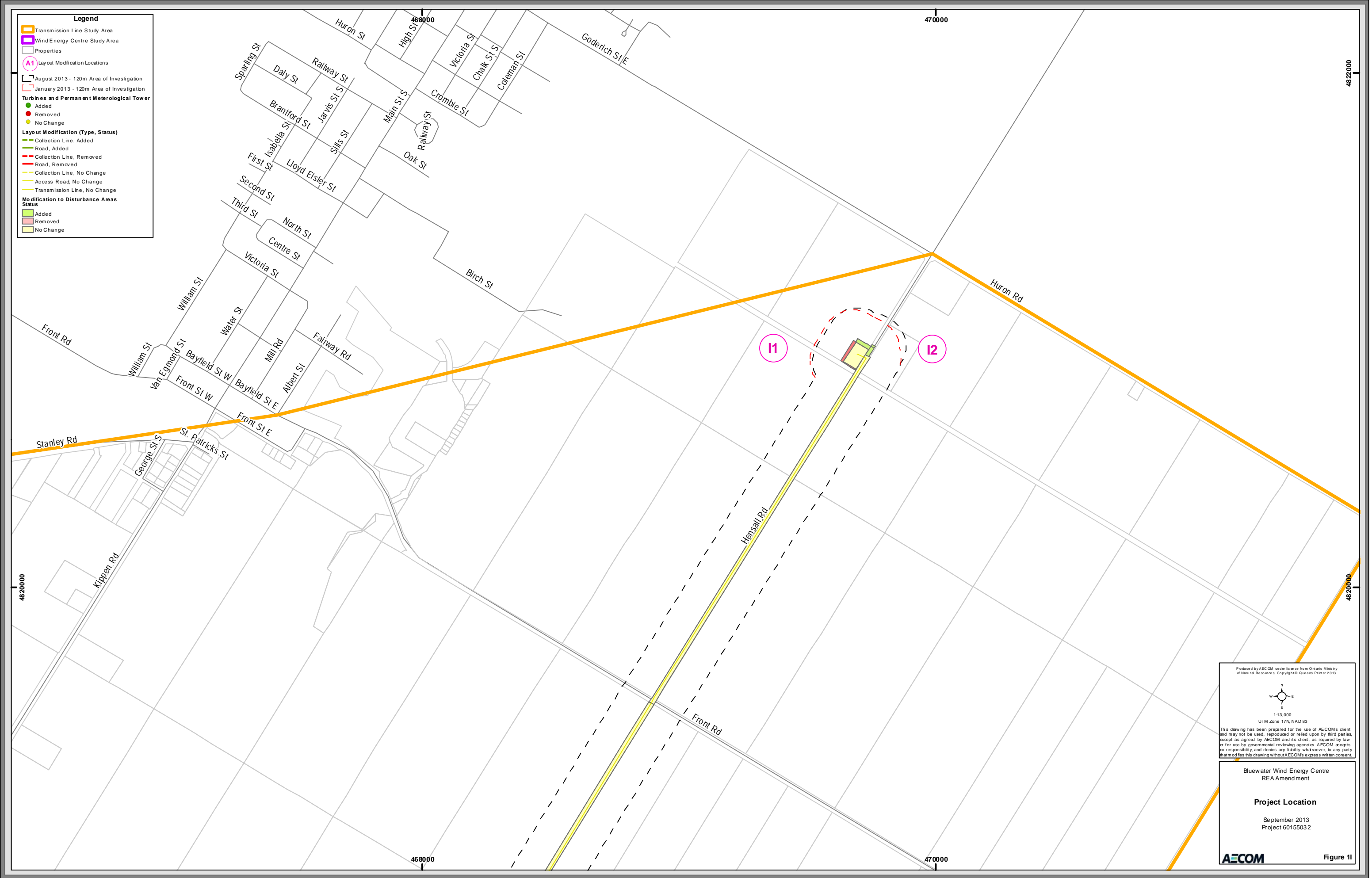
**Project Location**

September 2013  
Project 60155032

**AECOM** **Figure 1H**



- Legend**
- Transmission Line Study Area
  - Wind Energy Centre Study Area
  - Properties
  - A1 Layout Modification Locations
  - August 2013 - 120m Area of Investigation
  - January 2013 - 120m Area of Investigation
  - Turbines and Permanent Meteorological Tower**
  - Added
  - Removed
  - No Change
  - Layout Modification (Type, Status)**
  - Collection Line, Added
  - Road, Added
  - Collection Line, Removed
  - Road, Removed
  - Collection Line, No Change
  - Access Road, No Change
  - Transmission Line, No Change
  - Modification to Disturbance Areas Status**
  - Added
  - Removed
  - No Change



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**Bluewater Wind Energy Centre**  
 REA Amendment

**Project Location**

September 2013  
 Project 60155032

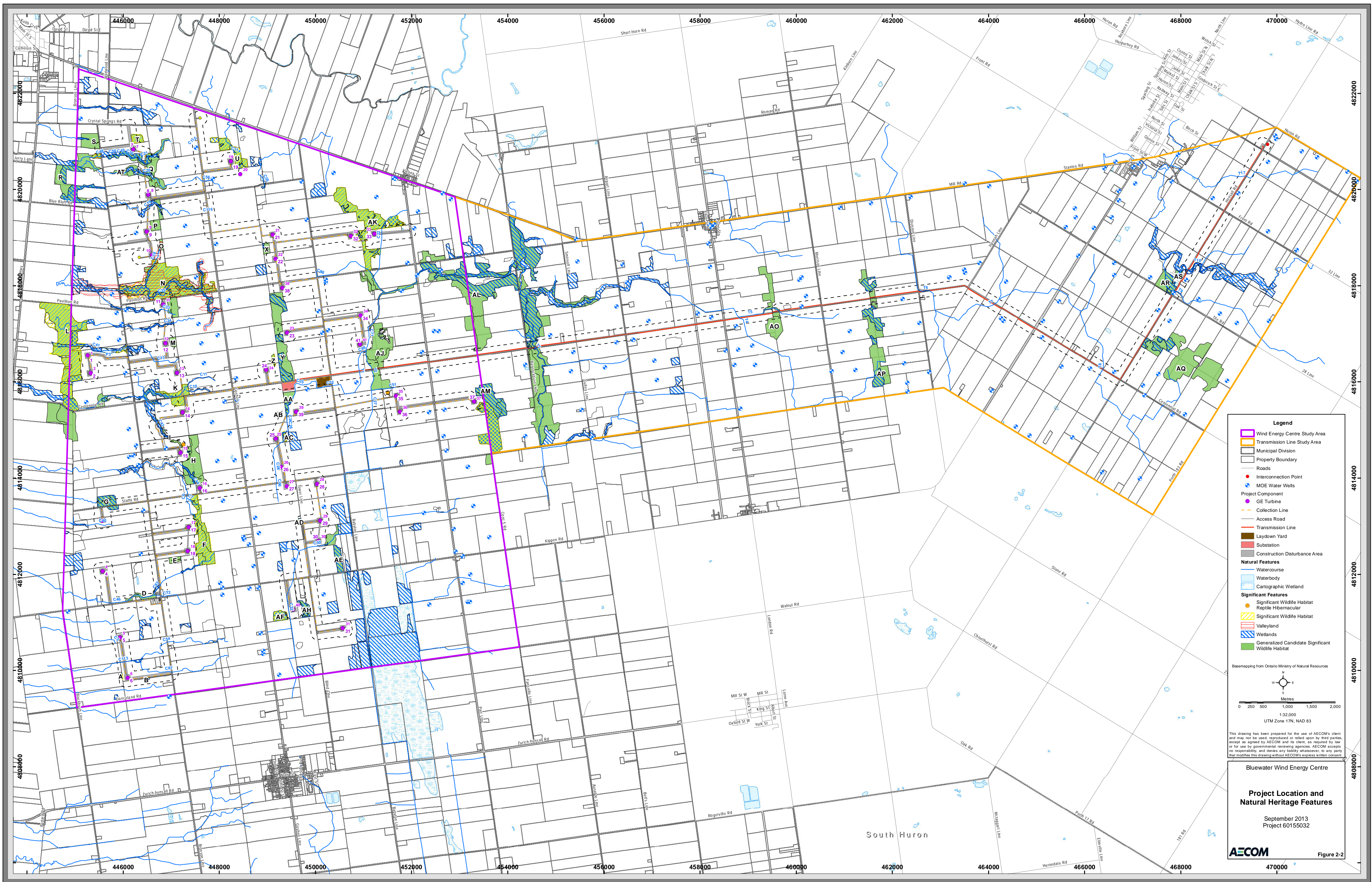
**AECOM**

Figure 11

# Appendix B

Amended Figures for the Design  
and Operations Report





**Legend**

- Wind Energy Centre Study Area
- Transmission Line Study Area
- Municipal Division
- Property Boundary
- Roads
- Interconnection Point
- MOE Water Wells
- Project Component**
- GE Turbine
- Collection Line
- Access Road
- Transmission Line
- Laydown Yard
- Substation
- Construction Disturbance Area
- Natural Features**
- Watercourse
- Waterbody
- Cartographic Wetland
- Significant Features**
- Significant Wildlife Habitat
- Reptile Hibernaculum
- Significant Wildlife Habitat
- Valleyland
- Wetlands
- Generalized Candidate Significant Wildlife Habitat

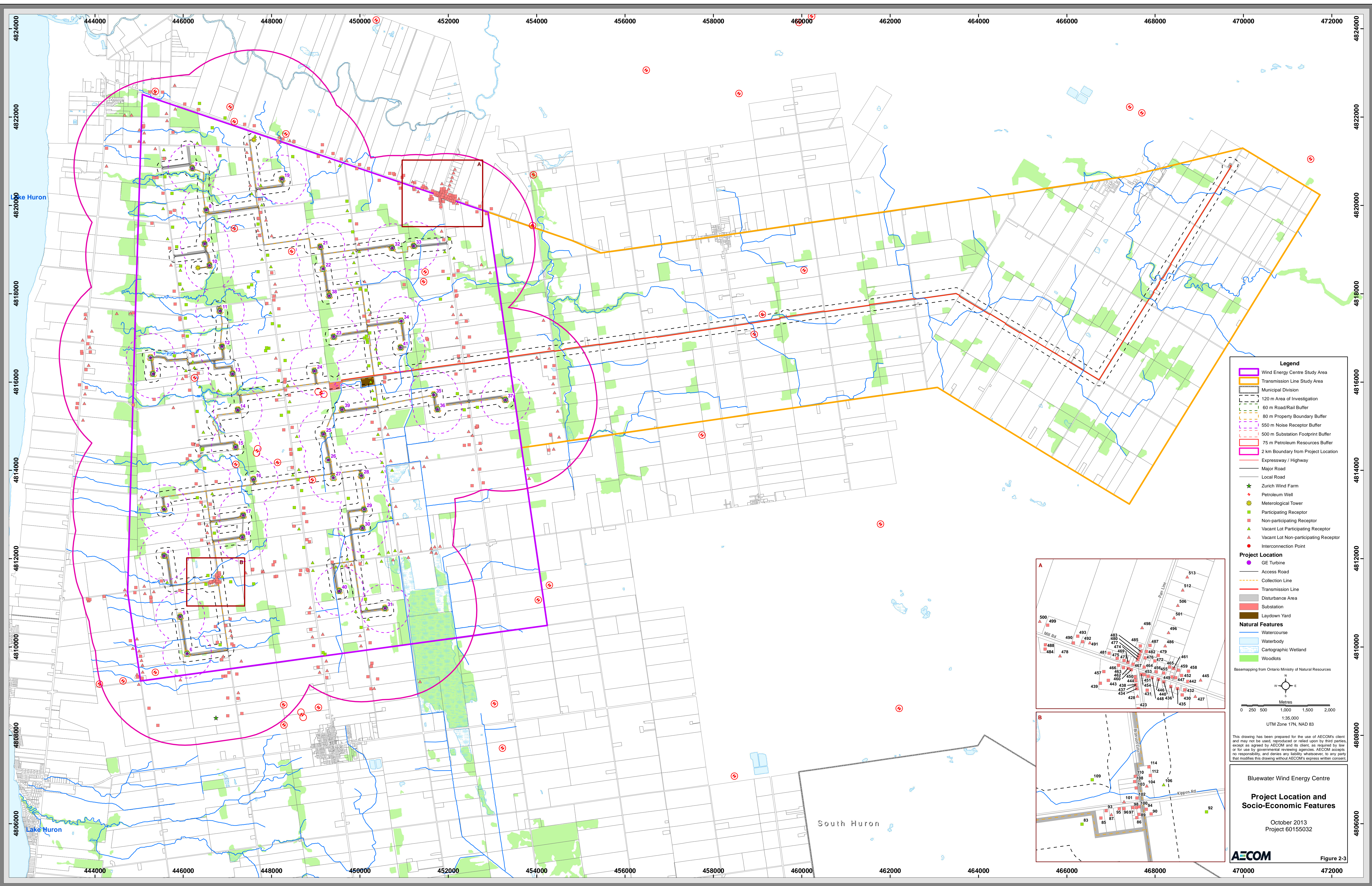
Basemapping from Ontario Ministry of Natural Resources

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**Bluewater Wind Energy Centre**  
**Project Location and Natural Heritage Features**  
 September 2013  
 Project 60155032  
**AECOM** Figure 2-2





- Legend**
- Wind Energy Centre Study Area
  - Transmission Line Study Area
  - Municipal Division
  - 120 m Area of Investigation
  - 60 m Road/Rail Buffer
  - 80 m Property Boundary Buffer
  - 550 m Noise Receptor Buffer
  - 500 m Substation Footprint Buffer
  - 75 m Petroleum Resources Buffer
  - 2 km Boundary from Project Location
  - Expressway / Highway
  - Major Road
  - Local Road
  - ★ Zurich Wind Farm
  - ♦ Petroleum Well
  - ☼ Meteorological Tower
  - Participating Receptor
  - Non-participating Receptor
  - ▲ Vacant Lot Participating Receptor
  - ▲ Vacant Lot Non-participating Receptor
  - Interconnection Point
- Project Location**
- GE Turbine
  - Access Road
  - Collection Line
  - Transmission Line
  - Disturbance Area
  - Substation
  - Laydown Yard
- Natural Features**
- Watercourse
  - Waterbody
  - Cartographic Wetland
  - Woodlots
- Basemapping from Ontario Ministry of Natural Resources

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Bluewater Wind Energy Centre

**Project Location and Socio-Economic Features**

October 2013  
Project 60155032

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