**March 2010** 



# **STAGE 2 ARCHAEOLOGICAL ASSESSMENT**

NextEra Adelaide Wind Farm Various Lots, Concession 1 to 5 N.E.R. and 1 to 4 S.E.R., Geo. Township of Adelaide Middlesex County, Ontario

Submitted to: Mr. Thomas Bird NextEra Energy Canada, ULC 205-5500 North Service Road Burlington, ON L7L 6W6 Tel: (905) 335-4904 Fax: (905) 335-5731

REPORT

PIF Number P001-452-2008, P001-526-2009, and P084-197-2010

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07-1112-0151-1800-R03

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# **Executive Summary**

A Stage 1 archaeological background study was previously conducted on behalf of Air Energy TCI Inc. by Golder Associates Ltd. for a parcel of approximately 8275 hectares in the Township of Adelaide-Metcalfe, Middlesex County, Ontario). The parcel consists of Lots 7 to 19, Concession 1 North of Egremont Road; part of Lot 6 and Lots 7 to 19, Concession 2 North of Egremont Road; Lots 7 to 12, Concessions 3 to 4 North of Egremont Road; part of Lot 7 and Lots 8 to 10, Concession 5 North of Egremont Road; Lots 1 to 19, Concessions 1 to 2 South of Egremont Road; Lots 1 to 18, Concession 3 South of Egremont Road; and Lots 13 to 17, Concession 4 South of Egremont Road. This area will eventually be the site of 40 wind turbines comprising the Adelaide Wind Farm.

The Stage 1 archaeological assessment resulted in the determination that the potential for pre-contact Aboriginal and Euro-Canadian sites was deemed to be moderate to high on these properties. As a result, Stage 2 archaeological assessment was recommended for all areas to be impacted during the construction, operation, and decommissioning phases of the proposed wind farm.

The Stage 2 assessment was undertaken in order to meet the requirements of an environmental assessment conducted under the Renewable Energy Approval (REA) process, as outlined in Ontario Regulation 359/09 section 22(3), on behalf of Air Energy TCI Inc. and NextEra Energy Canada, ULC. The Stage 2 assessment focused upon the proposed wind turbine layout, including turbine sites, collector cable routes, access roads, and the substation. The Stage 2 assessment of ploughed fields was conducted by the standard pedestrian survey method at an interval of five metres.

The Stage 2 assessment resulted in the documentation of 13 archaeological locations. Nine of these locations consist of pre-contact Aboriginal sites and four locations are historic Euro-Canadian sites. Given that Locations 2, 3, and 7 are spatially discrete areas producing pre-contact Aboriginal artifacts; Locations 5 and 11 are spatially discrete areas producing mid-to-late 19<sup>th</sup> century historic Euro-Canadian cultural material; and Location 9 is a spatially discrete area producing early-to-late 19<sup>th</sup> century historic Euro-Canadian cultural material, it is recommended that these sites be subject to a Stage 3 archaeological investigation to further evaluate their cultural heritage value or interest.

The Ontario Ministry of Tourism and Culture is asked to review the results presented and to accept this report into the Provincial Register of archaeological reports. Additional archaeological assessment is still required; hence the archaeological sites recommended for further archaeological fieldwork remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed, except by a person holding an archaeological licence.

The Executive Summary highlights key points from the report only; for complete information and findings, as well as the limitations, the reader should examine the complete report.





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APPENDIX D Aboriginal Engagement





**APPENDIX E** Archaeological Site Record Forms





# Acknowledgments

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## 1.0 INTRODUCTION

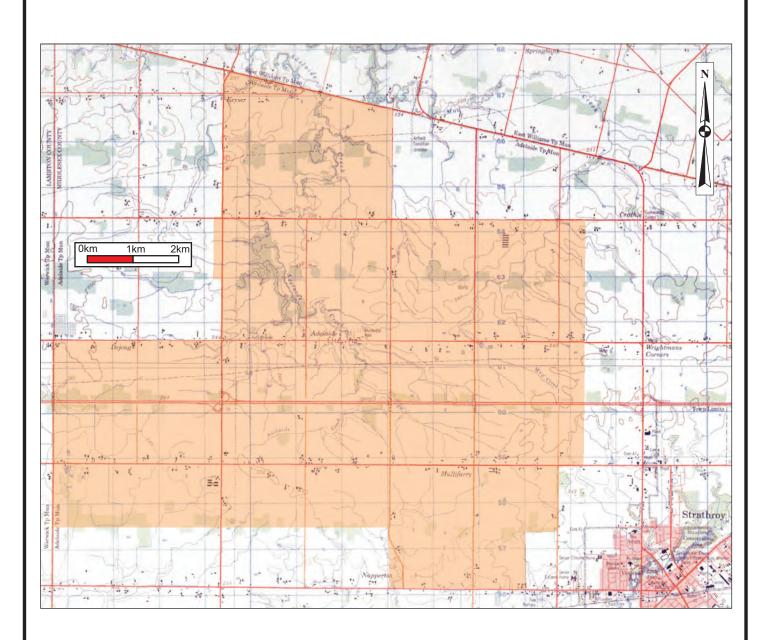
A Stage 1 archaeological background study was previously conducted on behalf of Air Energy TCI Inc. by Golder Associates Ltd. (Golder) for a parcel of approximately 8275 hectares in the Township of Adelaide-Metcalfe, Middlesex County, Ontario (Figure 1). The parcel consists of Lots 7 to 19, Concession 1 North of Egremont Road; part of Lot 6 and Lots 7 to 19, Concession 2 North of Egremont Road; Lots 7 to 12, Concessions 3 to 4 North of Egremont Road; part of Lot 7 and Lots 8 to 10, Concession 5 North of Egremont Road; Lots 1 to 19, Concessions 1 to 2 South of Egremont Road; Lots 1 to 18, Concession 3 South of Egremont Road; and Lots 13 to 17, Concession 4 South of Egremont Road. This area will eventually be the site of 40 wind turbines comprising the Adelaide Wind Farm.

The Stage 1 assessment was conducted on September 4<sup>th</sup>, 2008 under archaeological consulting licence P001, issued to Jim Wilson, M.A., by the Ontario Ministry of Tourism and Culture (Golder 2009). The Stage 1 archaeological assessment resulted in the determination that the potential for pre-contact Aboriginal and Euro-Canadian sites was deemed to be moderate to high on these properties. As a result, Stage 2 archaeological assessment was recommended for all areas to be impacted during the construction, operation, and decommissioning phases of the proposed wind farm.

The Stage 2 assessment was conducted from September 5<sup>th</sup>, 2008 to December 19<sup>th</sup>, 2009 under archaeological consulting licence P001, issued to Jim Wilson, M.A., by the Ontario Ministry of Tourism and Culture and from March 24<sup>th</sup>, 2010 to March 29<sup>th</sup>, 2010 under archaeological consulting licence P084, issued to Adam Hossack by the Ontario Ministry of Tourism and Culture. This assessment was undertaken in order to meet the requirements of an environmental assessment conducted under the Renewable Energy Approval (REA) process, as outlined in Ontario Regulation 359/09 section 22(3). The Stage 2 assessment focused upon the proposed wind turbine layout, including turbine sites, collector cable routes, access roads, and the substation (Figure 2). The Stage 2 assessment of ploughed fields was conducted by the standard pedestrian survey method at an interval of five metres.

The Stage 2 assessment has been completed and has resulted in the documentation of 13 archaeological locations. Nine locations are pre-contact Aboriginal sites of which three require further Stage 3 assessment and four locations are historic Euro-Canadian sites of which three require further Stage 3 assessment. Given that Locations 2, 3, and 7 are spatially discrete areas producing pre-contact Aboriginal artifacts; Locations 5 and 11 are spatially discrete areas producing mid-to-late 19<sup>th</sup> century historic Euro-Canadian cultural material; and Location 9 is a spatially discrete area producing early-to-late 19<sup>th</sup> century historic Euro-Canadian cultural material; and material, it is recommended that these sites be subject to a Stage 3 archaeological investigation to further evaluate their cultural heritage value or interest.

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#### LEGEND

Study Area

#### REFERENCE

DRAWING BASED ON

Government of Canada

- 1994a *Topographic Map Sheet 40 I/13: Strathroy* (Edition 6). Centre for Topographic Information, Natural Resources Canada, Ottawa.
- 1994b *Topographic Map Sheet 40 P/4: Parkhill* (Edition 7). Centre for Topographic Information, Natural Resources Canada, Ottawa.

#### NOTES

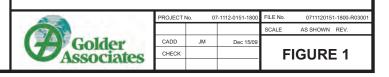
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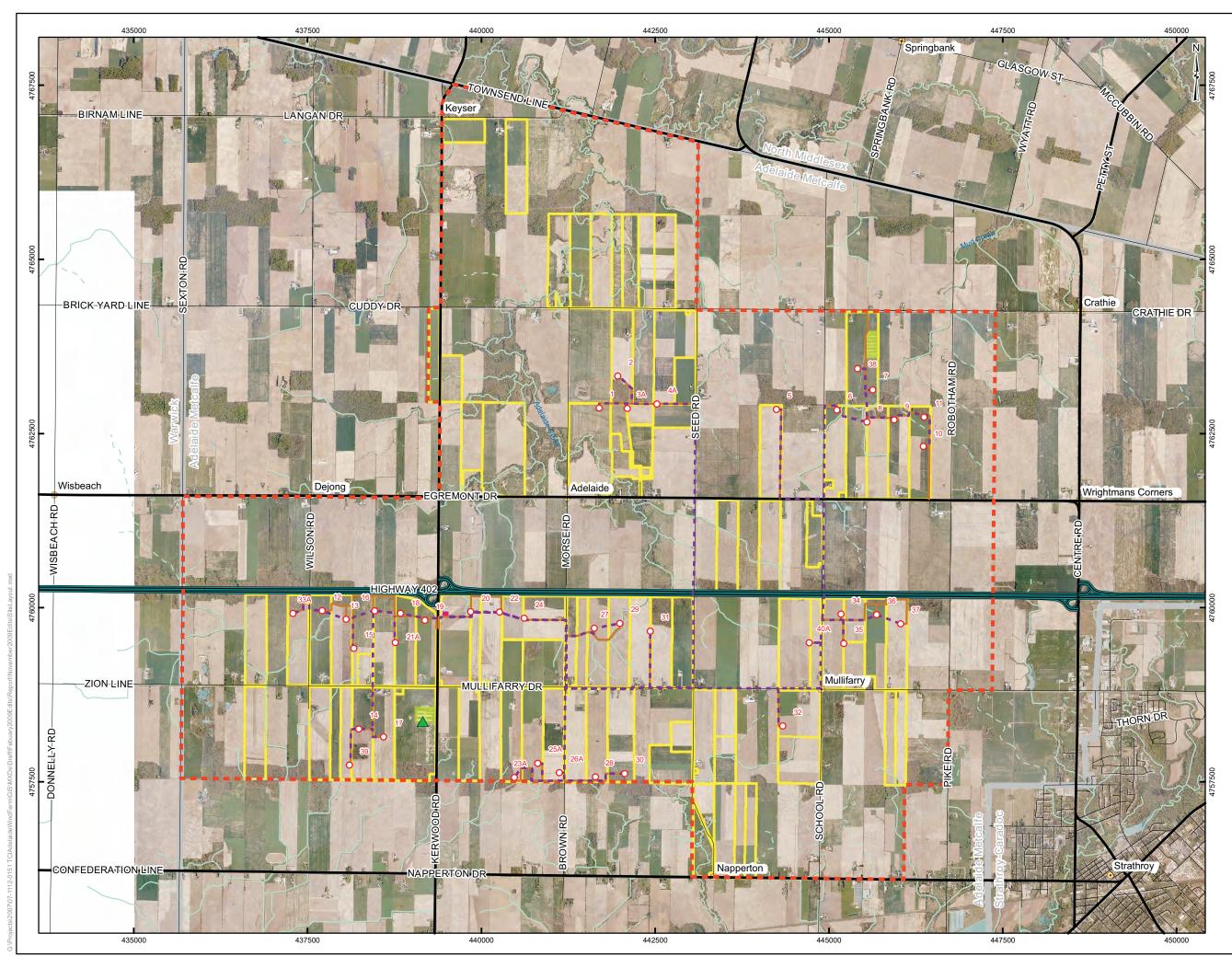
ALL LOCATIONS ARE APPROXIMATE.

### PROJECT Stage 2 Archaeological Assessment NextEra Adelaide Wind Farm Geo. Twp. of Adelaide, Middlesex County, Ontario

TITLE

### Location of the Study Area





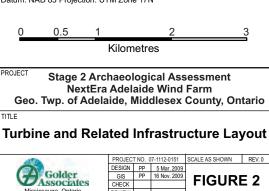
### LEGEND

- Turbine Layout 38
- ▲ Permanent MET Mast
- -- Collector Cable
- Access Road
- Substation
- Site Study Area
- Expressway
- Major Road
- Local Road
- Watercourse, Permanent
- -- Watercourse, Intermittent
- Proposed Laydown / Staging Area
- Optioned Lots
- Municipal Boundary
- Waterbody, Permanent
- Wetland, Permanent



### REFERENCE

Base Data - MNR NRVIS, obtained 2004, CANMAP v2006.4 Produced by Golder Associates Ltd under licence from Ontario Ministry of Natural Resources, © Queens Printer 2009 Air Photo - Spring 2006 First Base Solutions. Datum: NAD 83 Projection: UTM Zone 17N





## 2.0 SUMMARY OF STAGE 1 ARCHAEOLOGICAL INVESTIGATIONS

A Stage 1 archaeological assessment of the study area was conducted by Archaeologix Inc., now merged with Golder, in early September 2008 (Golder 2009). The following is a summary of the Stage 1 results.

## 2.1 Natural Environment

The study area is part of the southwestern end of the Horseshoe Moraines (Chapman and Putnam 1984: 127-129), specifically the tail end of the Seaforth Moraine (Hagerty and Kingston 1992: 11). The study area has two major soil types present: the Huron series and the Brantford series. Both soil series are silty clay loams and range from moderately well drained to imperfectly drained in the study area. Six other minor concentrations of identifiable soil series include the well to imperfectly drained Bennington silt loam, the well to imperfectly drained Brant silty loam, the rapid to imperfectly drained Caledon sand loam, the moderately well to imperfectly drained Melbourne silty clay loam, the poorly drained Waterin loamy fine sand, and the well to imperfectly drained Wattford fine sandy loam. The area's topography is nearly level with only some areas of gentle sloping which can contribute to the soils' drainage characteristics as noted here. Most of these soil classes would have been suitable for pre-contact Aboriginal agriculture given their modern agricultural capability ratings (Hagerty and Kingston 1992: 74-96) although they would not be the highest yielding soil types available in Middlesex County. There are potable water sources within the study area, including numerous small streams, especially Adelaide Creek in the western portion and Mud Creek in the eastern portion. The original survey of Egremont Road (Carroll 1831a) also noted areas of swamp along its route.

## 2.2 **Previously Known Archaeological Resources and Surveys**

Previous archaeological assessments and research surveys in Middlesex County have demonstrated that the area was intensively utilized by pre-contact Aboriginal peoples. However, only one site has been discovered within the study area, in the southeast corner (Government of Ontario n.d.). The Armbro site (AfHj-107) was a 10 by 15 metre lithic scatter found by Jacqueline Fisher in 2000. It contained a drill and a lithic debitage scatter but no diagnostic artifacts and therefore can only be interpreted as an undateable pre-contact Aboriginal site.

## 2.3 Historic Research

The potential wind turbine tower sites are situated within the Geographic Township of Adelaide in Middlesex County, on properties that have been occupied by settlers since the late eighteenth century. The area first enters the Euro-Canadian historic record as part of Treaty Numbers 21 and 27<sup>1</sup>/<sub>2</sub> made between the First Nation inhabitants of the area and the British (Morris 1943: 25-27).





The first Euro-Canadian settlement of the area began in the 1830's after Egremont Road was laid through the study area in 1831 by the Deputy Surveyor Peter Carroll (Carroll 1831a, Carroll 1831b). This survey lay in the route of Egremont Road along with "three tiers of lots on either side" (Nielsen 1993: 6). He then finished the remainder of the survey of the township in 1832 (Nielsen 1993: 8).

Close examination of the study area as depicted on the original township map, made by Peter Carroll in Oxford County on December 29, 1831, does not reveal any squatters recorded from before 1831 or any notable First Nations activity in the area.

Two later maps from the 19<sup>th</sup> century record the Euro-Canadian settlers and illustrate the growth in the study area: the 1862 Tremaine Map (Tremaine 1862) and the 1878 H.R. Page and Company Historical Atlas Map (H.R. Page 1878). The Tremaine Map provides the names of all of the landowners but only illustrates a select number of structures on the properties. However, the later Historical Atlas Map (Figure 3) not only provides the names of the landowners but also the structures on the majority of the properties. Besides houses, the structures noted include brickyards, cemeteries, churches, hotels, manufactories, mills, and schools. Even though locations are only approximate on these maps, they do give an idea of potential for significant archaeological historic remains that could be impacted within the study area. Typically these locations no longer exhibit any visible evidence of their former structure and if they are to be impacted by a wind turbine placement the location would need to be archaeologically assessed to see if there are any archaeological remains. A number of potentially archaeological assessment (Golder 2009). In addition, four other communities with potential archaeological resources were identified in the Stage 1 archaeological seessment: Adelaide, Keyser, Mullifarry, and Napperton.

## 2.4 Archaeological Potential

As reviewed in detail in the Stage 1 archaeological assessment (Golder 2009), the archaeological potential for pre-contact Aboriginal sites within the study area was deemed to be moderate to high. This judgement is due to the presence of water sources, the level land without areas of steep slope, the moderately drained silty clay loam soils, and the known archaeological site within the study area. Similarly, the archaeological potential for historic Euro-Canadian sites was judged to be moderate to high. The area has been the location of generalized farming in the past and is still used in that fashion today. There is evidence of Euro-Canadian settlement extending back to the early 19<sup>th</sup> century during the initial settlement of Adelaide Township. The 19<sup>th</sup> century road grid is still in use which includes the major transportation route of Egremont Road. In addition, four small communities that have decreased in size since the 19<sup>th</sup> century might have left behind significant archaeological remains.

## 2.5 Stage 1 Recommendations

The Stage 1 archaeological assessment resulted in the determination that the potential for pre-contact Aboriginal and Euro-Canadian sites was deemed to be moderate to high on these properties. As a result, Stage 2 archaeological assessment was recommended for all areas to be impacted during the construction, operation, and decommissioning phases of the proposed wind farm.



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#### LEGEND

Study Area

#### REFERENCE

DRAWING BASED ON

H.R. Page and Company

1878 Illustrated Historical Atlas of the County of Middlesex. 1972 reprint. Edward Phelps, Sarnia.

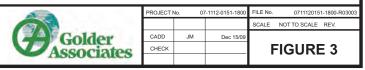
#### NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

## PROJECT Stage 2 Archaeological Assessment NextEra Adelaide Wind Farm Geo. Twp. of Adelaide, Middlesex County, Ontario

A Portion of the Historic Map of the Township of Adelaide in the 1878 *Illustrated Historical Atlas of the County of Middlesex* 





## 3.0 STAGE 2 STUDY METHODS AND RESULTS

## 3.1 Stage 2 Field Assessment Methods

The study area encompasses the entire wind farm layout. Only those areas to be affected by the construction, operation, and decommissioning of the wind farm have been assessed archaeologically. Those areas include the turbine locations; the location of the substation; the underground or overhead collector cables running between turbines and the substation; and the access roads between the turbines, the substation, and the existing road grid. In the case of each turbine site, a one hectare block was assessed, centred on the turbine location. In the case of the location of the substation, an area of 200 metres by 200 metres was assessed, centred on the proposed substation location. In the case of the corridor corresponding to the centre line of the collector cable routes, a 20 metre wide corridor with the centre line of the access roads, a 20 metre wide corridor with the centre line of the access roads, a 20 metre wide corridor with the centre line of the access roads assessed.

The Stage 2 assessment of these areas was conducted by pedestrian survey. The Stage 2 assessment of well weathered ploughed fields was conducted by the standard pedestrian survey method at an interval of five metres (Plates 1 through 9). Ground visibility was excellent; the differing weather conditions demonstrate the fact that the fields were surveyed between the fall of 2008 and spring of 2010. In the event that an artifact was encountered during the pedestrian survey, survey intervals were intensified to one metre within a twenty metre radius of the find.

The previously disturbed road right-of-ways where some of the underground and overhead collector cables will run were not assessed archaeologically due to the disturbance when the ditches and road shoulders were constructed (Plates 10 through 15). This includes portions of Egremont Drive (see Appendix A, Key Tile), Highway 402 (see Appendix A, Key Tile and Tile G), Mullifarry Drive (see Appendix A, Key Tile, Tile F and Tile G), Sullivan Road (see Appendix A, Tile C1), Kerwood Road (see Appendix A, Tile C2), Brown Road (see Appendix A, Tile E and Tile F), Seed Road (see Appendix A, Key Tile and Tile A) and School Road (see Appendix A, Key Tile, Tile B and Tile G). Also, a portion of proposed access road south of Highway 402 (see Appendix A, Tile C2) that had been previously impacted and capped with topsoil during the construction of Highway 402 was not assessed due to the recent disturbance (Plate 16). In order to confirm the disturbance in this portion, a number of precautionary test pits were strategically placed along the proposed access road corridor. Each test pit was approximately 30 centimetres in diameter, was dug to subsoil with all soil screened through six millimetre mesh hardware cloth, and was back filled. All test pit fill and profiles exhibited extensive disturbance. Otherwise, all areas that were not disturbed were subject to the Stage 2 archaeological field assessment. Appendix A provides detailed plans of the study area with the methods and results of the Stage 2 field assessment.

The weather during the Stage 2 assessment ranged from sunny and hot to overcast and cold. At no time were the conditions detrimental to the recovery of archaeological material. Field visibility was excellent. Permission to enter the property and remove artifacts was given by Mark Gallagher of Air Energy TCI Inc. and Thomas Bird of NextEra Energy Canada, ULC. All recovered artifacts will be housed at Golder's London office until their transfer to the Ontario Ministry of Tourism and Culture collections facility located at 900 Highbury Avenue, London.



Plate 1: Stage 2 Pedestrian Survey, Field Conditions, Walked at 5 Metre Intervals, Turbine Pad 4A, Facing West



Plate 2: Stage 2 Pedestrian Survey, Field Conditions, Walked at 5 Metre Intervals, Collector Cable to Turbine 5, Facing North







Plate 3: Stage 2 Pedestrian Survey, Field Conditions, Walked at 5 Metre Intervals, Collector Cable Between Turbines 6 and 8, Facing South



Plate 4: Stage 2 Pedestrian Survey, Field Conditions, Walked at 5 Metre Intervals, Collector Cable Between Turbines 9 and 11, Facing South







Plate 5: Stage 2 Pedestrian Survey, Field Conditions, Walked at 5 Metre Intervals, Turbine Pad 33A, Facing South



Plate 6: Stage 2 Pedestrian Survey, Field Conditions, Walked at 5 Metre Intervals, Substation, Facing South



