

Stantec

AMHERST ISLAND WIND ENERGY PROJECT

NATURAL HERITAGE ASSESSMENT & ENVIRONMENTAL IMPACT STUDY

Appendix G

Evaluation of Significance Methods

Appendix G: Detailed Survey Methods

Waterfowl Stopover and Staging Areas (Terrestrial and Aquatic)

To understand whether waterfowl use the candidate habitats in or within 120 m of the Project Location as migratory stopover areas for resting and feeding surveys were conducted in spring and fall 2011. Survey dates, times and weather conditions are summarized in **Table 4B, Appendix B**. Spring surveys began on March 24, 2011, ending on May 25, 2011, with a total of 10 surveys. Fall surveys began on September 1, 2011, ending on December 21, 2011, with a total of 19 surveys.

Driving transects involved driving the main roads within the Study Area during the day at slow speeds (i.e., 30-40km/h) to achieve maximum coverage of the site. The fields and woodlands were scanned using binoculars to detect birds. A spotting scope was used for closer inspection of stationary birds where suitable, candidate habitat occurred. Point counts involved 10-minute counts, identifying waterfowl to species, at flooded areas during migration, identified as candidate waterfowl stopover and staging areas.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), location, species observed, total number of individuals of each species, and behaviour. Birds documented as flyovers or otherwise not using the habitat as a feeding or roosting habitat were clearly indicated at the time of observation.

Raptor Winter Feeding and Roosting Areas

To characterize the diversity and abundance of raptors that were using the Amherst Island Study Area driving surveys were conducted. Ten driving winter raptor surveys were completed between November 9, 2011 and March 7, 2012. Survey dates, times and weather conditions are summarized in **Table 4B, Appendix B**. Each survey involved driving the main roads within the Study Area during the day at slow speeds (i.e., 30-40km/h) to achieve maximum coverage of the site. The fields and woodlands were scanned using binoculars to detect birds. A spotting scope was used for closer inspection of stationary birds.

In addition to driving surveys, walking transect surveys were conducted in the specific feature identified as candidate significant wildlife habitat for a winter raptor feeding and roosting area (i.e. open habitat with winter cover 20 ha or greater in proximity to woodlots)., in proximity to project components. Walking transect surveys occurred approximately twice weekly between November 9, 2011 and March 7, 2012. Two surveyors traversed through the open field in transects spaced approximately 250 m apart. Significant effort was also expended searching conifer trees found in the adjacent densely-treed area for roosting owls such as Northern Saw-whet Owls or Long-eared Owls.

Survey dates, times and weather conditions are summarized in **Table 4B, Appendix B**. All raptor and owl observations were recorded on a field map of the candidate habitat, as well as the appropriate field data form.

Observers recorded the following information: date, names of observers, time (start and end for each transect), duration of time it took to walk the transects, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), location, species observed, total number of individuals of each species, behavior, and height. Birds documented as flyovers or otherwise not using the woodland as a roosting habitat were clearly indicated at the time of observation.

Shorebird Migratory Stopover Area

To understand whether shorebirds use the candidate habitats in or within 120 m of the Project Location as migratory stopover areas for resting and feeding, surveys were conducted in spring 2011. Survey dates, times and weather conditions are summarized in **Table 4B, Appendix B**. Spring surveys began on May 3, 2011, ending on May 26, 2011, with a total of 6 surveys.

Driving transects involved driving the main roads within the Study Area during the day at slow speeds (i.e., 30-40km/h) to achieve maximum coverage of the site. Where suitable, candidate habitat occurred, the fields and shorelines were scanned using binoculars to detect birds. A spotting scope was used for closer inspection of stationary birds. Point counts involved 10-minute counts, identifying shorebirds to species, at flooded areas during migration, identified as candidate waterfowl stopover and staging areas.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), location, species observed, total number of individuals of each species, and behaviour. Birds documented as flyovers or otherwise not using the habitat as a feeding or roosting habitat were clearly indicated at the time of observation.

Landbird Migratory Stopover Areas

The candidate woodlots were surveyed weekly for 8 weeks in the spring and 7 weeks in the fall of 2011. The surveys were carried out between April 27-May 26 and September 1-October 21, 2011. Visits began approximately at sunrise and extended no more than 4 hours after sunrise. Severe weather events were avoided, which include high winds and/or heavy precipitation, to minimize any survey bias associated with variability in weather conditions. Survey dates, times, weather conditions and personnel are summarized in **Table 4B, Appendix B**.

Routes were chosen that corresponded to the major habitats likely to be utilized by migratory songbirds and consisted of 500m transects.

Survey methods consisted of slowly walking linear transects through and along the edges of the habitat. The pre-selected transect routes are shown on the maps associated with the field notes in **Appendix C**. The transect routes were flagged and delineated in the field using handheld GPS units.

Observers recorded the following information: date, names of observers, time (start and end for each transect), duration of time it took to walk the transect, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), GPS track of each transect, species

observed, total number of individuals of each species, behavior (foraging, mobbing, migration, flying, perching, perched on ground, swimming), and height category (using woodlot or fly-over). Although these surveys targeted landbirds, all bird observations were recorded. All birds documented as flyovers or otherwise not using the woodland as a stopover habitat were clearly indicated at the time of observation.

Migratory Butterfly Stopover Areas

Presence of butterflies was recorded during all field surveys conducted during the fall migration period for butterflies, with targeted surveys conducted in conjunction with swallow migration surveys in the fall 2011. A total of 9 dates were surveyed through September 2011 with two surveyors present onsite. Survey dates, times and weather conditions are summarized in **Table 4B, Appendix B**.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), species observed, total number of individuals of each species, location/habitat description, and behavior (roosting, feeding).

Migratory Swallow Surveys

The candidate open country habitats were surveyed between July 8 and September 2, 2011, for a total of 9 surveys. Visits were conducted in the afternoons when swallows were foraging and feeding. Severe weather events were avoided, which include high winds and/or heavy precipitation, to minimize any survey bias associated with variability in weather conditions. Survey dates, times, weather conditions and personnel are summarized in **Table 4B, Appendix B**.

Surveys involved driving the main roads within the Study Area during the day at slow speeds (i.e., 30-40km/h) to achieve maximum coverage of the site. The fields and woodlands were scanned using binoculars to detect birds. A spotting scope was used for closer inspection of stationary birds. Point counts involved 10-minute counts, identifying swallows to species, in open country habitats during migration, identified as candidate swallow staging areas.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), location, species observed, total number of individuals of each species, and behaviour. Birds documented as flyovers or otherwise not using the habitat as a feeding or roosting habitat were clearly indicated at the time of observation.

Waterfowl Nesting Area

To understand whether waterfowl use the candidate habitats in or within 120 m of the Project Location as nesting areas during breeding season, surveys were conducted in spring/summer 2011 – included in the breeding bird surveys indicated in the survey dates, times and weather conditions summarized in **Table 4B, Appendix B**. Spring surveys in these candidate habitats occurred in early June.

Surveys were comprised of area searches through the Study Area. Surveys began at, or within, half an hour of sunrise and were completed by 10:00 a.m. Weather conditions (i.e., precipitation and visibility) were within the parameters required by monitoring programs such as Environment Canada's Breeding Bird Survey or the Ontario Forest Bird Monitoring Program, and are provided in **Table 4B, Appendix B**.

Area searches were conducted in candidate habitat to identify as many breeding bird species as possible that were utilizing the Study Area. All species observed were recorded along with which habitat type(s) the species was observed in as well as the level of breeding evidence detected.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), location, species observed, total number of individuals of each species, and behaviour.

Bald Eagle Nesting Habitat

Candidate Bald Eagle nesting habitat was identified in two woodlands on Amherst Island by the St. Lawrence Bald Eagle Working Group in the document, *Conserving Lake Ontario and Upper St. Lawrence Bald Eagle Habitats* (2008). These two woodlands were searched during Ecological Land Classification (ELC) surveys for stick nests which would indicate nesting Bald Eagles, as well as any observations of Bald Eagles were recorded during all surveys, including breeding bird surveys in these woodlands.

Breeding bird surveys were conducted in these candidate habitats on May 30-31, June 2, June 3, June 5, June 14-17, June 27, June 29-30, July 2-3, and July 7, for a total of 15 surveys. Breeding bird surveys followed the following methods. Surveys were comprised of area searches through the Study Area. Surveys began at, or within, half an hour of sunrise and were completed by 10:00 a.m. Weather conditions (i.e., precipitation and visibility) were within the parameters required by monitoring programs such as Environment Canada's Breeding Bird Survey or the Ontario Forest Bird Monitoring Program, and are provided in **Table 4B, Appendix B**.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), GPS track of each transect, species observed, total number of individuals of each species, and behaviour. Although these surveys targeted breeding birds, all bird observations were recorded. All birds documented as flyovers or otherwise not using the habitat as a nesting habitat were clearly indicated at the time of observation.

Woodland Raptor Nesting Habitat

During site investigation, two woodlands were identified that contain the amount of interior habitat required for woodland raptor nesting. These two woodlands were searched during ELC surveys for stick nests which would indicate nesting woodland raptors, as well as any observations of woodland raptors were recorded during all surveys, including breeding bird surveys in these woodlands.

Breeding bird surveys were conducted in these candidate habitats on May 31, June 2-3, June 5, June 7-9, June 14, June 16-17, June 20, June 22-23, June 29, July 2-3, July 7-8, and July 10 for a total of 19 surveys. Breeding bird surveys followed the following methods. Surveys were comprised of point counts and were augmented by area searches through the Study Area. Surveys began at, or within, half an hour of sunrise and were completed by 10:00 a.m. Weather conditions (i.e., precipitation and visibility) were within the parameters required by monitoring programs such as Environment Canada's Breeding Bird Survey or the Ontario Forest Bird Monitoring Program, and are provided in **Table 4B, Appendix B**.

Point counts were conducted in compliance with Environment Canada's "Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds" (Environment Canada 2007b). Ten minute point counts were conducted twice at each station, in early June and late June. Bird observations were recorded at four distance regimes, within a 50 m radius, 50 to 100 m, outside the 100 m radius, or flyovers. For each point count, a record was made of the start time and a hand held GPS unit was used to georeference its location. A brief description of the habitat was made for each point count. To standardize the data, densities per 10 ha were calculated for each point count.

Area searches were conducted to identify as many breeding bird species as possible that were utilizing the Study Area. All main habitat types found within 120 m of the Project Location were traversed on foot during each visit. All species observed were recorded along with which habitat type(s) the species was observed in as well as the level of breeding evidence detected.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), location, species observed, total number of individuals of each species, and behaviour. Although these surveys targeted breeding raptors, all bird observations were recorded. All birds documented as flyovers or otherwise not using the habitat as a nesting habitat were clearly indicated at the time of observation.

Amphibian Breeding Habitat (Woodland and Wetland)

Amphibian call count surveys were conducted between April 19, 2011 and June 19, 2011 over a total of 7 survey dates. A total of 24 stations within the Study Area were surveyed, although not all stations were located in the Zone of Investigation for the Project. One survey was conducted in each of April, May, and June 2011 at most stations. Survey dates, times, weather conditions and field personnel are summarized in **Table 4B, Appendix B**. Calling amphibian surveys followed the protocols identified in the Marsh Monitoring Program Manual (Bird Studies Canada, 1994) and the Amphibian Road Call-Counts Participants Manual (Environment Canada, 1997). Surveys were conducted between one-half hour after sunset and midnight.

The protocol involved the surveyor standing at each selected station and listening for three minutes. Amphibians were recorded to be within each surveyed station if they were within 100 metres of the surveyor. Consistent with the Marsh Monitoring Program protocol, all calling activity was ranked using one of the following three abundance code categories: (1) calls not simultaneous – number of individuals can be accurately counted; (2) some calls simultaneous –

number of individuals can be reliably estimated; and (3) full chorus – calls continuous and overlapping, so number of individuals cannot be reliably estimated.

In addition, visual inspections of all areas containing standing water that occurred in and within 120 m of the Project Location were conducted; estimated size and depth of aquatic habitat, presence of egg masses or tadpoles and amphibian presence were recorded from April to June 2011.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), GPS point of each survey, species observed, total number of individuals of each species, and direction. Although these surveys targeted amphibians, all wildlife observations were recorded.

Breeding Bird Habitat

Breeding bird surveys were conducted in all habitat types, and encompassed a variety of candidate significant wildlife habitats for birds, including: open country breeding birds, marsh breeding birds, shrub/early successional breeding birds, and area-sensitive woodland breeding birds. Also included were targeted surveys for Short-eared Owl.

Three rounds of surveys for breeding birds were conducted in woodland, shrub, marsh and grassland habitats. These surveys were conducted between May 30 and July 12, 2011, for a total of 44 survey dates. A total of 64 point count locations were surveyed over these dates.

Surveys were comprised of point counts and were augmented by area searches through the Study Area. Surveys began at, or within, half an hour of sunrise and were completed by 10:00 a.m. Weather conditions (i.e., precipitation and visibility) were within the parameters required by monitoring programs such as Environment Canada's Breeding Bird Survey or the Ontario Forest Bird Monitoring Program, and are provided in **Table 4B, Appendix B**.

Point counts were conducted in compliance with Environment Canada's "Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds" (Environment Canada 2007b). Ten minute point counts were conducted twice at each station, in early June and late June. Bird observations were recorded at four distance regimes, within a 50 m radius, 50 to 100 m, outside the 100 m radius, or flyovers. For each point count, a record was made of the start time and a hand held GPS unit was used to georeference its location. A brief description of the habitat was made for each point count. To standardize the data, densities per 10 ha were calculated for each point count.

Area searches were conducted to identify as many breeding bird species as possible that were utilizing the Study Area. All main habitat types found within 120 m of the Project Location were traversed on foot during each visit. All species observed were recorded along with which habitat type(s) the species was observed in as well as the level of breeding evidence detected.

Observers recorded the following information: date, names of observers, time, weather conditions (temperature, % cloud cover, Beaufort wind scale, visibility, precipitation), location, species observed, total number of individuals of each species, and behaviour. Although these

surveys targeted breeding birds, all bird observations were recorded. All birds documented as flyovers or otherwise not using the habitat as a nesting habitat were clearly indicated at the time of observation.

Presence of breeding Short-eared Owls was assessed during the early morning grassland breeding bird surveys (described above). In Stantec's experience, early morning surveys in June (when owls are more actively hunting to feed their young) are very effective at detecting this species. However, to provide additional opportunity of detecting this species, dusk surveys were also conducted. Monitoring stations were established in suitable candidate habitat in proximity to proposed project components. Each monitoring stations was surveyed in in each of May, early June and later June, 2011. Surveys consisted of 20 minute point counts to detect Short-eared Owls by sight or by call. Location, behaviour (i.e. perched, flying, hunting), age (adult or juvenile) and height were noted for each Short-eared Owl observation.



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Ontario Ministry of Natural Resources
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Attention: Mr. Eric Prevost, Southern Region Renewable Energy Coordinator

Mr. Prevost:

**Reference: Amherst Island Wind Energy Project
Natural Heritage Data Request and Proposed Site Investigation Work Program**

Windlectric Inc. (Windlectric) is proposing to develop, construct, and operate the 56-75 megawatt (MW) Amherst Island Wind Energy Project (referred to herein as "the Project"). The Project was approved under the Feed-in-Tariff (FIT) program, and Windlectric is currently undertaking the Renewable Energy Approval (REA) process according to Ontario Regulation 359/09 of the *Environmental Protection Act*. At this time, there are no known 'triggers' of the *Canadian Environmental Assessment Act*.

The purpose of this letter is to formally request any relevant natural heritage data available for the Study Area of the Project, and to outline our proposed site investigation work program for MNR's review and endorsement.

INTRODUCTION

The Project will be located on Amherst Island and on a portion of land located on the mainland, with the exception of a submarine cable. The Project will be entirely within Loyalist Township in the County of Lennox and Addington in eastern Ontario. It will include the construction and operation of approximately 31-42 wind turbine generators with a total installed name plate capacity of approximately 56-75 MW. The Project will also include electrical collection lines, a submarine cable, an operations and maintenance building, a substation, a transformer station, a meteorological tower (met tower), an access road to the met tower site, and turbine access roads. Temporary components during construction may include a temporary dock, storage and staging areas at the turbine locations, crane pads or mats, staging areas along access roads, delivery truck turnaround areas, central laydown areas, crane paths and associated watercourse crossings.

O. Reg. 359/09 requires that a natural heritage assessment (NHA) be completed for wind power projects. This is comprised of a records review, site investigation, and evaluation of significance of each natural feature identified in the course of the records review and site investigation. This work program is intended to provide a comprehensive overview of all natural heritage requirements under the approval process.

Site investigations based on this work program will be conducted in and within 120 m of the project location for the purpose of determining:

- Whether the results of the records review are correct or require correction;

May 12, 2011

Mr. Eric Prevost, Southern Region Renewable Energy Coordinator

Page 2 of 9

**Reference: Amherst Island Wind Energy Project
Natural Heritage Data Request and Proposed Site Investigation Work Program**

- Whether any additional natural features or water bodies exist, which were not documented in the records review;
- The boundaries, located within 120m of the project location, of any natural feature or water body identified in the records review or site investigation; and,
- The distance from the project location to the boundaries of each natural feature or water body.

DATA REQUEST

Stantec has initiated a records review to identify natural features and potentially present significant wildlife habitat in the vicinity of the project. A draft natural features map is attached, identifying the Study Area. The 'project location' is considered to be the land within the Study Area in which the Project is proposed; at this time, the 'project location' has not been defined.

We would appreciate receiving any available information related to natural features, species at risk, and bat hibernacula for the Study Area. We would also welcome any other relevant data.

BACKGROUND INFORMATION / SITE CONTEXT

The Study Area generally consists of agricultural fields, predominately hay and pasture. Scattered woodland communities occur throughout the Study Area, including areas of green ash swamp and red cedar scrub. Large coastal wetlands occur in the southwestern portion of the Study Area. The Study Area also includes offshore areas adjacent to the island and along the proposed submarine cable route between Amherst Island and the mainland.

A preliminary review of available background information indicates the Study Area contains the following known natural features:

- Provincially significant wetlands (PSWs);
- Unevaluated wetlands;
- Woodlands;
- Provincially significant Life Science Areas of Natural and Scientific Interest (ANSIs);
- Fisheries habitat; and
- Other designated natural features (e.g., Amherst Island Important Bird Area, Owl Woods).

The Loyalist County Official Plan (2010) identifies "Environmental Sensitive Area", which collectively includes natural heritage features (e.g. significant valleylands, significant woodlands, unevaluated wetlands, linkages and corridors). Provincial guidelines of the Natural Heritage Reference Manual (NHRM) (MNR, 2010d) will be used to assess the significance of each of these features independently.

A preliminary assessment was undertaken to identify the potential for features that may be designated as significant wildlife habitat (i.e. seasonal concentration areas, rare vegetation communities or specialized habitats, movement corridors and habitats of species of conservation concern) within the Study Area. Each feature, which background information indicates could reasonably be found in the Study Area, will be assessed through the site investigations and the evaluation of significance, based on criteria as outlined in the Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000).

May 12, 2011

Mr. Eric Prevost, Southern Region Renewable Energy Coordinator

Page 3 of 9

**Reference: Amherst Island Wind Energy Project
Natural Heritage Data Request and Proposed Site Investigation Work Program**

Seasonal Concentration Areas

The Study Area occurs within the Amherst Island Important Bird Area (IBA), which has been designated as globally and continentally significant for congregatory species, including spring and fall staging waterfowl and wintering raptors and owls (IBA Canada, undated). Other records within the IBA include concentrations of staging shorebirds during their spring migration and concentrations of staging landbirds, specifically Tree Swallows, during their late summer migration.

A known area of particularly high landbird concentration is located approximately 18 km southwest of the Study Area, at the Prince Edward Point Bird Observatory, located within the Prince Edward Point Important Bird Area. Unpublished radar studies and area searches for spring and fall migrants conducted within the south shore of Prince Edward County indicate that passerine migrants use forested landscapes along the Lake Ontario shoreline in south Prince Edward County. Recent radar studies in the Great Lakes Basin showed that migrants select forested areas in close proximity to water (Bonter *et al.*, 2008). Similarly, Ewart *et al.* (2006) research along Lake Erie found that landbirds may be particularly concentrated in riparian woodland located within 0.4 km of the lakeshore. Given Amherst Island's location along Lake Ontario's northern shoreline and its proximity to a known landbird concentration area, features on the island have the potential to support concentrations of landbirds during spring and fall migration. Site investigations will assess the significance of features in the Study Area for staging landbirds.

The potential for the Study Area to be considered significant wildlife habitat based on concentrations of migratory raptors, vultures and eagles (including Golden Eagles), will be assessed during site investigations (fall raptor migration surveys). In addition, the site investigation will assess the potential for significant migratory butterfly stopover areas.

There are records of Eastern Milksnake (species of special concern), as well as other common snakes from the Study Area. Potential reptile hibernacula features will be identified during site investigations.

No known bat hibernacula have been identified within the Study Area (Renewable Energy Atlas, 2011). Any information MNR has on known bat hibernacula or candidate features within the Study Area would be appreciated. Site investigations will determine whether additional candidate bat significant wildlife habitat features are present in the Study Area (e.g. caves). No bat monitoring is proposed as projects sited more than 320 m from bat hibernacula do not require field studies to support an evaluation of significance (MNR, 2010a).

Rare Vegetation Communities or Specialized Habitats

Based on an assessment of the habitat in the Study Area and historic species records, two specialized habitats have the potential to occur to some degree in the project location: habitat for area-sensitive species, and amphibian woodland breeding ponds. The presence and extent to which these specialized habitats are present within the Study Area will be confirmed through the site investigation program.

Movement Corridors

Animal movement corridors are parts of the landscape used by animals to move from one habitat to another (SWHTG, MNR, 2000).

The Loyalist County Official Plan (2010) identifies linkages and movement corridors within the Study Area associated with natural vegetation cover. The site investigation will include habitat assessment to assess the

May 12, 2011

Mr. Eric Prevost, Southern Region Renewable Energy Coordinator

Page 4 of 9

**Reference: Amherst Island Wind Energy Project
Natural Heritage Data Request and Proposed Site Investigation Work Program**

significance of movement corridors identified within the Official Plan in addition to other candidate features within the Study Area.

Criteria for confirming bat and bird migration corridors are not currently defined in the Significant Wildlife Habitat Technical Guide meaning that the evaluation and confirmation of significant wildlife habitat is not possible for these categories (MNR, 2010b).

Species of Conservation Concern

The Study Area is likely to support moderate to high relative densities of Ontario Partners in Flight priority species associated with grassland and shrubland/successional habitats (Ontario PIF, 2008). The decline of grassland birds has been identified as a conservation concern (Cadman *et al.*, 2007), and areas containing healthy populations of species belonging to these guilds would be considered for designation of significant wildlife habitat. The presence and densities of these species will be assessed through the site investigation program.

Records of species on conservation concern (including Short-eared Owl, Common Nighthawk, Black Tern, Eastern Milksnake, Snapping Turtle, Map Turtle and Monarch) also occur from the vicinity of the Study Area, the habitat of which will be identified during the site investigation.

Summary

The following features that could be significant wildlife habitat were identified, requiring site investigations to confirm their presence and extent:

- Seasonal concentrations (migratory waterfowl, landbirds, shorebirds, raptors and butterflies, wintering raptors and owls, reptile hibernacula);
- Rare Vegetation Communities or Specialized habitats (area-sensitive species, amphibian breeding);
- Movement Corridors; and
- Habitat for Species of Conservation Concern (grassland and/or shrubland/successional breeding birds, species of special concern).

THREATENED AND ENDANGERED SPECIES

Historic records of endangered and threatened species also occur from the Study Area, including Blanding's Turtle, Whip-poor-will, Least Bittern and Henslow's Sparrow. Site investigations in 2011 will assess the presence and identify habitat of these species. If required by MNR, additional detailed studies could be completed in 2012 to assure compliance under the *Endangered Species Act (2007)* and to facilitate the permitting process. In the event that threatened or endangered species are found to be present, MNR will be consulted regarding requirements for additional studies and specific study designs.

PROPOSED SITE INVESTIGATION WORK PROGRAM

1) Winter Raptor Survey (Ten surveys, November to March):

Ten bi-weekly driving surveys will be conducted between November 2011 and mid-March 2012. Surveys will be conducted by teams of two qualified surveyors driving all accessible roads within the Study Area at slow speeds (i.e. 30-40 km/h) in order to achieve maximum coverage of the site. The fields and woodlots will be scanned using binoculars to detect birds, and a spotting scope will be used for closer inspection of stationary birds. When raptors or owls are observed, the location, species, number, behaviour (i.e. perched, flying, hunting) and height will be noted. The locations of raptors will be mapped on a feature by feature base. Other

May 12, 2011

Mr. Eric Prevost, Southern Region Renewable Energy Coordinator

Page 5 of 9

**Reference: Amherst Island Wind Energy Project
Natural Heritage Data Request and Proposed Site Investigation Work Program**

bird and wildlife observations will also be recorded and mapped. The same route will be repeated shortly before and at dusk to more accurately assess the presence and numbers of wintering Short-eared Owls. Surveys will be conducted by two teams to achieve sufficient coverage of the Study Area during the dusk period.

2) Staging and foraging spring waterfowl surveys (Eight surveys, April to May):

Monitoring will consist of eight weekly foraging surveys, undertaken by driving all roads in the Study Area and recording the location, numbers and habitat of all waterfowl flocks. Driving surveys will target both inland and offshore flocks of waterfowl. These surveys have been initiated and are ongoing in the spring of 2011.

3) Spring landbird stopover surveys (Five surveys, late April – May):

Monitoring will consist of five weekly surveys. These surveys will include visiting each area of potential landbird stopover habitat (area of tree or shrub cover) to characterize the abundance and diversity of landbirds using the feature. These surveys have been initiated and are ongoing in the spring of 2011.

4) Spring shorebirds (Four surveys, May):

Surveys for staging shorebirds will be conducted once weekly for four weeks in May. These surveys consist of daytime driving all roads in the Study Area and mapping of the locations and composition (number and species) of all flocks of shorebirds staging in flooded fields, along the shoreline or other wet features. These surveys have been initiated and are ongoing in the spring of 2011.

5) Grassland breeding bird surveys (Three rounds, late May to early July):

Three rounds of breeding bird surveys will be conducted from late May to early July, as required under MNR's Birds and Bird Habitats Guidelines for Wind Power Projects. Ten minute point counts will be conducted as per the guidelines and the height of all birds observed during point counts will be recorded. Area searches will be used to complement the point count surveys by collecting a comprehensive species list. The guidelines recommend 20 point counts be placed in each habitat type. However, considering the extent of grassland habitat within the Study Area, approximately 40 point counts are proposed with grassland habitat.

6) Woodland breeding bird surveys (Three rounds, late May to early July):

Three rounds of breeding bird surveys will be conducted in woodlands suitable to support area sensitive species (i.e. greater than 30 hectares in size). Surveys will consist of point counts (as described above) in conjunction with area searches to compile comprehensive species list on a feature by feature bases. Up to 20 point counts will be placed in suitable woodland habitat, where this habitat type occurs within or adjacent to optioned lands.

7) Marsh breeding bird surveys (Three rounds, late May to early July):

Three rounds of breeding bird surveys will be conducted where marsh habitat occurs within or adjacent to optioned lands. Surveys will consist of standard point counts (as described above) in conjunction with playback surveys. Playback surveys will target less conspicuous species including Pied-billed Grebe, American Bittern, American Coot, Common Moorhen and Virginia Rail. During the breeding bird surveys, bird nesting colonies (e.g. heronries) within the Study Area will be located and characterized as to abundance and species diversity.

May 12, 2011

Mr. Eric Prevost, Southern Region Renewable Energy Coordinator

Page 6 of 9

**Reference: Amherst Island Wind Energy Project
Natural Heritage Data Request and Proposed Site Investigation Work Program**

8) Whip-poor-will (Three surveys, May and June):

Whip-poor-will surveys will be conducted in suitable forested habitat. Surveys will be conducted in late May, mid June, and late June, comprised of six minute point counts at monitoring stations placed in suitable habitat and spaced approximately 1 km apart. Surveys will begin approximately 30 minutes after sunset within appropriate weather conditions (not in high winds, persistent rain or an overcast sky). Surveys in late May and June will coincide with the full moon.

9) Short-eared Owl surveys (Three surveys, May and June):

Presence of breeding Short-eared Owls will be assessed during the early morning grassland breeding bird surveys (described above). In our experience, early morning surveys in June (when owls are more actively hunting to feed their young) are very effective at detecting this species. However, to provide additional opportunity of detecting this species, dusk surveys are also proposed. Monitoring stations will be established at good vantage points of suitable grassland habitat within the optioned lands. Each monitoring stations will be surveyed in each of May, early June and later June. Surveys will consist of 20 minute point counts to detect Short-eared Owls by sight or by call. Should Short-eared Owls be observed, the location, species, behaviour (i.e. perched, flying, hunting), age (adult or juvenile) and height will be noted. These surveys have been initiated and are ongoing in the spring of 2011.

10) Least Bittern (Three rounds, late May to early July):

Three rounds of Least Bittern surveys will be conducted in suitable marsh habitat. The surveys will be based on the methods and use the playback recordings of Canadian Wildlife Service's National Least Bittern Survey Protocol (Bazin *et al.*, 2010).

11) Henslow's Sparrow Surveys (two visits in June, 2010):

The presence of Henslow's Sparrow will be assessed during the early morning grassland breeding bird surveys (described above). In addition to the early morning surveys, two rounds of evening surveys will also be conducted in June. Approximately 20 monitoring stations will be established within suitable grassland habitat throughout the Study Area. The surveys will take place at or after dusk and will utilize a playback recording to elicit a response.

12) Staging Swallow Surveys (mid July-August):

Weekly surveys for staging swallows are proposed starting the 2nd week of July through to the end of August. Surveys will consist of driving all roads in the study area, identifying presence and relative abundance of staging swallows.

13) Staging and foraging fall waterfowl surveys (Seventeen surveys, September to December):

Monitoring will consist of seventeen weekly foraging surveys, utilizing the same methodology as the spring waterfowl surveys.

14) Fall Staging Raptor Survey (Twelve surveys from September to late November):

Monitoring will consist of twelve weekly surveys to record presence of staging raptors. Surveys will be conducted by a team of two qualified surveyors driving all accessible roads within the Study Area at slow speeds (i.e. 30-40 km/h) in order to achieve maximum coverage of the site. The fields and woodlots will be scanned using binoculars to detect birds, and a spotting scope will be used for closer inspection of stationary birds. When raptors or owls are observed, the location, species, number, behaviour (i.e. perched, flying,

May 12, 2011

Mr. Eric Prevost, Southern Region Renewable Energy Coordinator

Page 7 of 9

**Reference: Amherst Island Wind Energy Project
Natural Heritage Data Request and Proposed Site Investigation Work Program**

hunting) and height will be noted. Location of raptors will be recorded on a feature by feature base. Staging raptor surveys will extend through to the end of November capturing the peak timing of Golden Eagle migration, thus allowing for an assessment this specie's use of the Study Area during migration.

15) Amphibian Surveys (Three visits, April, May, June):

Amphibian surveys will consist of call counts at potential woodland breeding habitat conducted in each of April, May, and June. Calling amphibian surveys followed the protocol for the Marsh Monitoring Program (Bird Studies Canada, 1994). Surveys will be conducted between one-half hour after sunset and midnight, during appropriate weather conditions. These surveys have been initiated and are ongoing in the spring of 2011.

16) Migratory Butterfly Stopover Surveys (August):

Weekly surveys for migratory butterflies will be conducted in August. Surveys will be conducted mostly from the roadside, identifying concentrations of butterflies foraging in open habitat or roosts of butterflies in trees.

17) Ecological Land Classification (ELC) and rare flora and rare vegetation communities surveys (July and August):

Vegetation communities within and adjacent to optioned lands or potential locations of project components (e.g. collector lines) will be delineated on aerial photographs and subsequently checked in the field; community characterizations (ecosites) will be based on the ELC system (Lee *et al.*, 1998). Site visits will occur between July through September. The information collected during these visits will be used to identify rare vegetation communities and plant species at risk, detect unevaluated wetlands, and confirm designation of significant woodlands. A surveyor trained in both ELC and OWES will conduct the surveys.

18) Candidate significant wildlife habitat features assessment:

Surveyors will identify the presence of potentially significant habitat features, such as potential bat hibernacula and maternity roosts, vernal pools, and reptile hibernacula features during all visits.

Upon completion of the site investigation field program, an evaluation of significance for the natural heritage assessment will be conducted in accordance with the Natural Heritage Reference Manual (MNR, 2010d), and Significant Wildlife Habitat Technical Guide (MNR, 2000). The Natural Heritage Assessment Report will be produced and submitted to the MNR, and will include mapping of the project in relation to identified natural features.

May 12, 2011

Mr. Eric Prevost, Southern Region Renewable Energy Coordinator

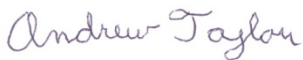
Page 8 of 9

**Reference: Amherst Island Wind Energy Project
Natural Heritage Data Request and Proposed Site Investigation Work Program**

We look forward to discussing this work program with you. Please do not hesitate to contact the undersigned should you require further information.

Sincerely,

STANTEC CONSULTING LTD.



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Att: Draft Study Area and Natural Heritage Mapping

c.c. Sean Fairfield, Algonquin Power Co. (for Windelectric Inc.)
Rob Rowland, Stantec

May 12, 2011

Mr. Eric Prevost, Southern Region Renewable Energy Coordinator

Page 9 of 9

**Reference: Amherst Island Wind Energy Project
Natural Heritage Data Request and Proposed Site Investigation Work Program**

REFERENCES

Bird Studies Canada. 1994. Marsh Monitoring Program Protocol.

Bonter, D.N., S.A. Gauthreaux, Jr., and T.M. Donovan. 2008. Characteristics of Important Stopover Locations for Migrating Birds: Remote Sensing with Radar In The Great Lakes Basin. *Conservation Biology* 23:440-448.

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage and A.R. Couturier (eds). 2007. Atlas of the Breeding Birds of Ontario 2001- 2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto. 706 pp.

Corporation of Loyalist Township. 2010. Loyalist Township Official Plan. Prepared by Cumming Cockburn Limited. November 2010.

Ewert, D.N., G.J. Soulliere, R.D. Macleod, M.C. Shieldcastle, P.G. Rodewald, E. Fujimura, J. Shieldcastle, and R.J. Gates. 2006. Migratory Bird Stopover Site Attributes in the Western Lake Erie Basin Final report to The George Gund Foundation.

IBA Canada. Undated. Important Bird Areas of Canada database.
<http://www.bsc-eoc.org/iba/site.jsp?siteID=ON003> (accessed April, 2011).

Jobin, B., R. Bazin, L. Maynard, A. McConnell and J. Stewart. 2010. National Least Bittern Survey Protocol. Environment Canada, Canadian Wildlife Service. Québec Region. Unpublished report. 26 p.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological land classification for Southwestern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, South Central Region, Science Development and Transfer Branch. Technical Manual ELC-005.

Ontario Partners In Flight. 2008. Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain (North American Bird Conservation Region 13), Priorities, Objectives and Recommended Actions. Environment Canada (Ontario Region) and Ontario Ministry of Natural Resources.

Ontario Ministry of Natural Resources. 2010a. Bats and Bat Habitats. Guidelines for Wind Power Projects. March, 2010.

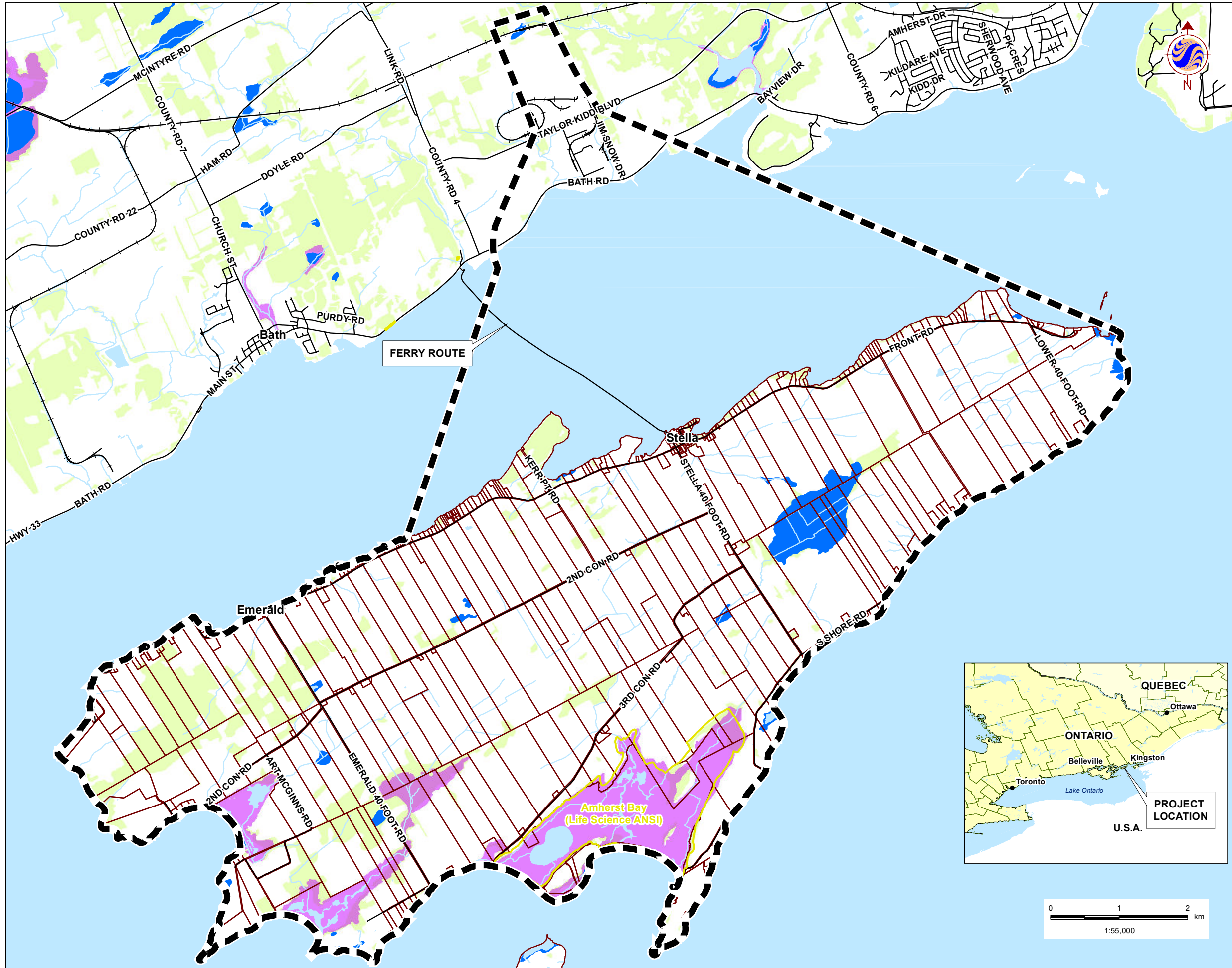
Ontario Ministry of Natural Resources. 2010b. Birds and Bird Habitats. Guidelines for Wind Power Projects. October, 2010.

Ontario Ministry of Natural Resources. 2010c. Natural Heritage Assessment Guide for Renewable Energy Projects. December, 2010.

Ontario Ministry of Natural Resources. 2010d. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. June, 2010.

Ontario Ministry of Natural Resources. 2010e. Renewable Energy Atlas.
http://www.lio.ontario.ca/imf-ows/imf.jsp?site=renew_en

Ontario Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. 151 pp.

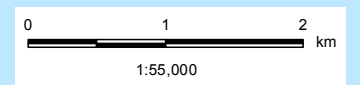


Legend

-  Project Study Area
-  Road
-  Railway
-  Watercourse
-  Property Boundaries
-  Wooded Area
-  Waterbody
-  Unevaluated Wetland
-  Provincially Significant Wetland
-  ANSI Boundary

Notes

1. Coordinate System: UTM NAD 83 - Zone 18 (N).
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2011.



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May 2011
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Client/Project
WINDLECTRIC INC.
AMHERST ISLAND WIND ENERGY PROJECT

Figure No.
1

Title
PROJECT STUDY AREA