

ROMNEY WIND ENERGY CENTRE

Draft Site Plan

Romney Energy Centre Limited Partnership

Document No.: 10021083-CAMO-R-03

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Date: 23 January 2017



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A	23 January 2017	DRAFT	N. O'Neill	G. Constantin	M. Roberge



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List of abbreviations

Abbreviation	Meaning
ANSI	Life Science Area of Natural and Scientific Interest
APRD	Approval and Permitting Requirements Document
ARA	Archaeological Research Associates Ltd.
CEAA	<i>Canadian Environmental Assessment Act</i>
DFO	Department of Fisheries and Ocean Canada
DNV GL	GL Garrad Hassan Canada Inc.
DSP	Draft Site Plan
EDF EN	Électricité de France Energies Nouvelles
ESA	Endangered Species Act
EPA	Ontario <i>Environmental Protection Act</i>
Hydro One	Hydro One Network Inc.
IBA	Important Bird Areas
IESO	Independent Electricity System Operator
LTVCA	Lower Thames Valley Conservation Authority
MNRF	Ontario Ministry of Natural Resources and Forestry
MOECC	Ontario Ministry of Environment and Climate Change
MTCS	Ontario Ministry of Tourism, Culture and Sport
MTO	Ontario Ministry of Transportation
MW	Megawatt
NIA	Noise Impact Assessment
OEC	Ontario Electrical Code standards
OGSR	Oil, Gas and Salt Resources
OEB	Ontario Energy Board
<i>O. Reg</i>	Ontario Regulation
PDR	Project Description Report
PSWs	Provincially Significant Wetlands
REA	Renewable Energy Approval
SCADA	Supervisory Control and Data Acquisition
SARA	<i>Species at Risk Act</i>
TC	Transport Canada
WTG	Wind Turbine Generator

1 PREAMBLE

Romney Energy Centre Limited Partnership (the “Proponent”) is proposing to develop the Romney Wind Energy Centre (the “Project”) which is subject to Ontario Regulation (O. Reg.) 359/09 (Renewable Energy Approvals (REA) [1] under Part V.0.1 of the Ontario *Environmental Protection Act* (EPA)), as amended. EDF EN was awarded a contract for this Project in March 2016 from the Independent Electricity System Operator (IESO) under the Large Renewable Procurement (LRP), and is seeking a Renewable Energy Approval (REA) from the Ontario Ministry of the Environment and Climate Change (MOECC). The Project will be owned and operated by Romney Energy Centre Limited Partnership.

This Project with a total nameplate capacity of up to 60 megawatts (MW) is considered to be a Class 4 wind facility. A total of 18 wind turbine locations are being permitted for the Project.

This Draft Site Plan Report (DSP) has been prepared in accordance with section 54.1 of Ontario Regulation 359/09[1] and the Technical Guide to Renewable Energy Approvals, Chapter 3, Section 2.5 [2]. This Draft Site Plan Report has been prepared to fix the noise landscape of the Project. Table 1-1 presents the corresponding sections for each Draft Site Plan requirements.

Table 1-1: Draft Site Plan Requirements and Corresponding Sections

Requirement	Section
<p>Include in the draft site plan in respect of the project location one or more maps or diagrams, drawn to a scale of at least 1 cm: 500 m, of the renewable energy generation facility, including,</p> <p>(i) existing roads situated within 300 meters of the renewable energy generation facility,</p> <p>(ii) wind turbines and transformer substations required in respect of the renewable energy generation facility, and</p> <p>(iii) any noise receptors that may be negatively affected by the use or operation of the renewable energy generation facility</p>	<p>Appendix A</p> <p>3.2.1</p> <p>Appendix A</p>
Description of existing roads situated within 300 meters of the renewable energy generation facility	3.1.2
A description of wind turbines and transformer substations required in respect of the renewable energy generation facility	3.2.1, 3.2.4.2
A description of any noise receptors that may be negatively affected by the use or operation of the renewable energy generation facility	3.4

2 GENERAL INFORMATION

2.1 Project Name and Project Proponent

The name of the project is Romney Wind Energy Centre (hereafter referred to as “the Project”) and Romney Energy Centre Limited Partnership is the Project proponent (hereafter referred to as “the Proponent”).

2.2 Project Location

The Romney Wind Energy Centre is located in southwestern Ontario, Town of Lakeshore and the Municipality of Chatham Kent, Ontario. More specifically, the Project is located south of Highway 401, and extends along Richardson Side Road and Wheatley Road near the community of Wheatley, ON. It has a total Project study area of approximately 5,093 ha.

Project components will be mostly installed on privately-owned agricultural lots within this area. It is anticipated that the electrical collector lines, including junction boxes will be partially located within public road allowances. It is planned to connect to the existing 230 kV transmission line located within the Town of Lakeshore close to Richardson Side Road. There may be a small section of transmission line of less than 1 km proposed for the Project.


The proposed Project study area is located on private and public lands; the geographic coordinates of the extreme points of the Project study area are presented in Table 2-1. The location of the study area was defined early in the planning process for the proposed wind energy facility, based on the availability of wind resources, approximate area required for the proposed Project, and availability of existing infrastructure for connection to the electrical grid. Most of agricultural fields are planted annually with common crops (e.g. corn, soybeans and winter wheat) or are used as pasture lands. All turbines are to be installed in agricultural fields.

Table 2-1: Geographic coordinates of Project Study Area

Site Location	Easting	Northing
North	378764	4678793
East	386458	4665518
West	376264	4669394
South	379094	4662491

The Project Location, situated within the broader Project study area, is defined in O. Reg. 359/09 as “...a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person is engaging in or proposes to engage in the project”. As described therein, the Project Location boundary is the outer limit of where site preparation and construction activities will occur (i.e., *Disturbance Areas* described below) and where permanent infrastructure will be located, including the air space occupied by turbine blades.

Disturbance Areas have been identified surrounding various Project components; such areas correspond to the “Project Location” boundaries in the map in Appendix A. These areas denote zones where temporary



disturbance during the construction phase may occur as a result of: temporary Project component laydown and storage areas, crane pad construction or turbine turnaround areas. With the exception of the Project components described above, no permanent infrastructure is proposed within these areas. Following construction activities, the land will be returned to pre-construction conditions.

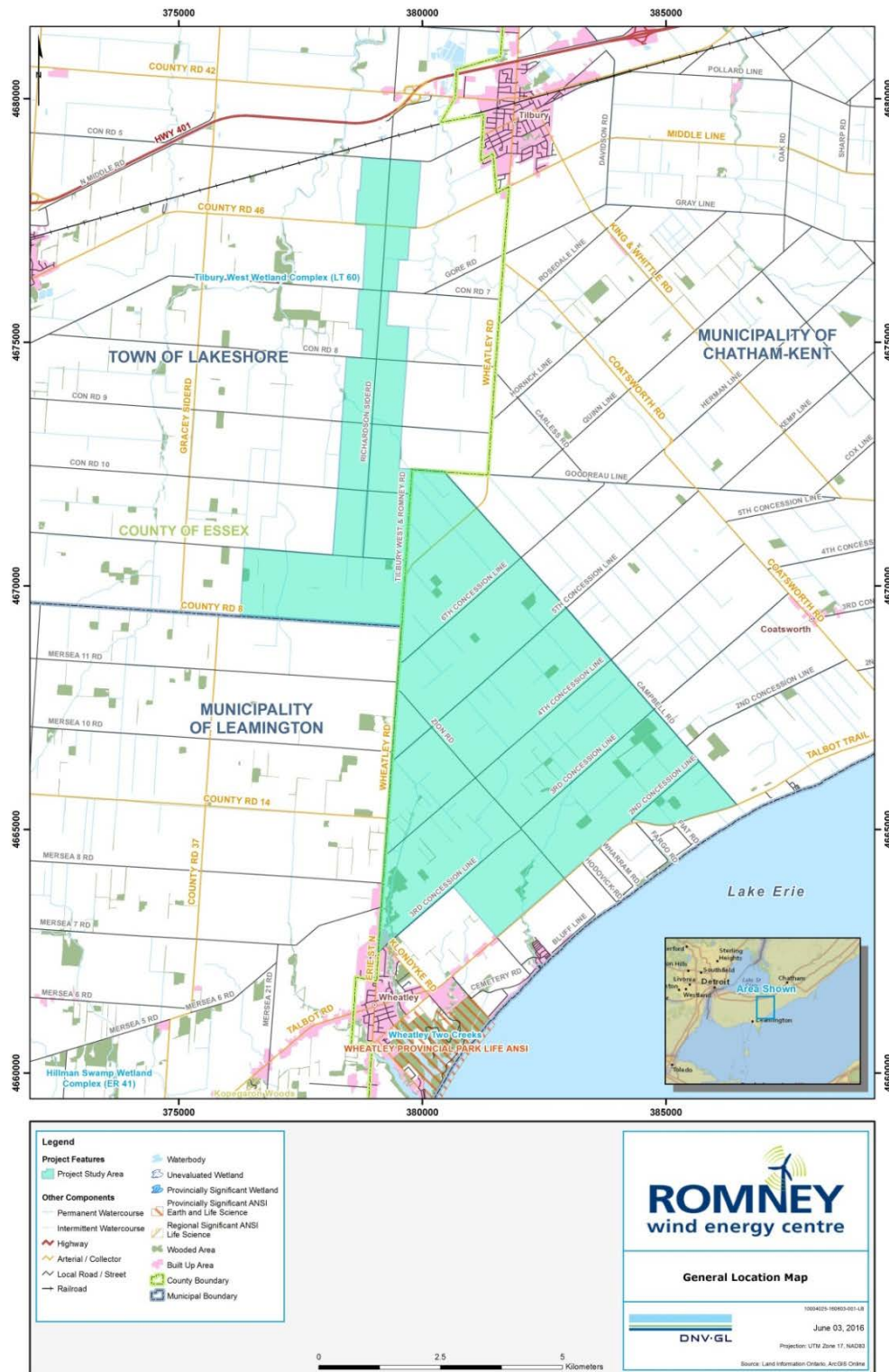


Figure 2-1: General Project study area

2.3 Description of the Energy Source, Nameplate Capacity, and Class of Facility

The WTGs of the Project will convert the wind's energy into electricity a Project substation will step up the electricity from 34.5 kV to 230 kV to feed into the Ontario IESO transmission system. This Project with a total nameplate capacity of up to 60 megawatts (MW) is considered to be a Class 4 wind facility. A total of 18 wind turbine locations are being permitted for the Project. The Proponent is currently evaluating different wind turbine technologies for the Project.

2.4 Contact Information

2.4.1 Project Proponent

The Proponent is Romney Energy Centre Limited Partnership. The primary contact for this Project is:

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Senior Developer

Romney Energy Centre Limited Partnership

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Project email: RomneyWind@edf-en.ca

Project website: http://www.edf-en.ca/projects/project_display/romney-wind-energy-centre

2.4.2 Project Consultant

GL Garrad Hassan Canada Inc. (hereafter referred to as "DNV GL"), a member of the DNV GL Group and part of the DNV GL brand, has been retained to lead the REA for the Project. The Environmental and Permitting Services team of DNV GL has completed mandates throughout Canada, the United States and in many other parts of the world. These mandates include permitting management, permit applications, environmental impact assessment, and various environmental studies for more than 15,000 MW of wind and solar-PV projects.

DNV GL's environmental team is composed of over 20 environmental professionals, including environmental impact specialists, planners, GIS, technicians and engineers. DNV GL has no equity stake in any Project. This rule of operation is central to its philosophy, distinguishing it from many other players and underscoring its independence.



DNV GL's contact information is as follows:

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3 PROJECT INFORMATION

3.1 Existing Features within 300 m of the Project Location

3.1.1 Buildings or structures

Buildings within 300 m of the Project Location are identified on the DSP included in Appendix A and consist primarily of rural residences that are considered “noise receptors” as per O. Reg. 359/09 [1].

3.1.2 Roads

The Project is located south of Highway 401, and extends along Richardson Side Road and Wheatley Road near the community of Wheatley, ON. Municipal roads are located throughout the Project boundary.

Roads within 300 m of the Project Location are identified on the DSP.

3.2 Facility Components

The Project will be made up of the following main components:

- Wind turbine generators (WTG);
- Meteorological tower(s);
- Access roads and crane pads; and
- Electrical collector system and substation;
- Operation and maintenance building; and
- Laydown and storage areas (including temporary staging areas).

3.2.1 Wind Turbines

At the time of this report, the final wind turbine technology has not been selected; however, it is likely to be in 3MW+ range of turbine. For the purposes of reference the Vestas V136-3.45 MW turbines will be considered some of which may need to be de-rated, for a total installed capacity of up to 60 MW. The proposed turbine will be a 3-bladed and horizontal-axis turbine.

The total rotor diameter of the V136 is 136 m, resulting in a swept area of 14,526m². The turbine rotors and nacelles are mounted on top of 132 m tubular towers, although other heights are being evaluated, which are manufactured in sections from steel plate. A pad mounted transformer will also be located adjacent to or inside the wind turbine tower.

The complete technical specifications for the selected technology will be available in the Wind Turbine Specification Report as part of the complete REA package.

The acoustic emissions data, including the sound power level and frequency, will be available as part of the Noise Impact Assessment (NIA) and will be available as part of the complete REA package.

All turbines of the Project will meet Transport Canada requirements from an aviation safety and lighting perspective.

Table 3-1: Location of Project Wind Turbines

Turbine ID	Easting [m]	Northing [m]	Broadband PWL [dBA]	Base Elevation [m]
1	380450	4670257	105.5	185
2	380172	4667904	105.5	181
3	380880	4668771	103.5	184
4	381401	4668982	103.5	185
5	380045	4666196	104.4	182
6	381193	4666947	105.5	183
7	382064	4667931	104.4	185
8	382601	4668405	104.4	185
9	379832	4664187	104.4	185
10	380284	4664550	104.4	185
11	382928	4666887	103.5	182
12	381306	4663384	105.5	185
13	381974	4663990	105.5	185
14	382909	4665004	105.5	184
15	383866	4665878	104.4	182
16	385721	4666054	105.5	187
17	376473	4669991	105.5	184
A1	379958	4671291	105.5	185

3.2.2 Permanent Meteorological Tower

Wind speed, wind direction, temperature and humidity will be measured by means of a meteorological tower of up to 132 m in height. The tower will remain on site for the duration of the Project for wind turbine performance testing; its exact location will be determined prior to issue the draft REA reports. The tower will be of lattice or monopole type. It will be constructed on a small concrete pad and supported by a number of guy wires (lattice tower only).

3.2.3 Access Roads

Transportation of machinery, turbine components and other equipment will use existing municipal roads. New access roads will be constructed on private lands to provide an access point to the private properties for equipment during the construction phase and for maintenance activities during operation. Typically access roads will be constructed to be up to 12 m wide during construction. Areas adjacent to the access road within the larger 20m disturbance area may be utilized during the construction phase in order to accommodate cranes, transportation equipment and other construction activities. After construction, these roads may be reduced in size to approximately 5-6m in width, to allow access to turbines and associated infrastructure for maintenance and repairs.

3.2.4 Electrical Collector Lines and Substation

Energy generated by the Project will be collected via underground and overhead electrical collector lines and directed to a substation.

3.2.4.1 Electrical Collector Lines

The electricity generated at each of the WTG will be transported through 34.5 kV underground or overhead electrical collector lines to the Project's substation. Electrical collector lines will be sited adjacent to the turbine access roads, where feasible, and will follow public road allowances to reach the Project substation.

Junction boxes will also be installed below or above ground where more than one circuit must be connected together and will be located whether on privately-owned agricultural lots or within public road allowances

3.2.4.2 Substation

Measuring a total foot print of approximately 2-3 ha, the electrical substation for the Project will be located on privately-held lands through an "option to lease land" agreement. The substation comprises the following components:

- Isolation switch(es);
- Circuit breaker (s);
- Main power transformer (s);
- Transmission switch gear (s);
- Instrument transformers;
- Grounding (consistent with Ontario Electrical Code standards (OEC));
- Containment system;
- Oil / water separator;
- Revenue metering; and
- Control building.

A secondary containment system will be included to prevent soil contamination in the event of a leak from the main transformer. After voltage is transformed from 34.5 kV to a transmission voltage (230 kV) at the substation, electricity will be fed into the existing Ontario IESO transmission system less than 1 km from the Project substation.


A small parking lot will be constructed to accommodate staff vehicles.

Table 3-2: Location of Project Substation

Easting	Northing
378796	4678182

3.2.5 Operations and Maintenance Building

It is anticipated that an operation and maintenance building may be constructed near the Project substation or closer to the WTG for the purpose of monitoring the day-to-day operations of the Project and supporting



maintenance efforts. The exact location will be determined prior to issue the draft REA reports. A small parking lot will be constructed to accommodate staff vehicles.

Potable water will be supplied by a well or through the municipal water system and a septic bed may be constructed for the disposal of sewage if required. The septic bed will be constructed to the appropriate size required for the size of the operation and maintenance building. It is the Proponent's responsibility to ensure proper maintenance of the septic system. The operations and maintenance building, septic system, and water supply solution will be constructed in accordance with applicable municipal and provincial standards.

3.2.6 Construction Staging and Laydown Areas

A temporary construction staging area will be constructed on privately owned lands for the purpose of staging and storing equipment during the construction phase. Activities on this site will include material storage, equipment refuelling, construction offices, parking lot, temporary toilet facilities, rinsing and water facilities. The temporary staging area will have a total foot print of approximately 2 ha.

In addition, a temporary area of approximately 1 ha around each wind turbine will be established for the laydown and assembly of the wind turbine components. This temporary area will be restored following the construction phase to maintain agricultural uses.

3.3 Water Crossings

To the extent possible, Project infrastructure will be sited to minimize the number of water crossings. The Water Assessment and Water Body Report, which is being developed as part of the REA, will describe all water crossings and associated mitigation measures.

3.4 Noise Receptors

Noise receptors that may be affected by the use or operation of the renewable energy generation facility are identified through the Draft Noise Impact Assessment [3] and included as Appendix B of this report. The final Project configuration will comply with all of the requirements outlined in *O. Reg. 359/09*, and the MOE "Noise Guidelines for Wind Farms (2008)". These regulations set out a minimum 550 m setback from non-participating noise receptors (i.e., residents, hospitals, schools, daycares, places of worship, etc.).

3.5 Land Ownership

Turbines, substation, O&M building, met masts and access roads will be located entirely on private land and the Proponent currently holds an "option to lease land" agreement for the properties on which Project components are proposed. Public road allowances (rights-of-way) will be used in some cases for electrical collector lines including junction boxes. The Project is not located on Crown land.

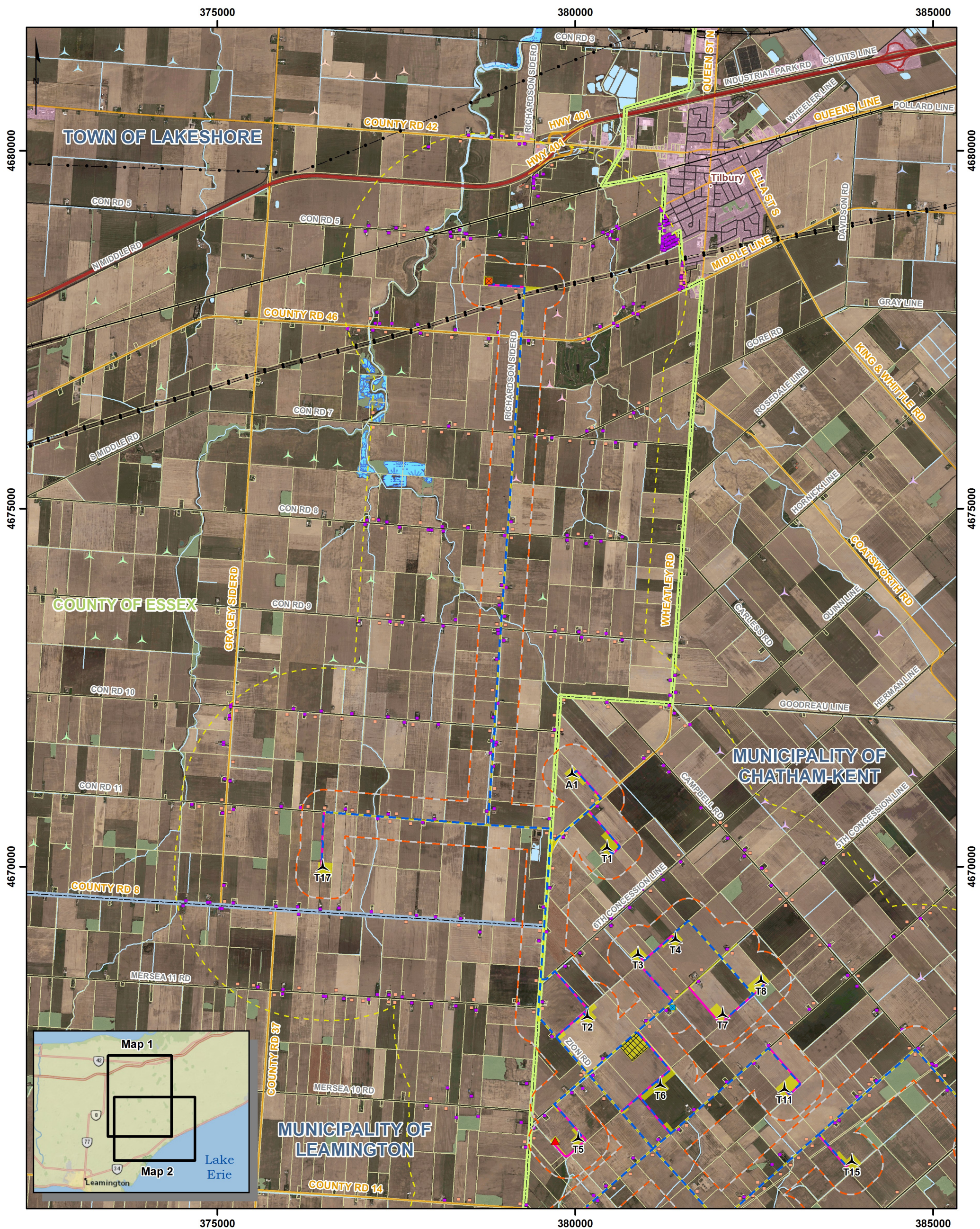


4 REFERENCES

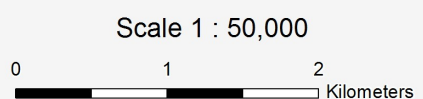
- [1] Ontario Regulation 359/09, made under the Environmental Protection Act, Renewable Energy Approvals under Part 1.0 of the Act.
- [2] Technical Guide to Renewable Energy Approvals, Ontario Ministry of the Environment, 2013.
- [3] DNV GL, Romney Wind Project, Renewable Energy Approval-Noise Impact Assessment, 18 January 2017.



APPENDIX A – DRAFT SITE PLAN



Legend	
Project Features	Other Components
▲ Wind turbine (18)	● Noise receptor
■ Substation	■ Receptor
■ O&M building	■ Vacant lot receptor
▲ Meteorological mast	<i>Neighbouring wind farm</i>
●●● Collection system	▲ Chatham-Kent Wind Farm
◆ Access road	▲ Comber Wind Farm
⊠ Laydown area	▲ Gracey Wind Farm
■ Project location	▲ Pointe-aux-Roches Wind Farm
■ Project location (300m)	▲ Port Alma Wind Farm
■ Project location (2 km)	▲ Richardson Wind Farm
	▲ South Kent Wind
	● Permanent watercourse
	● Intermittent watercourse
	● Existing HONI Transmission Line
	● Highway
	● Arterial / Collector
	● Local Road / Street
	● Railroad
	● Waterbody
	● Provincially significant wetland
	● Wooded area
	● Built-up area
	■ County Boundary
	■ Municipal Boundary



ROMNEY
wind energy centre

DRAFT SITE PLAN: MAP 1

10021083-161216-001-LB

Dec 16, 2016

Projection: UTM Zone 17, NAD83

Source: Land Information Ontario, ArcGIS Online



Legend

Project Features

- Wind turbine (18)
- Substation
- O&M building
- Meteorological mast
- Collection system
- Access road
- Laydown area
- Project location
- Project location (300m)
- Project location (2 km)

Other Components

Noise receptor

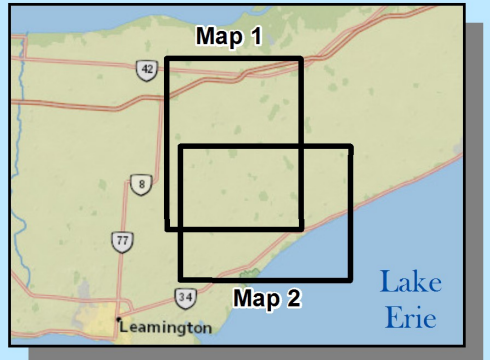
- Receptor
- Vacant lot receptor

Neighbouring wind farm

- Chatham-Kent Wind Farm
- Comber Wind Farm
- Gracey Wind Farm
- Pointe-aux-Roches Wind Farm
- Port Alma Wind Farm
- Richardson Wind Farm
- South Kent Wind

- Permanent watercourse
- Intermittent watercourse
- Existing HONI
- Transmission Line
- Highway
- Arterial / Collector
- Local Road / Street
- Railroad
- Waterbody
- Provincially significant wetland
- Property Boundary
- Wooded area
- Built-up area
- County Boundary
- Municipal Boundary

Scale 1 : 50,000



ROMNEY
wind energy centre

DRAFT SITE PLAN: MAP 2

DNV·GL

10021083-161216-001-LB

Dec 16, 2016

Projection: UTM Zone 17, NAD83

Source: Land Information Ontario, ArcGIS Online



APPENDIX B – DRAFT NOISE IMPACT ASSESSMENT



ABOUT DNV GL

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