Silvercreek Solar Park Inc.

Welcome

Silvercreek Solar Park

Open House

5:30pm - 8pm

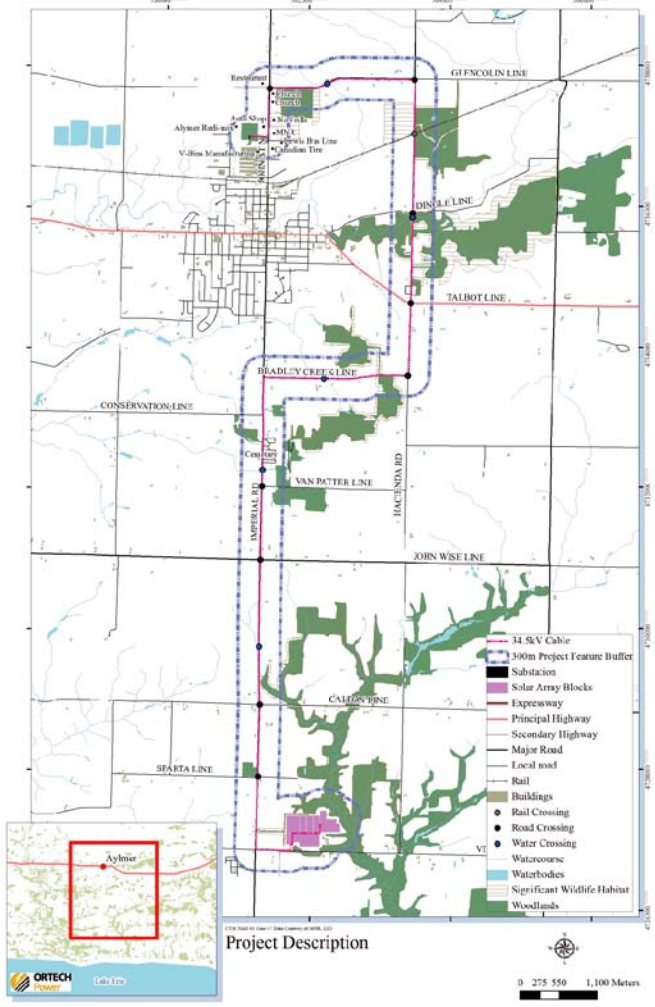
Hosted By

ORTECH Power

Silvercreek Solar Park Inc.

Project Proposal

Silvercreek Solar Park Inc. (SSPI) is proposing to develop a 10 MW ground mounted solar PV facility on private property in the township of Malahide. This will be a sun following facility utilizing a single-axis tracker system, the trackers will rotate the panels towards the sun during daylight hours to maximize energy production. The current design requires up to 46,000 polycrystalline solar photo-voltaic panels with a rated power output of 290 watts each to be mounted on horizontal beam single-axis trackers. The Project will require installation of a new 34.5 kV distribution line to be installed primarily below-ground to a new 115 kV substation adjacent to the existing Aylmer Transmission Station. The Project was awarded a Feed-in Tariff Contract in July 2011.



Project Team

ORTECH Power Mississauga; Coordination of Technical Consultants, REA Project Coordination, Permitting, Correspondence, REA Reporting

Natural Resource Solutions Inc. – Waterloo; Natural Heritage assessment

Timmins Martelle Heritage Consultants – London; Cultural Assessment

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Site Background & Purpose

The proposed location of the Silvercreek Solar Park is approximately 39.5 ha of privately owned land just off Vienna Line. This land has been active agricultural land for over 100 years, and until recently was used to grow tobacco. Currently it has been planted with soybean and wheat. This project is being developed in conjunction with the property owner, providing a direct local benefit.

The Ontario Green Energy Act, proclaimed on September 24, 2009 has paved the way for projects such as the Silvercreek Solar Park. This program was developed to allow for new commercial generation, while empowering local residents to become involved in the generation of power through renewables.

The proponent has a Feed-in Tariff Contract and if the Project receives REA approval will generate power for over 1,500 households per year.

Hooper Colorado, Photo Courtesy of Array Technologies

Hooper Colorado, Photo Courtesy of Array Technologies

Solar PV and Agriculture

The Canadian Solar Industry Association has released a backgrounder discussing the advantages of placing Solar PV on agricultural fields. These advantages include:

- Farmland tends to be flat, free of obstruction, competitively priced and close to distribution lines making them ideally suited
- Solar installations are low impact and can be easily decommissioned after use

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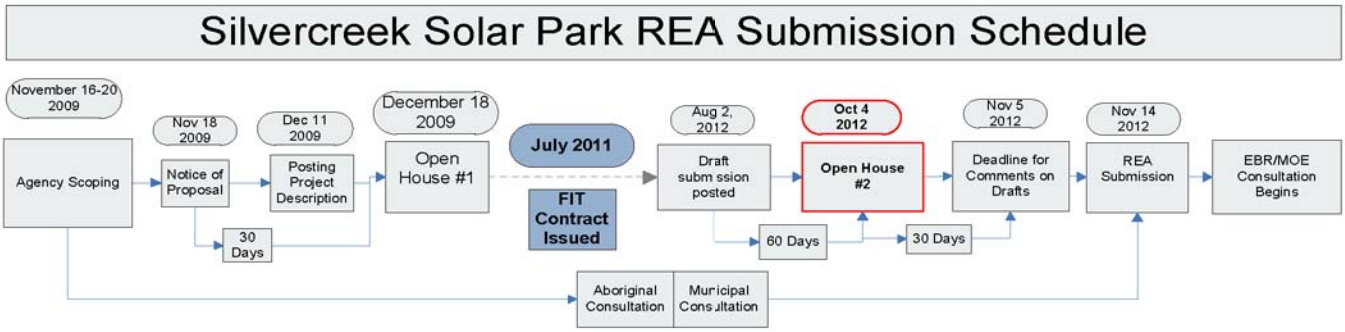
Provincial Approvals

Renewable Energy Approval – O.Reg 359/09

The Renewable Energy Approval (REA) came in to force in September of 2009. This approvals process replaces the previous environmental screening process for renewable projects. In Ontario Ground Mounted Solar PV greater than 10 kW are required to undergo the REA process

Les Bcrges Spain, Photo Courtesy of Array Technologies



Next Steps

- Deadline for Comments on REA Drafts to Silvercreek Solar; Monday November 5 at 4pm
- Silvercreek Solar Park Submission to the Ministry of Environment November 14, 2012
- MOE reviews application for completeness; Winter 2012
- MOE posts REA application on EBR for 30 day consultation period; Late 2012/Early 2013
- MOE REA Review Period
- Anticipated REA Approval; Spring/Summer 2013
- Construction Commences; Spring/Summer 2013
- Targeted Operating Date; Fall/Winter 2013

The Project Team will examine the comments received and heard throughout this public consultation process in order to make adjustments to the draft documents where necessary

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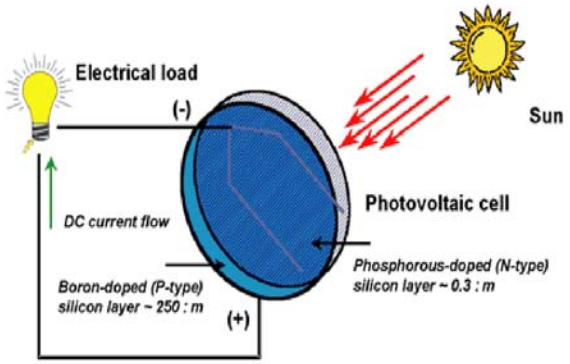
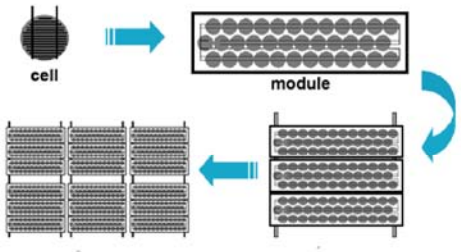
General Information

How Does Solar Energy Work?
Photovoltaic (PV) Cells

A typical silicon PV cell is composed of a thin wafer consisting of an ultra-thin layer of phosphorus-doped (N-type) silicon on top of a thicker layer of boron-doped (P-type) silicon. An electrical field is created near the top surface of the cell where these two materials are in contact, called the P-N junction. When sunlight strikes the surface of a PV cell, this electrical field provides momentum and direction to light-stimulated electrons, resulting in a flow of current when the solar cell is connected to an electrical load



Courtesy of http://www.fsec.ucf.edu



Courtesy of http://www.fsec.ucf.edu

Solar Cells, Solar Panels and Solar Arrays

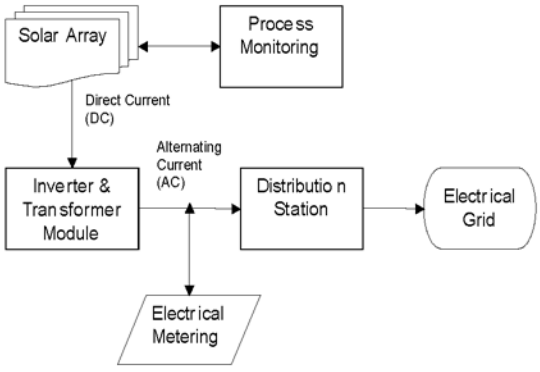
Several solar cells are connected both in series and parallel to create a solar module or panel. Solar panels in turn are connected together, creating a solar array.

Process Operations

Process monitoring: Light sensors located on the solar arrays will provide information to a control unit, optimizing the exposure to sunlight.

Solar array: Polycrystalline solar cells capable of maintaining generating efficiency for 25 years.

Inverter & Transformer Module: Converts direct current (DC) from the array to alternating current (AC) at the desired distribution voltage of 34.5 kilovolts (kV).



Electrical Metering: Monitors and measures electricity supplied to electrical grid.

Transmission Station: A distribution line running from the project site to the Aylmer Transmission Station where electricity is made available to the electrical grid.

Electrical Grid: The project will produce enough electricity to supply approximately 1,500 households.

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Solar Array Project Design

Project Components

The solar array will be located entirely on private agricultural lands formerly used to grow tobacco. The main components of the solar array portion of the project consist of the following:

- 46,000 polycrystalline solar photovoltaic panels of 290 watts each
- Eight (8) inverter/transformer stations, underground collector cables and one electrical house
- Access roads and fencing

Photovoltaic Solar Panels

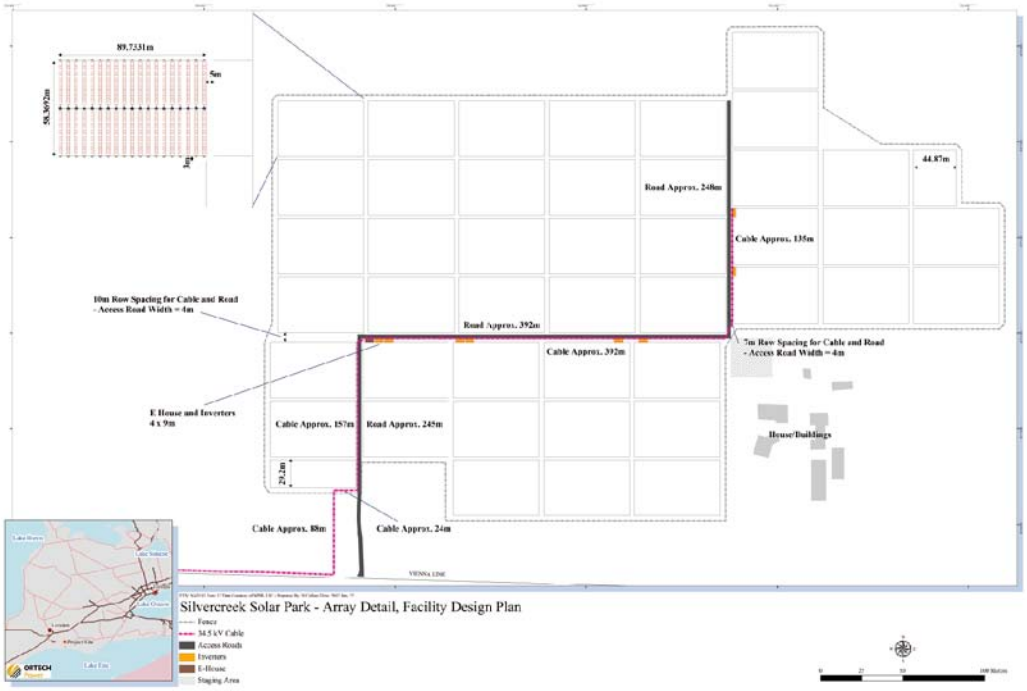
- Each panel consists of individual solar cells which are electrically connected, the panels in turn are connected to form larger units which are called 'arrays'.
- The project will use a single-axis tracking system for each array, which will be controlled by a small 1.5 horsepower motor.
- Photovoltaic solar cells are made of semiconducting material (silicon), the sun-facing side is covered with glass or plastic and will have an anti-reflective coating to reduce reflection losses.
- The steel support posts for the tracker will be installed into the ground to a depth of four metres; an estimated 12,540 posts will be installed.

Access Roads and Fencing

- On-site gravel access roads will represent less than 1% of the overall project area.
- Fencing will be erected around the site and access to the facility will be controlled via a secure gate on Vienna Line.

Inverter/Transformers

- The inverter/transformers will convert the direct current (DC) voltage generated by the solar cells to alternating current (AC) and transform the voltage to 34.5kV.
- The on-site collector lines will converge at the electronic house and will leave the site travelling north towards the substation.



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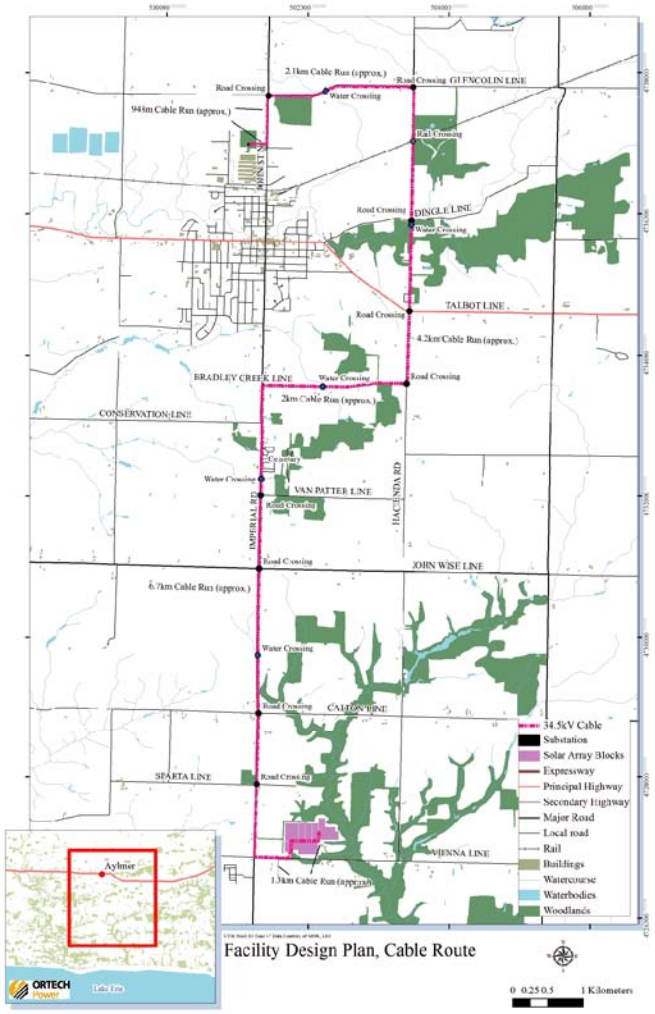
Substation & Connection Line

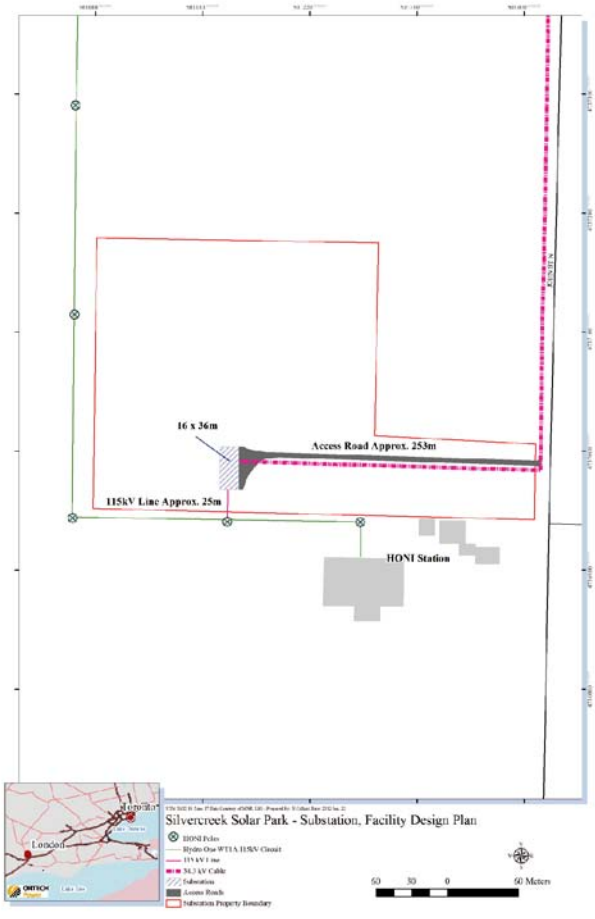


Connection Line Route

A 34.5 kV distribution line will connect the Solar Array to the substation. This line will travel in the municipal right-of-way, and will travel below-ground.

Where the line crosses watercourses, road and railways, it is proposed that it will be directional drilled.

The crossings at Talbot Line and the Trillum Railway Line are subject to additional construction approvals.



Substation

In order to connect the project to the Hydro One Network Inc. (HONI) system, the project requires a substation. The station will transform the voltage of the electricity upwards from 34.5 kV to 115 kV.

The location of the new substation is presently a white pine plantation. A small number of trees, approximately (0.36 hectares) will need to be removed in order to facilitate the installation of the substation. An access road will be built using an existing entrance.

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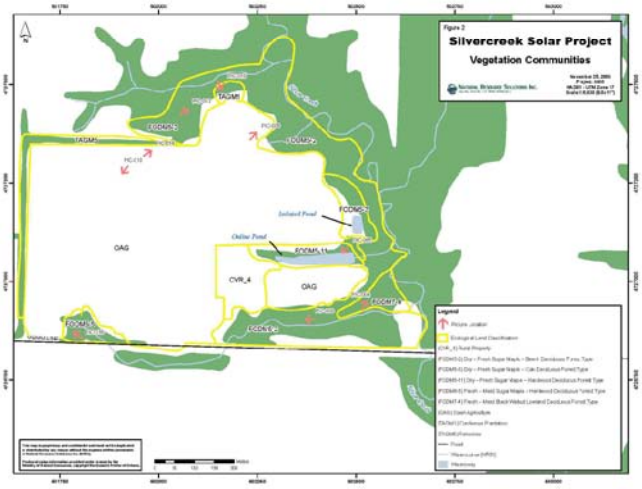
Natural Heritage Assessment
Soil and Vegetation

Soil

- The project will be located entirely on Class 3 agricultural lands
- The site has been primarily used for production of agricultural crops, such as tobacco, soybeans, wheat and hay
- Consistent with the Renewable Energy Approval Regulation, proper setbacks will be maintained from all natural features including significant natural areas, significant wildlife habitat, and water bodies



Vegetation Communities

Eight (8) vegetation communitites, including five (5) naturally occuring communitites were identified within the project area.

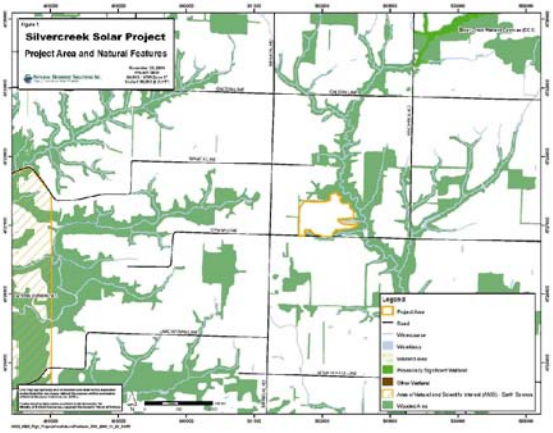
Plant Species

58 plant species were identified mainly along the wooded edge, many of them are non-native or invasive species.

No nationally or provincially listed plant species at risk were found within the project area.

Designated Natural Areas

The two closest significant natural areas (EM-120 Wetland and Springwater Forest Area of Natural and Scientific Interest) are located 3 and 6 km from the project site, respectively.



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Archaeological Assessment

Stage 1& 2 Archaeological Work

Stage 1 (desktop review) and Stage 2 (field surveys) were carried out by Timmins Martelle Heritage Consultants including the entire project location between 2009 and 2012.

The work on the substation property and the connection route found no items of archaeological significance and recommended no further study. The archaeological assessment conducted on the Solar Park property identified the presence of cultural artifacts. Work was done in accordance with and approval from the Ministry of Tourism, Culture and Sport (MTCS). MTCS has reviewed the reports and provided letters confirming the findings in each as required for the REA submissions.

Summary of Further Archaeological Assessments at the Solar Array Location

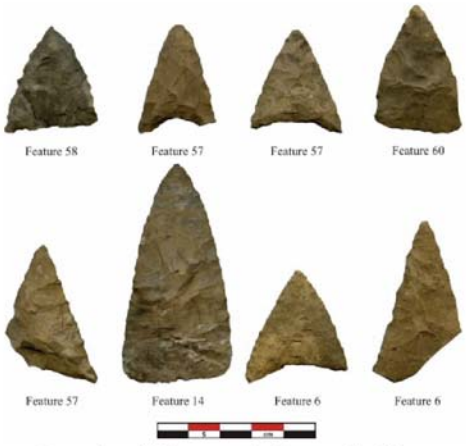
In the spring and summer of 2012 Timmins Martelle Heritage Consultants Inc. conducted extensive excavations on two significant archaeological sites that would have been impacted by the Project. The investigations initially involved hand excavations of one-metre units in areas of high artifact concentrations. All units were excavated to the subsoil level (25-45cm deep) and the soil was screened through 6mm mesh. The hand excavations were followed by mechanical topsoil removal. An excavator with a flat-edged ditching bucket was used to remove the topsoil layer from the site areas to identify remains of any settlement pattern, such as hearths, garbage pits or remains of house structures. All identified remains of the settlement were mapped, photographed and completely excavated.

Findings

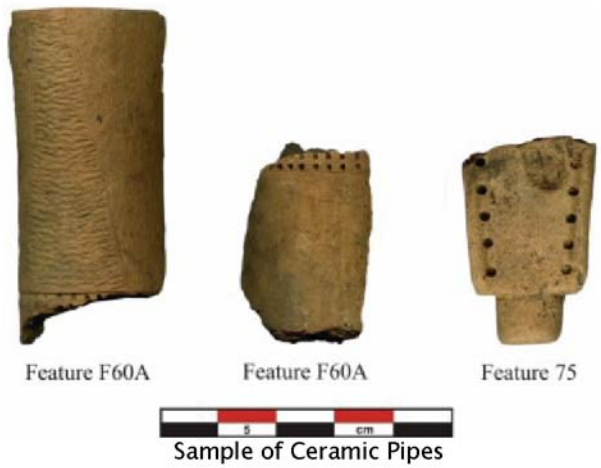
While the results of radiocarbon dating are pending, both sites are estimated to date to around A.D. 1000. Final reports on the sites are currently in progress and the results promise to make a significant contribution to our understanding of the precontact First Nations history in the area.

Ceramic Vessel

Ceramic Vessel



Sample of Diagnostic Stone Artifacts



Sample of Ceramic Pipes

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Natural Heritage Assessment
Results

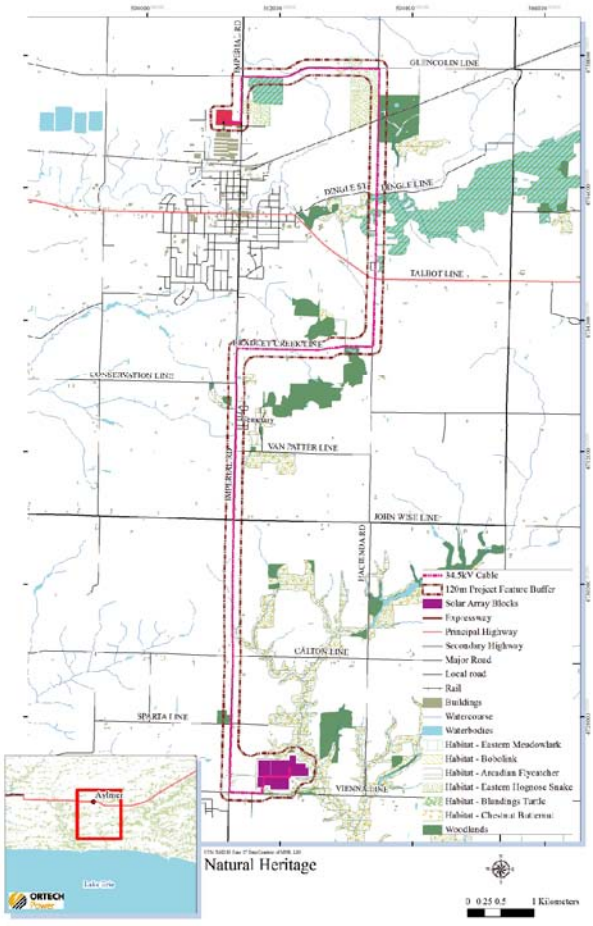
The Study
The Natural Heritage Assessment (NHA) was completed in four separate parts between 2009 and 2012. The study was completed by Natural Resource Solutions (NRSI); in 2011 the study area was expanded to include the substation property and the connection route. This area was added in order to facilitate the FIT contract connection location. On July 9, 2012 the MNR provided confirmation that the NHA was completed in accordance with their requirements.

Part 1 - Records Review
The Records Review examined areas within 120m beyond the project location for significant natural features as defined by the REA regulation. The results were used to help shape the scope of the Site Investigation.

Part 2 - Site Investigation
Between 2009 and 2012, NRSI biologists visited the site location and conducted site investigations to identify the types of flora and fauna present on the Project lands. They used the results to create mapping of the natural features within 120m of the project locations and to confirm the results of the Records Review. The results of this investigation determine whether or not the features identified will need to be evaluated for significance.

Part 3 - Evaluation of Significance
Based on the information collected during the Site Investigation and the Records Review, the NRSI biologists completed an Evaluation of Significance on those features within 120m of the Project location. The result of this process determines whether or not a feature is significant and requires an Environmental Impact Study.

Part 4 - Environmental Impact Study
An Environmental Impact Study was prepared for all those significant features in Part 3. This study recommends timing windows for certain activities, monitoring and mitigation requirements for construction activities so as to ensure minimal impacts to the natural environment.



Species at Risk & Endangered Species
The permitting process for these species is done outside of the REA process under a separate MNR process. The Proponent is currently engaged with the MNR with regards to Species at Risk.