

PROJECT DESCRIPTION REPORT

RE ORILLIA 1 SOLAR PROJECT

INITIAL DRAFT
VERSION 2.0

**RECURRENT
ENERGY**

Submitted to:
Ontario Ministry of the Environment
December 22, 2009





RE Orillia 1 ULC

December 22, 2009

Ms. Doris Dumais
Director, Environmental Assessment and Approval Branch
The Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, ON M4V 1L5

Re: Project Description Report - RE Orillia 1

Dear Ms. Dumais,

RE Orillia 1 ULC is excited to submit the following Draft Project Description Report as the first step to completing the Renewable Energy Approval (REA) for this solar generation facility. This project is one of a number of unique projects submitted by Recurrent Energy to the Ministry of the Environment (MOE) following the application for a FIT contract with the Ontario Power Authority under the 2009 FIT launch program.

RE Orillia 1 ULC is committed to providing the clean electrical benefits of solar generation and insuring that the environment is protected for the benefit of future generations. The forward thinking for permitting renewable energy projects under the *Green Energy and Green Economy Act* and Ontario Regulation 359/09 will both promote the installation of renewable energy in Ontario and insure that the environment is protected.

This report will provide the MOE and other stakeholders with preliminary information describing the planned solar facility and this company's strategy to mitigate the impact to the environment. This includes:

- Detailed information about the site, including a map showing the land within 300 meters of the project facility;
- Description of the planned 10 MW AC solar photovoltaic system that will be used to generate electricity;
- Expected activities during construction, operation and decommissioning of the facility;
- Potential environmental impact of these activities and preliminary information on mitigation measures;
- Detailed information about the project ownership;
- Outline of future reports, consultations and environmental assessments to be submitted as part of the REA process.

As a response to this submission, please provide RE Orillia 1 ULC with the list of First Nations/Aboriginal communities to be consulted with and the form as approved by the Director in which consultation should be carried out as referenced in Section 17(1) of Ontario Regulation 359/09.

Thank you for the opportunity to participate.

Very truly yours,

A handwritten signature in black ink, appearing to be the initials 'SK' with a stylized flourish extending to the right.

Sheldon Kimber
Authorized Signer
RE Orillia 1 ULC

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1.0 Introduction

This document is provided to advise provincial agencies, local government, local agencies, the public, and First Nation/Aboriginal communities of the following proposed solar facility (the “Project”).

Project: RE Orillia 1

Proponent: RE Orillia 1 ULC (the “Company”)

Site: The site consists of approximately 65 acres of land located about 7 km west-southwest of Orillia in the Township of Oro-Medonte.

FIT Project(s): RE Orillia 1 (FIT-FDTRJXQ)

System: Class 3 solar facility up to 10 MW AC will be located within the boundaries of the Property (see Figure 1).

The Project design will be finalized and documented in the subsequent reports required as part of the MOE and MNR Renewable Energy Approval (REA) process. Based on the Company’s experience constructing and operating solar projects in the United States, participation in meetings and conversations with Ontario’s various ministries (MOE, MNR, MEI), involvement in the stakeholder feedback process over the previous year, and work with Canadian-based environmental and zoning consultants, the company is confident that it fully understands Ontario’s permitting processes for renewable energy projects.

Moreover, the company is keenly aware that the passing of the *Green Energy and Green Economy Act* and Ontario Regulation 359/09, transfers the responsibility of reviewing the building of solar projects to the Ministry of the Environment. This Project is subject to the Renewable Energy Approval (REA) process, and must adhere to the requirements of Regulation 359/09 of the *Environmental Protection Act*. Under Regulation 359/09, the applicant will be required to submit an application for and receive approvals for the Project from the Director of Environmental Assessment and Approval Branch for the Ministry of the Environment.

A map depicting the Project boundary including at least 300 meters of surrounding area is provided in Figure 1. This site will allow for flexibility in the site layout in consideration of environmental constraints.

2.0 Project Proponent

This Project Description Report for RE Orillia 1 (the “Project”) is made by RE Orillia 1 ULC, a Nova Scotia Unlimited Liability Company owned by Recurrent Energy, LLC through its subsidiaries Recurrent Energy Portfolio Holdings LLC, Recurrent Energy International Holdings LLC, Recurrent Energy Lux Holdings S.a.r.l, and RE Orillia 1 Holdings ULC.

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3.0 OPA FIT program

Ontario's feed-in tariff or FIT program is North America's first comprehensive guaranteed pricing structure for renewable electrical production. It offers stable prices under long-term contracts for generated from renewable sources.

The FIT program was enabled by the Green Energy and Green Economy Act, 2009 which was passed into law on May 14, 2009. The FIT program was officially launched on October 1, 2009, and the program is designed to encourage and promote greater use of renewable energy sources. According to the program's website, the FIT program will help Ontario phase out coal-fired electricity generation by 2014, boost economic activities and the development of renewable energy technologies and create new green industries and jobs throughout the province. For more information about the FIT Program:

<http://fit.powerauthority.on.ca/>

Recurrent Energy is actively involved in the FIT program and for this Project has submitted the following FIT Program Applications for a total of 10 MW AC of nameplate generating capacity:

RE Orillia 1 (FIT-FDTRJXQ)

4.0 Summary of Project

4.1 Project Location

The Company conducts a careful site screening and acquisition process for each Project including a detailed evaluation of hundreds of land parcels in multiple counties. As a result, the Company obtained legal site control and has conducted due diligence the site selected for this Project.

This site is near Hydro One's electricity distribution system to ensure low interconnection costs and minimal disruption to the community. Recurrent Energy has targeted land that is mostly cleared and level, is located in areas of high irradiance, and avoids prime agricultural land classifications that are restricted by the OPA under the FIT program. A summary of the project site is as follows:

| Project Description | |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description | The site consists of approximately 65 acres of land located about 7 km west-southwest of Orillia in the Township of Oro-Medonte. |
| Address | 1599 Line 13 North, Hawkestone, ON L0L 1T0 |
| Longitude and Latitude (in Degrees) | Latitude: 44.585026° Longitude: -79.493495° |
| Legal Description of Site | S1/2 LT 7 CON 14 ORO EXCEPT PT 2 51R13776; S/T EXECUTION 93-02351, IF ENFORCEABLE; S/T EXECUTION 99-00491, IF ENFORCEABLE; ORO-MEDONTE |
| Site Control Status | The Company has entered into a formal and binding Lease Agreement with the property owner allowing for: Development Term: 3 years Lease Term: 30 years |
| Zoning | Agricultural/Rural |
| Agricultural Land Class | No Class 3 on property. Please find CLI map (Figure 2) at the end of report for further details. |
| Aboriginal Communities within 50km of site | Chippewas of Mnjikaning First Nation, the Beausoleil First Nation, and the Chippewas of Geogina Island First Nations |
| Conservation Authority | Nottawasaga Valley Conservation Authority and Lake Simcoe Conservation Authority |
| Township and County | Oro-Medonte, Simcoe |

4.2 Technical Information

The proposed Project is a solar electric generating facility that will utilize photovoltaic (PV) panels installed on fixed racking structures. DC electricity generated from the PV panels is converted to AC electricity by an inverter. The voltage level of the AC electricity produced by the inverter is stepped-up to distribution level voltages by a series of transformers. All equipment and services shall be manufactured and procured in Ontario as required by the Ontario Power Authority's Feed-in Tarriff Program.

| Specification | Details |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Nameplate Capacity | 10 MW AC/10 MVA |
| Output | Estimated first year energy production: 13,789,060 kWh |
| Local Distribution Company | Hydro One Networks Inc. |
| Transmission Station | Orillia |
| Feeder | 92M3 |
| Connection Voltage/Phases | 44 kV/3 phase |
| Proposed Point of Connection | The intersection of Line 13 North road and Old Barrie Rd. East |
| GPS Coordinates of Connection point | Latitude: 44.567167° Longitude: -79.485918° |
| Estimated Life of Facility | The FIT Contract with the OPA has a term of 20 years, however the manufacturer's warranty on the PV Modules is 25 years and the expected life of solar power plants of this type is 35 to 40 years. |

4.3 Major Project Phases and Schedule Milestones

The following table provides details of the projected starting dates for pre-construction, construction, commissioning, operations and decommissioning activities. Pre-construction includes activities such as a preliminary engineering, environmental assessment and site surveys for the final site layout, and the procurement of Ontario made solar panels and balance of system equipment. If regulatory approval is substantially delayed, there could be construction delays which would likely lead to increased construction costs.

| Milestone | Date |
|---------------------------------------------|---------------------------------------------|
| FIT Application | November 30, 2009 |
| FIT Contract | March 15, 2010 (estimated) |
| Consultations & Pre-Construction | January 4, 2010 – April 5, 2010 (estimated) |
| REA Approval | October 1, 2010 (estimated) |
| Start of Construction | November 1, 2010 (estimated) |
| Commercial Operation Date | 9/12/2011 |
| Decommissioning | The year 2042 (estimated) |

4.4 Detailed Project Activities

The activities for the construction, operation and decommissioning phases of the project are described below. A detailed analysis of the social, economic, environmental and/or cultural effects of the Project and the significance of any residual effects will be completed as part of the REA process.

4.4.1 Construction

The construction phase of the project will occur over an approximately 6 – 9 month period, depending on the Project's FIT Contract commercial operation date and availability of necessary system components at the time the REA approval is achieved.

General Description of Construction Activities

| Activity | Description |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Surveying | The boundaries of the construction area, including transformer and inverter site, access roads and transmission cable will be identified and staked. All existing buried infrastructure, such as pipelines and cables will also be located and marked. |
| Site Preparation - Mobilization and staging | A logical progression of access road construction and laydown area preparation will be completed followed by the sequential arrival of temporary work trailers, material and equipment delivery, and commencement of project construction. Minimal site preparation is typically required due to the natural attributes of the site. |
| Access Road Construction | Access roads, if necessary, will be built using tracked bulldozers and backhoes to strip topsoil and subsoil as required, to create an even travel surface. Culverts, tiling or other drainage structures may be required to maintain adequate site drainage. Soil management will be incorporated into this process to facilitate site reclamation. Existing vegetation will be stripped with the topsoil, which will be stockpiled separately from subsoil and stabilized to prevent erosion. When the project operation is complete, stripped subsoil and topsoil will be replaced. |
| Site Preparation - Civil | Site preparation will include as required clearing and grubbing, grading as required, pier installation preparations, access points required to install frames and panels, access points to site from public roads, drainage features suitable to site requirements, all electrical installation civil preparations and features necessary to support future operations necessary for local weather conditions and permitting requirements. |
| Structural Support and Racking of PV modules | Structural work associated with the support and racking of the photovoltaic modules will include the setting of foundations, construction of array structures and sub-structures. High precision GPS & laser equipment is used to set-up the site, and then using customized drilling equipment, highly precise drilling of holes for the support structure is performed. Mounting of beams are installed and attached to the support via pre-drilled holes. Once the support structure is completely installed and checked for quality the installation of modules is commenced and wiring is completed sequentially as sub-arrays and arrays are completed. |
| Structural Support for Inverter & Transformer | It is expected that equipment pads can be constructed using conventional concrete slab-on-grade techniques. It is anticipated that the existing topsoil material will be stripped from the area. Engineered fill may be required beneath the concrete slabs after the removal of all organic and/or deleterious soils, as discussed previously. |

| | |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DC Conduit and Cabling | All DC wiring for array and sub-array aggregation shall be run along the array structural supports and attached appropriately. Array home run wiring will be run underground in a trench back to the centrally located inverters. Conduit will be used as necessary for DC wiring into and out of equipment. |
| AC Conduit and Cabling | AC wiring will be used to interconnect with the local distribution system and on site using a mixture of overhead and underground cable and will be constructed primarily following access routes in the final Project design. |
| Gates and Fencing | The entire facility will be fenced and secured based with the installation of a 6' fence. The project will have a lockable gate(s) with a minimum width of 12' for large trucks to enter and exit the site. |
| Lighting & Security | Lighting and protecting system will be provided as necessary and could include motion sensor tripped flood lighting. Video camera or web cams with recording capabilities and remote viewing, and response security services. |
| Clean Up and Reclamation | Construction debris will be collected and disposed of at approved location. All equipment and vehicles will be removed from the construction areas. Stripped soil will be replaced and disturbed areas (including trenches and plough seams) will be re-seeded. Site clean-up and reclamation will be conducted concurrently with construction, and will be completed within one month of installation of the Project equipment. |

4.4.2 Operation

The Facility operates 365 days per year when sufficient solar irradiation exists to generate electricity. Typical electricity generation begins shortly after sunrise, and stops shortly before sunset. Operation is remotely monitored, but unattended and does not require any on-site employees.

The Facility requires periodic visits for maintenance during the operation phase, such as checking and replacing worn parts, checking electrical connection and cleaning panels. Four (4) to five (5) visits per year are required for routine maintenance and cleaning of the panels.

General Description of Operating Activities

| Activity | Description |
|-------------------------------------------|----------------------------|
| Expected Commercial Operation Date | 9/12/2011 |
| On-site Employees | Zero (0) on-site employees |

| | |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Periodic Inspection & Maintenance | Approximately two (2) times per year, consisting of inspection of primary system components, replacement of air filters and other minor adjustments or maintenance as needed. |
| Major Maintenance | In the event of a component failure, all major maintenance can be performed utilizing existing roads and site access. |
| Cleaning of Panels | Approximately 2 times per year on average, utilizing on-site water if available, but not exceeding 45,000 liters per day. Water only is used for cleaning - no cleaning solutions of any kind are used to wash the panels. |
| Fuel Consumption | None |
| Waste | None – the system does not produce waste of any type. All debris as a result of maintenance or cleaning will be removed from the site immediately by the contracted party. |

4.4.3 Decommissioning

All decommissioning and restoration activities will adhere to the requirements of appropriate governing authorities, and in accordance with all applicable federal, provincial, and local permits. The decommissioning and restoration process comprises the following:

- Removal of above ground structures
- Removal of below ground structures
- Restoration of topsoil
- Re-vegetation and seeding

Recurrent Energy pays particular attention to agricultural lands, respecting Ontario’s long-term planning and protection of such lands, and insuring that land used for solar production will be returned to its original use.

5.0 Potential Environmental Effects

An Environmental Constraints Assessment (ECA) was completed for the Project. The purpose of the ECA was to determine if there are any natural or social environmental conditions that could pose as a constraint to the proposed Project. The ECA used existing documentation from government and non-government web sites to determine the environmental conditions. The natural heritage features of the site, as determined during a site visit in June 2009, include:

- There is a small drainage channel or seep adjacent to the eastern edge of the northeastern section of the property.
- The property consists of agricultural land with hedgerows crossing the agricultural fields. The site is bordered to the east by potentially significant woodland.
- There are no wetlands on or within 120 m of the property. Langman Marsh Provincially Significant Wetland is located approximately 140 m away from the property boundary.
- There is potential habitat for specific at-risk bird and reptile species (e.g. cerulean warbler, golden-winged warbler, Canada warbler, olive-sided flycatcher, red-headed woodpecker, milksnake and eastern hog-nosed snake). Wooded areas around the property were searched, by a qualified terrestrial biologist, for Butternut which are listed as endangered under the Federal Species at Risk Act and the Ontario Endangered Species Act. None were found.

From the information on existing natural heritage features and on the activities to occur during Project construction and operation, the following are the potential environmental effects:

- Erosion and sedimentation to adjacent natural areas and the small watercourse may occur due to soil exposure from the installation of arrays and access roads. These impacts will be mitigated through standard erosion and sedimentation control measures. No construction will occur within 30 m of the high water mark of the watercourse.
- The property does contain Class 6 agricultural lands and there will be a temporary loss of this land.
- Potential effects to at-risk bird and reptile species, if found on site.
- Removal of tree species which are not at-risk. Prior to removal and if removal is to occur during the breeding/rearing season, a qualified biologist will survey for potentially nesting species. Trees will not be removed during this time if nests are present.
- Noise from transformers and inverters. Assuming that an inverter (PowerGate 1 MW) and a transformer (NEMA TR-1-1993, max. 10 MVA, 27.6 kV ONAN/ONAF) will be used in the Project, the combined sound power levels are about 77 dBA if both are at the same location. Based on conservative preliminary calculations, it is estimated that the

sound pressure levels from both devices would be below MOE requirements for Class 3 areas (40 dBA) within 100 to 200 m. Noise reports, in accordance with MOE requirements, will be completed to confirm. Noise at receptors can be mitigated by distancing the source or installing noise barriers.

- If possible, the development should avoid disturbance to the snowmobile trail area on the property.

All of the potential effects can be mitigated. The mitigation measures will be determined and provided in the Construction Plan Report and if required, in the Environmental Impact Study(ies) should a significant feature be identified within the setbacks as identified in Ontario Regulation 359/09.

6.0 Outline of Renewable Energy Approval (REA) Process

In order to obtain the REA approval for the Project, the proponent must meet the requirements as set out in Ontario Regulation 359/09 jointly published by the Ministry of Environment and Ministry of Natural Resources. The completion of this Project Description Report (PDR) is the first step in obtaining the REA Approvals. Following publication of this PDR, the Company will receive from the MOE a list of First Nations and Aboriginal communities to be consulted and will then commence with First Nation/Aboriginal consultations.

Upon submission of the PDR, the Company will then undergo the following activities to complete the REA process:

- Place a posting in the local newspaper with general circulation (on two separate days), the Notice of a proposal to engage in a Renewable Energy Project.
- Send a copy of the Notice to those outlined in Section 15(6)(5) of Ontario Regulation 359/09.
- Meet with Ontario Ministry of Natural Resources (MNR) to discuss the natural heritage features and confirm requirements, review results and then obtain a letter confirming their agreement with methodology and results.
- Complete First Nation and Aboriginal consultation.
- Complete municipal consultation with the Township of Oro-Medonte, Simcoe County and any service boards in accordance with the consultation form provided by MOE.
- Complete public consultation process including the first and second public information session in the area of the project.
- Determine which natural heritage features are within the setbacks identified in Ontario Regulation 359/09 and complete site investigations, if required.
- Complete the archaeological and heritage assessment and preparation of the report
- Generate the following reports:
 - Construction Plan Report
 - Consultation Report
 - Decommissioning Plan Report
 - Noise Study Report
 - Natural Heritage Records Review Report
 - Natural Heritage Site Investigation Report and Natural Heritage Evaluation of Significance Report, if required
 - Water Records Review Report and Water Site Investigation Report
 - Environmental Impact Study(ies), if required.
- Submit application forms and documents to MOE.

7.0 Project's Social and Environmental Benefits

| Social Environmental Benefit | How Addressed |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Increasing Diversity, Reliability, Public Health, and Environmental Benefits of Energy Mix</p> | <p>Solar photovoltaic electricity production is a nearly emission free electricity generation method. Solar PV has become a reliable electricity producer, which has a strong value-add to electricity portfolios because its production curve, with peak power produced in the middle of the day, is positively correlated to peak demand.</p> |
| <p>Promoting Stable Electricity Prices</p> | <p>With the sun as the fuel source, there is no fuel cost associated with operating a solar PV plant. Solar production forecasting is fairly well known, leading to reliable annual production estimates for this plant. This yields a stable and predictable power supply to OPA throughout the plant's lifecycle.</p> |
| <p>Protecting Public Health and Improving Environmental Quality</p> | <p>As stated above, solar PV plants have nearly no emissions. As electricity demands are increasing, solar PV plants offer a method of producing peak power without building new fossil-fuel plants that release noxious emissions into the environment.</p> |
| <p>Ameliorating Air Quality Problems</p> | <p>Operating and maintaining a solar PV plant creates almost no emissions. By producing needed power without the need for additional fossil fuel plants, solar PV helps slow the increasing rate of air quality problems.</p> |
| <p>Improving Public Health By Reducing the Burning of Fossil Fuels</p> | <p>Solar PV produces electricity without the combustion of any fossil fuels.</p> |
| <p>Resource Diversity</p> | <p>Less than 1% of Canada's power comes from solar energy. New solar PV plants therefore greatly increase the diversity of the generation portfolio mix.</p> |
| <p>Environmental Stewardship</p> | <p>Solar PV is among the safest, cleanest sources of energy available. PV has a lower elevation than many solar thermal technologies and wind turbines, minimal noise impacts, and does not release carbon dioxide through its operating life as do biomass/biogas generators.</p> |

Signature Page

This Project Description Report is being submitted by:

RE Orillia 1 ULC

A handwritten signature in black ink, appearing to be 'SK', written over a horizontal blue line.

Sheldon Kimber
Authorized Signer

Figures

Figure 1- Area Map

Figure 2 – Map of Canada Land Inventory (CLI) Agricultural Land Classification

Figure 2

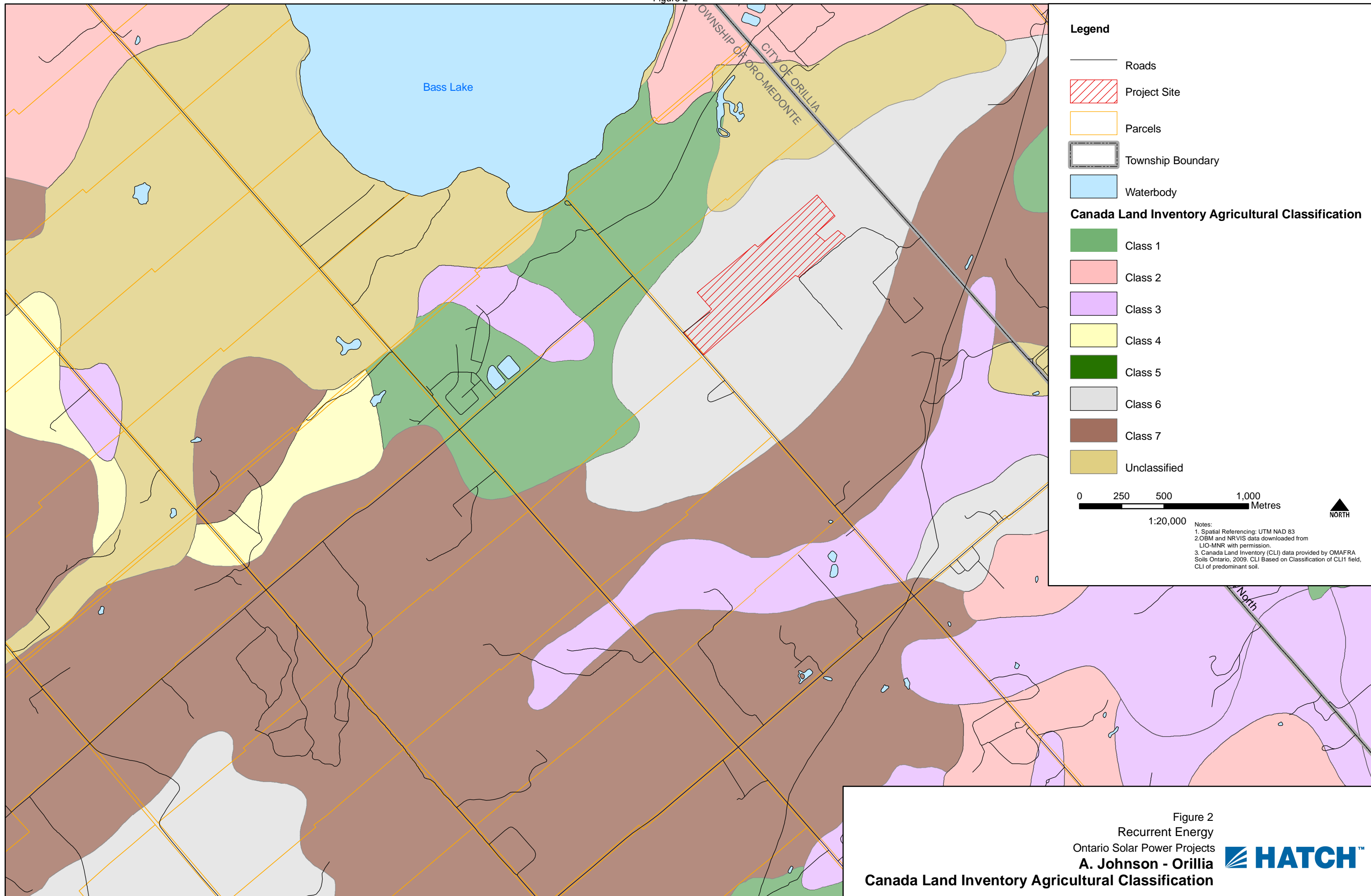


Figure 2
 Recurrent Energy
 Ontario Solar Power Projects
A. Johnson - Orillia
Canada Land Inventory Agricultural Classification

