

RENEWABLE ENERGY APPROVAL DOCUMENTS

RE Breen 2 Solar Project
Executive Summary

August 19, 2011

RECURRENT
ENERGY



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RE Breen 2 Project Site



Swallow over Reynolds Creek

Disclaimer

This report has been prepared by or on behalf of RE Breen 2 ULC for submission to the Ontario Ministry of the Environment as part of the Renewable Energy Approval process. The content of this report is not intended for the use of, nor is it intended to be relied upon by, any other person. Neither RE Breen 2 ULC nor any of its directors, officers, employees, agents or consultants has any liability whatsoever for any loss, damage or injury suffered by any third party arising out of, or in connection with, their use of this report.

Section 1: Project Introduction

1.1: Project Location

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land. This proposed facility is referred to as “RE Breen 2” and is also referred to as the “Project.”

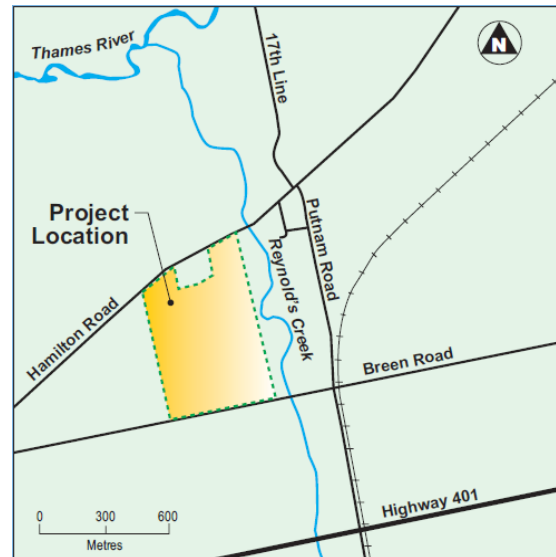
RE Breen 2 is located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll. The Project will be located on approximately 19.5 ha of the property and will not be located on any Class 1 or Class 2 agricultural lands.

1.2: Project Proponent

The RE Breen 2 Project is being proposed by **RE Breen 2 ULC**, a Nova Scotia Unlimited Liability Company owned by Recurrent Energy, LLC through its subsidiaries. Recurrent Energy is an independent power producer and a leading developer of distributed solar projects for utilities, government, and commercial customers.

The company develops, builds, and operates distributed solar power systems – typically 2 to 20 MW each – connected to the existing distribution grid. Its vision is to use proven solar technology to meet rising energy demand with a fleet of clean power plants located right where they are needed most.

RE Breen 2 ULC has retained Hatch Ltd. to coordinate the completion of the Renewable Energy Approval (REA) process. All comments or questions in relation to the REA documents provided herein should be directed to Hatch, at the contact information provided below.



Project Location



Examples of Comparable Solar Arrays

Contact Information	
<p>Primary Contact</p> <p>Sean Male, M.Sc. Environmental Coordinator Hatch Ltd. 4342 Queen Street, Suite 500 Niagara Falls, ON, Canada L2E 7J7 Tel: 905-374-0701 ext. 5280 Email: smale@hatch.ca</p>	
<p>Project Contact</p> <p>RE Breen 2 ULC c/o Recurrent Energy 300 California Street, 8th Floor San Francisco, CA 94104 Tel: 415-675-1500 Fax: 415-675-1501 www.ontariosolarfuture.ca</p>	<p>Secondary Contact</p> <p>David Brochu 300 California Street, 8th Floor San Francisco, CA 94104 Tel: 630-333-7602 Email: david.brochu@recurrentenergy.com</p>

1.3: Project Description

The Project will consist of solar photovoltaic panels that generate direct current (DC) electricity when exposed to sunlight. The panels will be stationary, arranged in rows mounted off the ground and tilted to the south to catch the sun’s rays. Electricity generated by the rows of panels is collected through underground cabling by inverters which convert the DC electricity to alternating current (AC). The AC current then continues from the inverters through underground cabling to a single main facility substation. At this substation, a transformer increases the voltage to the level of voltage of the electricity distribution grid. The Project will provide electricity to the grid by interconnecting with the existing distribution line on Hamilton Road immediately north of the Project site. Other Project components include a small parking area, control house and internal access road network. The proposed Project site layout from the Construction Plan Report is provided in Figure 2.

Construction of the Project is scheduled to commence in July 2012, subject to receipt of the REA and any other permits or approvals that may be required. Construction will last for approximately 6-10 months, with the earliest possible commissioning of the facility scheduled for February 2013. The commercial operation date and associated construction schedules proposed herein are currently estimates based on a number of variables. The start of construction and operations dates for the project may be significantly changed, either accelerated or delayed, due to changes in expected timeframes for regulatory approval, equipment procurement, and/or project scheduling optimization.

Commissioning is the process of assuring that all systems and components of the Project are installed, tested, and operating safely and according to its operational requirements. The main construction activities will include site preparation (road and parking area construction, minor vegetation removal and grading), installation of facilities (racking structures, solar panels, underground cabling, inverters and substation components), testing and commissioning and site restoration.

The facility is expected to operate for 30 years prior to decommissioning. Upon decommission the site, all Project components will be removed and the site will be restored to its previous agricultural use.

1.4: Project Benefits

The proposed Project will result in a number of social and environmental benefits, both at a local level and throughout the Province of Ontario.

Social Benefits

Operation of the Project will result in production of approximately 13.6 million kWh of electricity per year, enough to power approximately 1300 average homes. Construction and operation of the Project will result in the creation of jobs for the people of Ontario throughout the life of the Project – from initial development, design and manufacture, to construction and ongoing maintenance. At least 60% of the materials for the Project will be made or sourced from Ontario. This will help contribute to the Province’s goal of creating 50,000 jobs in the green energy industry. The Project will also result in benefits for the local landowner of the Project.

Environmental Benefits

Solar PV is among the safest and cleanest sources of energy generation. It uses only the sun, a completely renewable energy source, as its fuel, with no harmful pollutants emitted due to electricity generation. The Project will help Ontario to meet its goal of increasing the amount of energy generated from green renewable sources in the Province. This will assist in helping the Province phase out heavily polluting, non-renewable coal generation by 2014, therefore greatly reducing emissions associated with power generation. Further, operation of the facility will result in minimal waste generation and very limited use of raw materials (e.g., minimal water requirements for cleaning purposes), limiting the long-term environmental impacts associated with power generation.

Benefits to Ontario

The Project will help Ontario to meet its goal of doubling the amount of energy generated from renewable sources by 2025.

This will allow the Province to phase out existing coal generating facilities by 2014, which will substantially reduce air emissions due to power generation activities.

Recurrent Energy’s RE Breen 2 Project will assist the Province in meeting these important goals.

1.5: Renewable Energy Approval Process

The environmental approval for renewable energy projects is called the **Renewable Energy Approval (REA)**. It is regulated by the Ministry of the Environment (MOE) and the Ministry of Natural Resources (MNR). To obtain a Renewable Energy Approval, the Project is subject to the requirements of Ontario

Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the REA Regulation) created under the *Environmental Protection Act*. The REA Regulation identifies a process to engage and receive feedback from the public, Aboriginal communities, municipal and regulatory agencies. As part of the REA Regulation, RE Breen 2 ULC is required to prepare a number of documents to describe the Project and identify potential adverse effects. Any adverse effects will be prevented or minimized through mitigation measures and monitoring commitments. These documents are required to be made available for public, Aboriginal, municipal and agency review and comment prior to submission of the REA Application to the MOE. The documents that are included in this package for review include:

- Project Description Report
- Construction Plan Report
- Design and Operations Report
- Decommissioning Plan Report
- Natural Heritage Records Review, Site Investigations, Evaluation of Significance and Environmental Impact Study (EIS) Reports
- Water Body Records Review, Site Investigations and EIS Reports
- Stage 1 & 2 Archaeological Assessment Reports
- Noise Study Report

The Natural Heritage and Water Body Reports identified several environmental features within 120 m of the Project site including Reynolds Creek and its associated significant valleyland. Mitigation measures have been specified to prevent and/or minimize adverse effects on these features due to construction, operation and eventual decommissioning of the facility. A letter from the Ontario Ministry of Natural Resources confirming that the Natural Heritage Assessment satisfies the REA Regulation criteria is provided in Appendix 9.

Stages 1 and 2 Archaeological Assessments were conducted on the Project site to assess the potential for presence of archaeological features that could be disturbed due to construction. These assessments identified the buried foundation remnants of a 19th Century farmstead within the existing agricultural portion of the property. A Stage 3 and 4 Archaeological Assessment will likely be undertaken to further assess the size and significance of this feature pending Ministry of Tourism and Culture requirements. These requirements will be followed to ensure that there are no negative impacts to the archaeological resources. A letter from the Ministry of Tourism and Culture confirming that the Stage 1 and 2 Archaeological Assessment is acceptable is provided in Appendix 14.

A noise study was undertaken to assess noise emissions from the inverters and transformer. The

Benefits to Ontario

Power 1,300 homes with clean, sustainable energy.

60% of materials made or sourced from Ontario.

Contribute to the goal of creating 50,000 jobs in the Province's renewable energy industry through the Feed-In Tariff program.

solar panels themselves do not emit noise. Mitigation measures (e.g., sound enclosures over the transformer) will be applied as necessary to ensure the Project meets MOE requirements with respect to noise levels in rural environments.

A Heritage Checklist was completed to determine if a heritage resource was located on the property. The results indicated that a heritage resource was not located on the property and therefore a heritage assessment was not required. For further information relating to protected properties and heritage resources please refer to Appendix 15.

Summaries of each of these reports are provided in Appendix A.

1.6: Guide to Reviewing Project Reports

The REA Regulation requires that the reports discussed in Section 1.4 be made available for Aboriginal and public review at least 60 days in advance of the second public information centre for the Project. This section of the Executive Summary has been prepared to use as a guide when reviewing and commenting on these reports.

Figure 1 identifies the Project reports that are available for review, summarizes the purpose of each report and identifies a logical progression in which reports should be read to form a complete understanding of the Project and its potential environmental implications. If read in this sequence, the first reports provide information on Project construction, operation and decommissioning plans. Next, the reports identify the existing environmental features on or near the site. Finally, the remaining reports assess the potential adverse effects based on the interactions of the Project components and activities with the environmental features.

If you have any questions or require clarification on any of the information contained within these reports, you may contact Mr. Male by phone. However, all comments on the Project should be submitted in writing by letter, fax or email.

Once all comments have been received, they will be compiled and reviewed by Recurrent Energy and Hatch. A Consultation Report will be prepared identifying all comments received and how each comment has been addressed, and where necessary, how reports have been changed as a result.

Once all comments have been addressed, the complete REA application package, including the application form and all of the Project reports, will be submitted to the MOE for review. The MOE will then have 6 months to review the application and make a decision on the Project. The MOE's decision will be posted for a 15-day comment period on the Environmental Bill of Rights (EBR) Registry. Provided no appeal requests are received, the Project could commence, subject to receipt of any other permits and approvals that may be required.

Submitting Comments

Comments on these reports should be submitted, in writing, no later than 2 weeks following the final public meeting, to the attention of:

Sean Male, M.Sc.

Environmental Coordinator
Hatch Ltd.

4342 Queen St., Suite 500

Niagara Falls, ON L2E 7J7

Phone: 905-374-0701

Fax: 905-374-1157

Email: smale@hatch.ca

Figure 1: Project Reports

Report Name	Purpose
Project Description Report	Summarizes Project location, construction and operational activities, potential environmental effects and mitigation, and social and environmental benefits.
Construction Plan Report	Summarizes construction activities, timelines, materials, temporary uses of land and waste materials generated and environmental effects, mitigation and monitoring during construction.
Design and Operations Report	Summarizes the site layout plan, Project components, operations and maintenance activities, communications and emergency response plan, and environmental effects monitoring plan.
Decommissioning Plan Report	Summarizes activities undertaken to decommission and restore the Project site.
Natural Heritage Records Review Report	Summarizes existing information on natural heritage features including woodlots, valleylands, wetlands, Areas of Natural and Scientific Interest and wildlife habitat.
Natural Heritage Site Investigations Report	Documents the results of the site investigations to identify and confirm natural heritage features on and within 120 m of the Project.
Natural Heritage Evaluation of Significance Report	Evaluates the significance of any natural heritage features located within 120 m of the Project.
Natural Heritage Environmental Impact Study	Identifies potential adverse environmental effects on significant natural heritage features, mitigation measures to prevent or minimize adverse effects and monitoring requirements.
Water Body Records Review Report	Summarizes existing information on waterbodies including lakes, permanent and intermittent streams and groundwater seepage areas.
Water Body Site Investigation Report	Documents the results of the site investigations to identify and confirm water body features on and within 120 m of the Project.
Water Body Environmental Impact Study	Identifies potential adverse environmental effects on waterbodies, mitigation measures to prevent or minimize adverse effects and monitoring requirements.
Stage 1 & 2 Archaeological Assessment Report	Documents the results of the desktop Stage 1 study to identify archaeological potential and the Stage 2 site investigations to confirm if archaeological artefacts are present on the site.
Heritage Resources	Documents the results of the assessment of potential effects on protected properties and heritage resources.
Noise Study Report	Documents the results of noise modeling to identify noise emissions levels at nearby sensitive receptors and mitigation requirements to meet MOE noise emissions guidelines.

Figure 2: Site Layout



Appendix A: Project Report Summaries

Appendix A1 – Project Description Report Summary
Appendix A2 – Construction Plan Report Summary
Appendix A3 – Design and Operations Report Summary
Appendix A4 – Decommissioning Plan Report Summary
Appendix A5 – Natural Heritage Records Review Report Summary
Appendix A6 – Natural Heritage Site Investigation Report Summary
Appendix A7 – Natural Heritage Evaluation of Significance Report Summary
Appendix A8 – Natural Heritage Environmental Impact Study
Appendix A9 – MNR Confirmation Letter
Appendix A10 – Water Body Records Review Report Summary
Appendix A11 – Water Body Site Investigation Report Summary
Appendix A12 – Water Body Environmental Impact Study Summary
Appendix A13 – Stage 1 & 2 Archaeological Assessment Report Summary
Appendix A14 – MTC Confirmation Letter
Appendix A15 – Protected Properties and Heritage Resources
Appendix A16 – Noise Assessment Study Report Summary

Appendix A1
Project Description
Report Summary

RE Breen 2 ULC RE Breen 2 Solar Project

Summary

Project Description Report

1. Introduction

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Project Description Report for the RE Breen 2 Solar Project.

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as "RE Breen 2" or the "Project").

Table 1 of the REA Regulation requires proponents of Class 3 solar projects to prepare a Project Description Report (PDR). The PDR is prepared as one of the first Project documents once the REA process commences and is made available for public review prior to the first public meeting. The purpose of the PDR is to provide preliminary information regarding the Project to members of the public, Aboriginal groups, municipalities and other government agencies. The contents of the PDR are summarized in the following sections.

2. Project Proponent

The RE Breen 2 Project is being proposed by RE Breen 2 ULC, a Nova Scotia Unlimited Liability Company owned by Recurrent Energy LLC through its subsidiaries.

Recurrent Energy has retained Hatch Ltd., an Ontario-based environmental and engineering consulting company, to undertake the REA process.

3. Summary of Project

The proposed Project consists of a 10-MW Class 3 solar facility, constructed on privately owned land in the Township of Thames Centre. RE Breen 2 ULC has entered into a lease agreement with the private landowner for a lease term of 30 years. RE Breen 2 ULC has obtained a contract from the Ontario Power Authority (OPA) to buy the power produced by the proposed facility under the Feed-In-Tariff (FIT) program for a period of 20 years. The proposed commercial operation date is February 13, 2013. Decommissioning of the facility would likely not occur until around 2043.

Construction of the proposed facility would occur over a 6 to 10 month period with major construction activities including site preparation, access road construction, installation of solar panels

(including footings, support structures and panels), installation of inverters and transformer and all electrical cabling and site rehabilitation following construction.

The facility would operate 365 d/yr, generating electricity when sufficient solar irradiation conditions exist. Inspection and maintenance activities would be conducted periodically through the year, with primary activities including inspection of components, replacement of air filters, maintenance of ground cover vegetation and panel washing (approximately three times per year). The proposed facility would not consume any fuels nor produce any waste as a result of generation activities.

4. Potential Environmental Effects

The PDR summarized the existing environmental features on the Project location. The site primarily consists of agricultural land with some scattered hedgerows. Reynolds Creek and valleyland are situated immediately east of the Project area. There are no wetlands or potentially significant woodlands on or within 120 m of the Project location.

The PDR also identified preliminary potential environmental effects of the Project including

- potential erosion and sedimentation due to construction activities
- temporary loss of Class 3 and 4 agricultural lands due to facility installation and operation
- minor removal of tree species in hedgerows
- noise emissions from the invertors and transformer.

Mitigation measures were identified to prevent or eliminate those effects. Potential effects and mitigation measures were assessed in more detail in other Project reports.

5. Outline of REA Process

The PDR provided a point form outline of the REA process including the main points of Aboriginal, public and agency consultation and reporting and assessment requirements, including identification of the Project reports required to be prepared under the REA Regulation.

6. Project's Social and Environmental Benefits

Benefits provided by the Project include

- increasing diversity, reliability, public health and environmental benefits of energy mix
- promoting stable electricity prices
- protecting public health and improving environmental quality
- ameliorating air quality problems
- improving public health by reducing the burning of fossil fuels
- enhancing energy resource diversity.

Appendix A2
Construction Plan
Report Summary

RE BREEN 2 PROJECT SUMMARY: CONSTRUCTION PLAN

Introduction:

RE Breen 2 (the "Project") is made by RE Breen 2 ULC. As per the March 1, 2010 draft of *Technical bulletin three: Guidance for preparing the Construction Plan Report as part of an application under O.Reg.359/09 PIBS 7438e* made under the Renewable Energy Approvals, the following is a summary of the reporting completed for the DRAFT Construction Plan for the RE Breen 2 Solar Project.

RE Breen 2 ULC is proposing to develop and operate a 10 megawatt (MW) facility on a parcel of agricultural land totalling approximately 32 hectares located about 8.5 km southwest of Ingersoll, at 6955 Hamilton Road, Putnam, in Township of Thames Centre, County of Middlesex, Province of Ontario (herein referred to as RE Breen 2 project). The project will occupy approximately 19.5 hectares of the site in order to avoid Class 1 and 2 agricultural lands.

The Project will consist of solar photovoltaic panels that generate direct current (DC) electricity when exposed to sunlight. This project will use 230W – 280W crystalline photovoltaic modules to form the solar panel arrays. The panels will be stationary, arranged in rows mounted off the ground with a fixed tilt angle to the south to catch the sun's rays. Electricity generated by the rows of panels is collected through underground cabling by inverter/transformer pairs which convert the DC electricity to alternating current (AC) at a specified voltage. The AC current then continues from the inverters through underground cabling to a single main facility substation. At this substation, the main power transformer increases the voltage to the level of voltage of the electricity distribution grid. The power passes through protective relays (SEL - 351) and fault - breaking switches before being delivered to Hydro One's electrical network. The total installed capacity of the Project is 10 MW AC.

Construction:

The construction of the facility will be conducted in three phases:

- Phase 1: Site preparation;
- Phase 2: Construction and Installation; and
- Phase 3: Post-installation.

Construction of the facility is scheduled to begin in July 2012 with a completion date between February 2013 and May 2013. The commercial operation date and associated

construction schedules proposed herein are currently estimates based on a number of variables. The start of construction and operations dates for the project maybe significantly changes, either accelerated or delayed, due to changes in expected timeframes for regulatory approval, equipment procurement, and/or project scheduling optimization.

Phase 1 – Site Preparation

Site preparation activities includes: connecting a temporary power supply; site survey and staking; road and parking area construction; water well installation; preparation of site including, removal of vegetation and topsoil and compaction of sub-grade, land preparation for construction of substation and control house, shaping of ditches and swales and; installation of a perimeter security fence.

Schedule: July 28, 2012 – November 22, 2012.

Phase 2 – Construction and Installation

Construction and installation activities includes: excavation of substation area for footings, foundations and oil containment area; construction of substation and control house; installation of culverts across ditches to the public roadways and; installation of panels, transformers, inverters, cable and other equipment.

Schedule: October 10, 2012 – February 13, 2013

Phase 3 – Post-installation

Post-installation activities include the testing of systems, calibration of equipment and troubleshooting, prior to commencement of operations.

Schedule: January 29, 2013 – February 13, 2013.

Re-seeding/re-vegetating the site including ditches and swales will occur in the spring of 2013 when weather conditions allow. A non-invasive, native, low-maintenance plant species (determined in conjunction with the Regional Conservation Authority and/or Ministry of Environment) will be spread in order to reduce soil erosion.

Communications and Emergency Response:

Outlined in the report is a general plan for emergency communications and response at the site, including a listing of applicable local contacts for each type of emergency. A response plan to deal with general inquiries is also included in the report. A detailed emergency response plan will be developed in consultation with the local municipal authorities and emergency response agencies prior to the commencement of the construction.

Appendix A3
Design and Operations
Report Summary

RE BREEN 2 PROJECT SUMMARY: DESIGN & OPERATIONS

Introduction:

RE Breen 2 (the "Project") is made by RE Breen 2 ULC. As per the March 1, 2010 draft of *Technical bulletin two: Guidance for preparing the Design and Operations Report as part of an application under O.Reg.359/09 PIBS 7437e* made under the Renewable Energy Approvals, the following is a summary of the reporting completed for the DRAFT Design and Operations of the RE Breen 2 Solar Project.

RE Breen 2 LLC is proposing to develop and operate a 10 megawatt (MW) facility on a parcel of agricultural land totalling approximately 32 hectares located about 8.5 km southwest of Ingersoll, at 6955 Hamilton Road, Putnam, in the Township of Thames Centre, County of Middlesex, Province of Ontario (herein referred to as RE Breen 2 project). The project will occupy approximately 19.5 hectares of the site in order to avoid Class 1 and 2 agricultural lands.

The Project will consist of solar photovoltaic panels that generate direct current (DC) electricity when exposed to sunlight. This project will use 230W – 280W crystalline photovoltaic modules to form the solar panel arrays. The panels will be stationary, arranged in rows mounted off the ground with a fixed tilt angle to the south to catch the sun's rays. Electricity generated by the rows of panels is collected through underground cabling by inverter/transformer pairs which convert the DC electricity to alternating current (AC) at a specified voltage. The AC current then continues from the inverters through underground cabling to a single main facility substation. At this substation, the main power transformer increases the voltage to the level of voltage of the electricity distribution grid. The power passes through protective relays (SEL - 351) and fault - breaking switches before being delivered to Hydro One's electrical network. The total installed capacity of the Project is 10 MW AC.

Structures:

In addition to the PV panels, the facility will consist of a substation with a power transformer, control house, and internal access roadways.

Structural components in the substation area will include:

- Footings and oil containment system for the power transformer;
- Footings for the control house; and
- A pre-fabricated control house to enclose the protection and control equipment.

The internal road system will consist of approximately 4,000 m of granular roadways with widths varying from 3.5 to 5.0 m and varying depths of granular pavement structure depending on the type of soils encountered on the site. Two access points from municipal roadways to the site will be created; one from Hamilton Road and one from Breen Road, both of which will have an entrance/exit over a culvert.

Stormwater:

In general, the development will follow the existing topography of the site to the greatest extent possible in order to minimize the extent of re-grading required and to maintain existing drainage patterns. A system of swales, ditches and culverts will be constructed to collect and transport stormwater runoff through the site to existing drainage outlets. These swales and ditches will generally be installed adjacent to the proposed internal roadways and will be lined with vegetation to minimize the potential for erosion.

Maintenance:

Maintenance will include panel repairs, panel washing, maintenance to transformers, inverters and other electrical equipment as needed, maintenance to the oil/water separator system and road and fence repairs.

Visual inspections of the transformers and the oil/water separator system will be completed monthly. A record of the inspection will be kept at the site.

As part of maintenance to the property, vegetation onsite will be managed appropriately. Control of the vegetation will be satisfied to allow access to all areas of the site, as well as maintaining good aesthetics.

A water well will be installed during the construction phase of the project. The water will be used for panel washing and dust control (when required). Panels will be washed as needed, current plans are three times per year. It is estimated that approximately 25,700 L of water would be drawn from the well over four or five days for each panel washing maintenance cycle.

The facility electrical operations will be monitored remotely with a SCADA system. The facility will be monitored by security cameras installed around the facility.

Communications and Emergency Response:

Outlined in the report is a general plan for emergency communications and response at the site, including a listing of applicable local contacts for each type of emergency. A response plan to deal with general inquiries is also included in the report. A detailed emergency response plan will be developed in consultation with the local municipal authorities and emergency response agencies prior to the commencement of the construction.

Appendix A4
Decommissioning Plan
Report Summary

RE BREEN 2 PROJECT SUMMARY: DECOMMISSIONING

Introduction:

RE Breen 2 (the "Project") is made by RE Breen 2 ULC. As per the March 1, 2010 draft of *Technical bulletin four: Guidance for preparing the Decommissioning Plan Report as part of an application under O.Reg.359/09 PIBS 7439e* made under the Renewable Energy Approvals, the following is a summary of the reporting completed for the DRAFT Decommissioning Plan for the RE Breen 2 Solar Project.

Decommissioning includes details for the RE Breen 2 facility at the cease of operations, or if the facility is abandoned before completion. The area is currently farm land and the intent of the decommissioning process will be to return the location to as close to the baseline conditions established in 2009 as possible.

RE Breen 2 ULC is proposing to develop and operate a 10 megawatt (MW) facility on a parcel of agricultural land totalling approximately 32 hectares located about 8.5 km southwest of Ingersoll, at 6955 Hamilton Road, Putnam, in the Township of Thames Centre, County of Middlesex, Province of Ontario (herein referred to as RE Breen 2 project). The project will occupy approximately 19.5 hectares of the site in order to avoid Class 1 and 2 agricultural lands.

The Project will consist of solar photovoltaic panels that generate direct current (DC) electricity when exposed to sunlight. This project will use 230W – 280W crystalline photovoltaic modules to form the solar panel arrays. The panels will be stationary, arranged in rows mounted off the ground with a fixed tilt angle to the south to catch the sun's rays. Electricity generated by the rows of panels is collected through underground cabling by inverter/transformer pairs which convert the DC electricity to alternating current (AC). The AC current then continues from the inverters through underground cabling to a single main facility substation. At this substation, the main power transformer increases the voltage to the level of voltage of the electricity distribution grid. The power passes through protective relays (SEL - 351) and fault - breaking switches before being delivered to Hydro One's electrical network. The total installed capacity of the Project is 10 MW AC.

Removal of Equipment:

The decommissioning and restoration process comprises removal of above ground structures; removal of below ground structures; and restoration of topsoil, re-vegetation and seeding.

It is anticipated that structures will be fully removed from the ground. In the event that a structure breaks off below 1.2 m (4 feet) below the ground surface, the remaining section will be left in place. If the structure breaks off in the upper 1.2 m (4 feet) of soil, it will be excavated and removed.

Removal of the above ground equipment includes electrical wiring, the equipment on the inverter pads and the interconnection transformer pad and associated equipment. The equipment will be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers and secured in a truck transport trailer for shipment off-site.

Removal of the solar modules includes removing the racks which the solar panels are attached and placed in secure transport crates and into a trailer for storage for ultimate transportation to another facility. The bolts and reusable fasteners, attaching each module to the racks, will be removed will be saved for reuse, where possible. Once the solar modules have been removed, the racks will be disassembled and the structures supporting the racks will be removed. These components will be scraped and sold for salvage value.

All other associated site infrastructure will be removed which includes roads, fences, awnings, concrete pads that supported the inverters, transformers and related equipment, and the underground electrical wiring. The fence and gate shall be removed and all materials recycled to the greatest extent possible. The culvert crossing will be removed if requested by the landowner and approved by the applicable highway authorities.

Site Restoration:

All road and other areas compacted during original construction or by equipment used in the decommissioning, shall be tilled in a manner adequate to restore the sub-grade material to the proper density and depth consistent with the surrounding fields. Low areas will be filled with clean, compatible sub-grade material. After proper sub-grade depth is established, topsoil will be placed to a depth and density consistent with the surrounding field. Compost will be applied to the topsoil spread and then the entire site will be tilled to further loosen the soil and blend in the compost.

Finally, an appropriate seed mixture, in accordance with the lease agreement with the landowner, subject to guidelines of local and provincial authorities, will be broadcast or drilled across the site and weed-free mulch spread will be crimped in to stabilize the soil until germination takes place and the young plants are established to facilitate moisture retention in the soil which, helps improve germination and survival of the seedlings.

Communications and Emergency Response:

Outlined in the report is a general plan for emergency communications and response at the site, including a listing of applicable local contacts for each type of emergency. A response plan to deal with general inquiries is also included in the report. A detailed emergency response plan will be developed in consultation with the local municipal authorities and emergency response agencies prior to the commencement of the decommissioning.

Appendix A5
Natural Heritage
Records Review Report Summary

RE Breen 2 ULC RE Breen 2 Solar Project

Summary

Natural Heritage Records Review Report

1. Introduction

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Natural Heritage Records Review Report for the RE Breen 2 Solar Project (Hatch Ltd., 2010).

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as "RE Breen 2" or the "Project").

Section 25 of the REA Regulation requires proponents of Class 3 solar projects to undertake a natural heritage records review. Records were searched within a minimum distance of 1 km from the Project location from Ministry of Natural Resources (MNR), federal government, Upper Thames River Conservation Authority (UTRCA), County of Middlesex, Municipality of Thames Centre and other relevant sources.

2. Results

Key natural features and points of interest identified during the records review include the following:

- the Putnam Tract Provincially Significant Wetland (PSW), South Dorchester Swamp PSW and Banner Swamp Evaluated Non-Provincially Significant Wetland are located approximately 1 km, 2 km and 1.5 km from the Project location respectively
- small treed areas exist around the Project location but are not considered woodlands
- no Areas of Natural or Scientific Interest (ANSI), or specific wildlife habitat features were identified
- there may be a valley present around Reynolds Creek east of the Project location
- no Crown land, and therefore Crown Forest Resources were identified in the vicinity of the Project location
- records from the NHIC identified occurrences of Milksnake (*Lampropeltis triangulum*) in the study area
- the Ontario Herpetofaunal Summary Atlas identified several species of reptile and amphibian whose ranges may include with the Project location of which several are species of conservation

concern including Milksnake, Snapping Turtle (*Chelydra serpentina*), and Map Turtle (*Graptemys geographica*)

- information provided by the UTRCA shows that flood and erosion hazard lands are present within the Project location along Reynolds Creek. UTRCA also identified a significant woodland to the west of the Project location but recent aerial photography shows that it is no longer present
- County of Middlesex Official Plan did not identify any additional natural features
- in the Ontario Breeding Bird Atlas, a single species of conservation concern was identified within the vicinity of the Project: Red-headed Woodpecker (*Melanerpes erythrocephalus*).

3. Conclusions

Table 3.1 summarizes the results of the records review.

Table 3.1 Summary of Records Review Determinations

Determination to be Made	Yes/No	Description
Is the Project in or within 120 m of a provincial park or conservation reserve?	No	
Is the Project in a natural feature?	No	No part of the Project will be constructed within an identified natural feature.
Is the Project within 50 m of an ANSI (earth science)?	No	The nearest earth science ANSI is located several kilometres from the Project location.
Is the Project within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	The Project is located within 120 m of a valleyland.

Therefore, depending on the layout of the proposed Project, some components of the Project could potentially be located within 120 m of a natural feature. As per Section 26 of the REA Regulation, a site investigation will be required to confirm the features identified during this records review. The site investigation will (i) identify if any corrections to the information presented herein are required; (ii) determine whether any additional natural features exist on or adjacent to the Project location; (iii) confirm the boundaries of the natural features within 120 m of the Project; and (iv) determine the distance from the Project to the natural feature boundary. In addition, the potential for species at risk identified will be considered during the site investigation. However, it was noted by MNR that the Project, as currently proposed, will likely not have an impact on endangered or threatened species on the *Endangered Species Act, 2007*.

Appendix A6
Natural Heritage
Site Investigation Report Summary

**RE Breen 2 ULC
RE Breen 2 Solar Project****Summary****Natural Heritage Site Investigations Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Natural Heritage Site Investigations Report for the RE Breen 2 Solar Project (Hatch Ltd., 2010).

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as "RE Breen 2" or the "Project").

Section 26 of the REA Regulation requires proponents of Class 3 solar projects to undertake a natural heritage site investigation for the purpose of determining if the information provided in the Natural Heritage Records Review Report is correct and identifies any knowledge gaps, if any additional natural heritage features are present within 120 m of the Project, and if the borders and distance of the natural heritage features from the Project location are correct. To obtain this information a site visit was completed.

2. Results

The Project location is composed entirely of agricultural lands, with some scattered hedgerows and shrubs around the periphery of the property. Reynolds Creek flows past the eastern boundary of the Project location in what is considered to be a valleyland. In addition, the Project location and the surrounding areas would be classified as wildlife habitat.

2.1 Habitats of Seasonal Concentrations of Animals

The Project location and surrounding 120 m was searched for winter deer yards/moose late winter habitat, colonial bird nesting sites, waterfowl stopover and staging areas, waterfowl nesting, shorebird/landbird migratory stopover areas, raptor winter feeding and roosting sites, wild turkey winter range, turkey vulture summer roosting areas, reptile hibernacula, bat hibernacula, bullfrog concentration areas, and migratory butterfly stopover areas. None of the twelve habitat types were identified on or within 120 m of the Project location.

2.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

Vegetation communities and specialized habitat for wildlife were searched on and within 120 m of the Project location. Rare vegetation communities include alvars, tall-grass prairies, savannahs, rare

forest types, talus slopes, rock barrens, sand barrens and Great Lakes dunes. None of these vegetation communities were identified during the site investigation.

Specialized wildlife habitats include habitat for area sensitive species, forest providing a high diversity of habitats, old-growth or mature growth stands, foraging areas with abundant mast, woodlands supporting amphibian breeding ponds, turtle-nesting habitat, specialized raptor-nesting habitat, mink, otter, marten and fisher denning sites, highly diverse areas, cliffs and caves and seeps and springs. Only habitat for Savannah Sparrow, an area sensitive species, was determined to occur on and within 120 m of the Project location.

2.3 Habitat of Species of Conservation Concern

Habitat for Red-headed Woodpecker, Milksnake, Snapping Turtle, and Northern Map Turtle was searched for on and within 120 m of the Project location. Based on the results of the site investigations, habitat for Snapping Turtle and Northern Map Turtle was determined to occur within 120 m of the Project location.

2.4 Animal Movement Corridor

The hedgerows and valleyland adjacent to the Project location were determined to be animal movement corridors and will be carried forward to the Evaluation of Significance.

3. Conclusions

There are two features present within the vicinity of the Project location that will require an Evaluation of Significance in order to determine whether Environmental Impact Studies (EIS) are required. These are

- habitat for Savannah Sparrow, an area sensitive species
- habitat for Northern Map and Snapping Turtles, species of conservation concern
- animal movement corridors within the hedgerow and valleyland
- valleyland adjacent to the eastern portion of the Project location.

Therefore, depending on the layout of the proposed Project, some components of the Project could potentially be located within 120 m of a significant natural feature. As per Section 27 of the REA Regulation, an Evaluation of Significance is required to identify if the natural heritage features are significant.

Appendix A7
Natural Heritage
Evaluation of Significance
Report Summary

RE Breen 2 ULC RE Breen 2 Solar Project

Summary

Natural Heritage Evaluation of Significance

1. Introduction

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Evaluation of Significance – Natural Heritage Features for the RE Breen 2 Solar Project.

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as “RE Breen 2” or the “Project”).

Section 24 of the REA Regulation requires proponents of Class 3 solar projects to undertake an Evaluation of Significance for each natural heritage feature identified in the records review and site investigations reports within 120 m of the Project. These reports identified the need to complete an Evaluation of Significance for

- habitat for Savannah Sparrow, an area-sensitive species
- habitat for Northern Map and Snapping Turtles, species of conservation concern
- animal movement corridors within the hedgerow and valleyland.

2. Results

2.1 Wildlife Habitat

The criteria and processes outlined in the Ministry of Natural Resources Natural Heritage Reference Manual (MNR, 2010) and Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000) were used to evaluate the significance of wildlife habitat. These resources identify four main types of wildlife habitat that are considered to be significant. These include: seasonal concentrations of animals, rare or specialized habitats for wildlife, habitat for species of conservation concern and wildlife movement corridors.

Habitat for Savannah Sparrow, an area sensitive species, was evaluated based on the criteria of presence of rare, uncommon or declining species, overall area of the site/current representation of the specialized habitat, amount of vertical stratification, degree of disturbance, amount of adjacent residential development, provision of significant wildlife, and potential for long-term protection of the site. Habitat for Savannah Sparrow was determined to be significant within the valleyland as it met three of the seven criteria.

Habitat for Snapping Turtle and Northern Map Turtle, both species of conservation concern, was evaluated based on the following criteria: (i) degree of rarity of species found at site, (ii) documented significant decline in a species or its critical habitat, (iii) species whose range is solely or primarily found in Ontario, (iv) condition of existing habitat at site, (v) size of species population at site, (vi) size and location of habitat, (vii) potential for long-term protection of habitat, and (viii) evidence use of the habitat. Significant habitat for Snapping Turtle and Northern Map Turtle occurs within Reynolds Creek as four of the eight criteria were met.

The animal movement corridor associated with the woodland was evaluated on the criteria of importance of areas to be linked, importance of corridor to survival of target species, dimensions of corridor, continuity of corridor, habitat and habitat structure of the corridor, species found in the corridor or presumed to be using the corridor, risk of mortality for species using the corridor, opportunity for protection and provisions of other related values. The hedgerow was determined not be significant as it met none of the criteria. The Reynolds Creek valleyland was determined to be a significant animal movement corridor as it met five of the nine criteria.

2.2 Valleyland

The criteria and processes outlined in the Ministry of Natural Resources Natural Heritage Reference Manual (MNR, 2010) are used to evaluate the significance of valleylands. This resource identifies several criteria that are considered when assessing significance of valleylands. These include: groundwater functions, surface water functions, landform prominence, distinctive geomorphic landforms, degree of naturalness, community and species diversity, unique communities and species, habitat value, linkage function and restoration potential value. Reynolds Creek valleyland was determined to be significant as it met six of the ten criteria.

3. Conclusions

Table 3.1 summarizes the results of the Evaluation of Significance Report.

Table 3.1 Significant Natural Features on and within 120 m of the Project Location

Natural Feature		Project Location	Adjacent Lands (within 120 m)
SIGNIFICANT	Woodland	No	No
	Wildlife Habitat	Yes	Yes
	Valleyland	No	Yes
PROVINCIALY SIGNIFICANT	Wetland	No	No
	Earth Science ANSI	No	No
	Life Science ANSI	No	No

Therefore, of the natural heritage features evaluated, the valleyland and the wildlife habitat features will require an Environmental Impact Study as per Section 38 of the REA Regulation.

Appendix A8
Natural Heritage
Environmental Impact
Study Summary

**RE Breen 2 ULC
RE Breen 2 Solar Project****Summary****Natural Heritage Environmental Impact Study****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Environmental Impact Study – Natural Heritage Features for the RE Breen 2 Solar Project (Hatch Ltd., 2010).

RE Breen 2 ULC is proposing to develop a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as “RE Breen 2” or the “Project”).

Section 38 of the REA Regulation requires proponents of Class 3 solar projects to complete an Environmental Impact Study (EIS) for all significant natural heritage features determined to be within a specified setback in order to obtain a REA. The EIS is required in order to determine (i) any potential negative environmental effects on the natural features; (ii) identify mitigation measures; (iii) describe how the environmental effects monitoring plan in the Design and Operations Report addresses any negative environmental effects; and (iv) describe how the Construction Plan Report addresses any negative environmental effects.

A valleyland located within 120 m of the Project was identified as significant and therefore an EIS was completed. It has been determined that there are no significant environmental effects to the valleyland.

2. Results

The results of the EIS on the valleyland are summarized in Table 2.1. The valleyland is made up of vegetation communities, wildlife habitat and wildlife communities.

Table 2.1 Summary of Potential Negative Environmental Effects and Proposed Mitigation

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
Vegetation Communities/Wildlife Habitat		
Construction	Removal of vegetation due to direct encroachment on the natural feature	Work areas in proximity to the valleyland to be marked, workers to be made aware not to enter the valleyland. Sediment and erosion barriers to be installed along boundary of Project.
Construction/ Decommissioning	Heavy dust may impact photosynthesis due to fugitive dust generation	Use of dust suppressant, phased construction and decommissioning, stockpiles to be stabilized and/or covered, hard surfaces for access roads, and avoid earthworks during windy days.
Construction	Increase in surface water runoff rate and alter surface water pattern and therefore effect vegetation due to land grading and ditching, soil compaction, and vegetation removal	Minor grading will occur and take into consideration current land grade to replicate present stormwater flow pattern. Discing or other soil loosening methods will be used on compacted areas. Long-term ground cover will be planted that will have better surface water runoff control than row crops.
Operations	Alterations to surface water runoff and therefore vegetation communities due to changes in grading and ditching, impervious or less pervious surfaces and changes in vegetation	Minor grading will occur and take into consideration current land grade to replicate present stormwater flow pattern. Long-term ground cover will be planted that will have better surface water runoff control than row crops. Impervious and less pervious soils drain into ditches or localized areas; therefore no appreciable impact to local drainage patterns.
Decommissioning	Alterations to surface water runoff due to changes in grading and changes in vegetation.	All infrastructure will be removed, including access roads and drainage ditches, thereby bringing the site back to pre-construction conditions.
Wildlife Communities		
Construction/ Decommissioning	Auditory and visual disturbance of local wildlife populations may result in a short-term reduction of resident populations. Potential for incidental take of wildlife.	Vehicular speeds on access roads will be restricted. Construction workforce will be made aware of the potential for wildlife occurring on the Project location and to avoid wildlife wherever possible. If wildlife are observed on the Project location, they will be either directed off of the Project location by a worker or collected by a designated employee, who has been provided with protocols for the safe handling and transport of wildlife, and transported to the nearest available location off site and released.
Construction/ Decommissioning	Auditory and visual disturbance of local wildlife populations occurring within the animal movement corridor	See mitigation measures for valleyland.
Construction/ Decommissioning	Auditory and visual disturbance of Snapping Turtle and Northern Map Turtle within Reynolds Creek	No direct encroachment to occur. Mitigation measures implemented for Reynolds Creek to be sufficient.

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
Construction/ Decommissioning	Auditory and visual disturbance of local Savannah Sparrow population	Construction is expected to occur outside of the breeding bird period (May through July).
Operations	Potential for incidental take of wildlife.	<p>Vehicular speeds on access roads will be restricted. Visual monitoring of access roads will also occur. Workforce will be made aware of the potential for wildlife occurring on the Project location. If wildlife are observed on the Project location, they will be either directed off of the Project location by a worker or collected by a designated employee, who has been provided with protocols for the safe handling and transport of wildlife, and transported to the nearest available location off site and released.</p> <p>Known occurrences of incidental take due to mowing will be reported and species impacted will be documented. If the species is determined to be a species of conservation concern, work within the area will be ceased immediately, and the MNR/EC will be contacted to make them aware of the occurrence. Work in the area will remain ceased until a survey is conducted by a trained biologist to ensure that there are no further species of conservation concern present in the area.</p>

Table 5.1 in the EIS summarizes the proposed monitoring plan.

As discussed in the Design and Operations Report (Wardrop, 2010), environmental effects monitoring is proposed with respect to any negative environmental effects that may result from engaging in the Project. The monitoring plan in the Design and Operations Report identifies: performance objectives with respect to the negative environmental effects; mitigation measures to assist in achieving the performance objectives; and, a program for monitoring negative environmental effects for the duration of the time the Project is engaged in, including a contingency plan to be implemented if any mitigation measures fail.

In addition, the Construction Plan Report details the construction and installation activities, location and timing of construction and installation activities, any negative environmental effects that result from construction activities within 300 m of the Project and mitigation measures for the identified negative environmental effects.

3. Conclusions

The EIS has been prepared to identify potential negative environmental effects that all phases of the Project may have on the significant natural features. Potential negative effects are associated with

- alterations to vegetation communities/wildlife habitat as a result of
 - ◆ direct encroachment on the feature
 - ◆ fugitive dust generation
 - ◆ changes to surface water runoff
- disturbance of wildlife communities as a result of Project activities.

Mitigation measures have been proposed to prevent these effects from occurring or minimize the magnitude, extent, duration and frequency in the event that they do occur. The primary mitigation measure that will prevent adverse effects on the natural feature is avoidance of direct encroachment onto the valleyland. Certain construction activities may have short-term minor impacts, but these would be temporary in nature. Operational activities are not anticipated to impact the natural heritage feature as the Project operates remotely and maintenance is only expected to occur twice a year. Decommissioning activities will be similar to construction activities and as such they may cause short-term minor impacts, yet once the Project location has been restored to its previous condition no long-term impacts are anticipated.

Appendix A9
MNR Confirmation Letter

Ministry of
Natural Resources
615 John Street North
Aylmer ON N5H 2S8
Tel: 519-773-9241
Fax: 519-773-9014

Ministère des
Richesses naturelles
615, rue John Nord
Aylmer ON N5H 2S8
Tél: 519-773-9241
Télé: 519-773-9014



May 10, 2011

Sheldon Kimber
Recurrent Energy
300 California Street, 8th Floor
San Francisco, CA
94104

Dear Mr. Kimber:

RE: Recurrent Energy's RE Breen 2 Solar Project

In accordance with the Ministry of the Environment's (MOE's) Renewable Energy Approvals (REA) Regulation (O.Reg.359/09), the Ministry of Natural Resources (MNR) has reviewed the natural heritage assessment (NHA) and environmental impact study for RE Breen 2 Solar Project in the Municipality of Thames Center, County of Middlesex submitted by Recurrent Energy on May 5, 2011.

In accordance with Section 28(2) and 38(2)(b) of the REA regulation, MNR provides the following confirmations following review of the NHA:

1. The MNR confirms that the determination of the existence of natural features and the boundaries of natural features was made using applicable evaluation criteria or procedures established or accepted by MNR.
2. The MNR confirms that the site investigation and records review were conducted using applicable evaluation criteria or procedures established or accepted by MNR, if no natural features were identified.
3. The MNR confirms that the evaluation of the significance or provincial significance of the natural features was conducted using applicable evaluation criteria or procedures established or accepted by MNR.
4. The MNR confirms that the project location is not in a provincial park or conservation reserve.
5. The MNR confirms that the environmental impact assessment report has been prepared in accordance with procedures established by the MNR.

This confirmation letter is valid for the project as proposed in the NHA and environmental impact study, including those sections describing the Environmental Effects Monitoring Plan and Construction Plan Report. Should any changes be made to the proposed

project that would alter the NHA, MNR may need to undertake additional review of the NHA.

Where specific commitments have been made by the applicant in the NHA with respect to project design, construction, rehabilitation, operation, mitigation, or monitoring, MNR expects that these commitments will be considered in MOE's Renewable Energy Approval decision and, if approved, be implemented by the applicant.

In accordance with Section 12(1) of the Renewable Energy Approvals Regulation, this letter must be included as part of your application submitted to the MOE for a Renewable Energy Approval.

If you wish to discuss any part of this confirmation, please contact Heather Riddell, A/Planning Ecologist at 519-773-4723 or at heather.riddell@ontario.ca.

Sincerely,



Mitch Wilson
District Manager
Aylmer District MNR

cc. Jim Beal (MNR)
Andrea Fleischhauer (MNR)
Narren Santos (MOE)
Sean Caffyn (Recurrent Energy)
Bob Leah (Recurrent Energy)
Sean Male (Hatch)

Appendix A10
Water Body
Records Review Report Summary

**RE Breen 2 ULC
RE Breen 2 Solar Project****Summary****Water Body Records Review Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Water Body Records Review Report for the RE Breen 2 Solar Project (Hatch Ltd., 2010).

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as "RE Breen 2" or the "Project").

Section 30 of the REA Regulation requires proponents of Class 3 solar projects to undertake a Water Body Records Review. The focus of the assessment was on identifying whether or not the Project was located within or adjacent to any of the specified water features (e.g., within 120 m of the average annual high water mark of a permanent or intermittent stream). Records were searched from the Ministry of Natural Resources (MNR), Ontario Ministry of Agriculture, Food and Rural Affairs, federal government, Upper Thames River Conservation Authority (UTRCA), County of Middlesex, Municipality of Thames Centre records and other relevant sources.

2. Results

Key water body features and points of interest identified during the records review include the following:

- no waterbodies are present on the Project location
- Reynolds Creek is located < 120 m from the eastern boundary of the Project location
- Reynolds Creek is within the UTRCA's Regulated Area with only a small portion of the Regulated Area encroaching onto the Project location.

3. Conclusions

Table 3.1 summarizes the results of the records review.

Table 3.1 Summary of Records Review Determinations

Determination to be Made	Yes/No	Description
Is the Project in a water body?	No	No part of the Project will be constructed within a water body.
Is the Project within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity?	No	No lakes are present on or within 120 m of the Project location.
Is the Project within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity?	No	No lake trout lakes are present on or within 300 m of the Project location.
Is the Project within 120 m of the average annual high water mark of a permanent or intermittent stream?	Yes	Reynolds Creek is located within 120 m east of the Project location.
Is the Project within 120 m of a seepage area?	No	No seepage areas were identified during the Records review.

A site investigation, as required in Section 31 of the REA Regulation will be completed to (i) confirm the features identified during this records review; (ii) identify if any corrections to the information presented herein are required; (iii) determine whether any additional waterbodies exist in the Project area; (iv) confirm the boundaries of any water feature within 120 m of the Project; and (v) determine the distance from the Project to the water boundary.

Appendix A11

Water Body Site Investigation Report Summary

**RE Breen 2 ULC
RE Breen 2 Solar Project****Summary****Water Body Site Investigations Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Water Body Site Investigations Report for the RE Breen 2 Solar Project.

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as "RE Breen 2" or the "Project").

Section 31 of the REA Regulation requires proponents of Class 3 solar projects to undertake a water site investigation for the purpose of determining if the information provided in the Water Body Records Review Report is correct and identifies any knowledge gaps, if any additional waterbodies are present on or within 120 m of the Project location, and if the borders and distance of the waterbodies from the Project location are correct. A site visit was completed to obtain this information.

2. Results

Reynolds Creek was the only water body identified within 120 m of the Project location. It is described as follows:

- flows past the eastern boundary of the Project location within a valley
- designated as a permanent flowing, warm water habitat
- riparian corridor includes the 10-m wide creek channel and surrounding low lands
- the vegetation community within the valley was classified as primarily meadow community, with a small amount of pastureland near the southern portion of the Project location.

3. Conclusions

Reynolds Creek will require an Environmental Impact Study (EIS) as per Sections 39 and 40 of the REA Regulation since the average annual high water mark is located between 30 and 120 m from the Project location.

Appendix A12
Water Body
Environmental Impact
Study Summary

**RE Breen 2 ULC
RE Breen 2 Solar Project**

Summary

Waterbodies Environmental Impact Study

1. Introduction

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Waterbodies Environmental Impact Study for the RE Breen 2 Solar Project (Hatch Ltd., 2010).

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as “RE Breen 2” or the “Project”).

Sections 39 and 40 of the REA Regulation require proponents of Class 3 solar projects to complete an Environmental Impact Study (EIS) for all waterbodies determined to be within a specified setback in order to obtain a REA. The EIS is required in order to determine (i) any potential negative environmental effects on the natural features; (ii) identify mitigation measures; (iii) describe how the environmental effects monitoring plan in the Design and Operations Report addresses any negative environmental effects; and (iv) describe how the Construction Plan Report addresses any negative environmental effects.

This EIS was completed on Reynolds Creek, the only water body located within 120 m of the Project location. It has been determined that there are no significant environmental effects to Reynolds Creek.

2. Results

The results of the EIS on the water body are summarized in Table 2.1.

Table 2.1 Summary of Potential Negative Environmental Effects and Proposed Mitigation

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
Surface Water Runoff		
Construction	Altered surface water runoff pattern and rate causing an increase in surface water runoff to the receiving water body due to land grading and ditching, soil compaction, and vegetation removal	Install flow dissipation measures near the 30-m setback from the water body. Ditches will be vegetated with appropriate grass species to aid in flow dissipation and water uptake. Enhanced vegetated swales and filter strips will be utilized where appropriate. Rock flow check dams and/or straw bale flow checks will be used in ditches to promote minor ponding in order to decrease turbidity

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
		and increase water retention. Discing or other soil loosening methods will be used on compacted areas. Long-term ground cover will be planted.
Operations	Altered surface water runoff pattern and rate causing an increase in surface water runoff to the receiving water body due to land grading and ditching, impervious and less pervious soils, and changes in vegetation	Minor grading will occur and take into consideration current land grade to replicate present storm water flow pattern. Long-term ground cover will be planted. Impervious and less pervious soils will allow runoff into ditches or localize points and discharge into vegetation to allow flow dissipation; therefore no appreciable impact to local drainage patterns or runoff rates. Peak flow is estimated to increase by 4.7% and stormwater runoff is estimated to increase by less than 4%.
Decommissioning	Altered surface water runoff pattern and rate causing an increase in surface water runoff to the receiving water body due to land grading and ditching, and vegetation removal	All infrastructure will be removed, including access roads and drainage ditches, thereby bringing the site back to pre-construction conditions.
Surface Water Quality		
Construction	Increase soil erosion and sedimentation may cause an increase in turbidity in the receiving water body due to land grading and ditching, soil compaction, and vegetation removal	Erosion and Sediment Control plan to be created and implemented. Examples of key components of the plan are: minimize size of cleared and disturbed areas, phase construction to minimize time of exposed soils, adequate supply of erosion and sediment control measures (e.g., silt fences), divert runoff through vegetated areas, install flow velocity control measures in drainage ditches, revegetate and stabilize exposed soils, grade stockpiles to stable angle, stockpiles placed in suitable areas away from the receiving water body.
Construction/ Decommissioning	Heavy dust may impact surface water quality.	Use of dust suppressant (water or other materials that will not adversely affect water quality or vegetation growth), phased construction and decommissioning, stockpiles to be stabilized and/or covered, hard surfaces for access roads, and avoid earthworks during windy days.
Construction/ Operations/ Decommissioning	Accidental spills contaminating surface water	Fuelling stations and hazardous materials storage to be located outside of the 1:250-yr Flood Hazard. Emergency spill kit on site at all times and the spill kit will have adequate materials/equipment for spill response. Machinery arriving on site to be clean and free of leaks. Contractor to have spill response procedure and all workers will be properly trained on the procedure. No cement products to be placed into any watercourse. Concrete truck rinsing station at least 120 m away from any known watercourse. Cement storage to be raised and placed in a waterproof shelter.

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
Operations	Increase soil erosion and sedimentation may cause an increase in turbidity in the receiving water body due to land grading and ditching, and changes in vegetation	Stormwater flow patterns will be replicated. Long-term ground cover will be planted. Impervious and less pervious soils will allow runoff into ditches or localize points and discharge into vegetation to allow flow dissipation; therefore no appreciable impact to local drainage patterns.
Operations	Water used in maintenance activities to be released on site may effect surface water quality	Panel washing will use up to 25,700 L over a 4 to 5 day period. No cleaning agents will be used and therefore no impacts to surface water quality is anticipated.
Decommissioning	Increase soil erosion and sedimentation may cause an increased in turbidity in the receiving water body due to land grading and ditching, and changes in vegetation	All infrastructure will be removed, including access roads and drainage ditches, thereby bringing the site back to pre-construction conditions.
Aquatic Biota		
Construction/ Operations/ Decommissioning	Indirectly affected by changes to surface water quality or surface water runoff rate	Proposed mitigation for surface water quality, surface water runoff and groundwater, as above, is anticipated to be sufficient.
Aquatic Habitat		
Construction/ Operations/ Decommissioning	Indirectly affected by changes to surface water quality, surface water runoff rate, or groundwater.	Proposed mitigation for surface water quality, surface water runoff and groundwater, as above, is anticipated to be sufficient.
Groundwater		
Construction	Groundwater levels may be affected if pumping from excavations is required.	Only the substation excavation may be deep enough to intersect groundwater table. Duration of pumping minimized to extent possible. Seepage to be controlled at source in excavation if significant pumping necessary.
Construction	Groundwater levels may be affected due to water takings from on-site well for construction purposes.	Groundwater takings anticipated to be around 10,000 L/d for majority of construction. If more water required, takings will be limited to 45,000 L/d to minimize local changes in groundwater table.
Operations	Groundwater resources potentially affected by well withdrawals for periodic maintenance purposes	Panel washing will use up to ~25,700 L over a 4 to 5 day period approximately three times per year. Should other maintenance activities require more water, groundwater withdrawal will be limited to 45,000 L/d or less. This will have a minimal short-term effect on the local groundwater table around the well.
Construction/ Operations/ Decommissioning	Groundwater contamination due to accidental spills.	See mitigation measures above for accidental spills contaminating surface water.

Table 5.1 in the EIS summarizes the proposed monitoring plan.

As discussed in the Design and Operations Report (Wardrop, 2010a), environmental effects monitoring is proposed in respect of any negative environmental effects that may result from engaging in the Project. The monitoring plan in the Design and Operations Report identifies: performance objectives in respect of the negative environmental effects; mitigation measures to assist

in achieving the performance objectives; and, a program for monitoring negative environmental effects for the duration of the time the Project is engaged in, including a contingency plan to be implemented if any mitigation measures fail.

In addition, the Construction Plan Report for the Project details the construction and installation activities, location and timing of construction and installation activities, any negative environmental effects that result from construction activities within 300 m of the Project and mitigation measures for the identified negative environmental effects.

3. Conclusions

The EIS has been prepared to identify potential negative environmental effects that all phases of the Project may have on waterbodies. Mitigation measures have been proposed to prevent these effects from occurring or minimize the magnitude, extent, duration and frequency in the event that they do occur. The primary mitigation measure that will prevent adverse effects on the water body is adherence to the 30-m setback requirement. Certain construction activities may have short-term minor impacts, but these would be temporary in nature. Operational activities are not anticipated to impact the water body as the Project will be operated remotely and maintenance is only expected to occur periodically throughout the year. Decommissioning activities will be similar to construction activities and as such they may cause short-term minor impacts yet once the Project location has been restored to its previous condition no long-term impacts are anticipated.

Overall, while the Project will result in some changes to the natural environment, no negative effects on the water body are anticipated to occur following implementation of the mitigation and monitoring measures proposed in this EIS.

Appendix A13

Stage 1 and 2 Archaeological Assessment Report Summary

RE Breen 2 ULC RE Breen 2 Solar Project

Stage 1-2 Archaeological Assessment Report Summary

1. Introduction

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Stage 1-2 Archaeological Assessment Report for the RE Breen 2 Solar Project (D.R. Poulton & Associates, 2010).

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as "RE Breen 2" or the "Project").

Section 22 of the REA Regulation requires proponents of Class 3 solar projects to undertake an Archaeological Assessment where there is a concern that an undertaking could impact archaeological resources. The Ministry of Tourism and Culture must review and accept the Archaeological Assessment Report and provide an acceptance letter that will become part of the application for a REA. The purpose of the assessment was to confirm the presence or absence of significant archaeological resources that could represent potential constraints for the proposed RE Breen 2 Solar Project. The assessment included a Stage 1 background study of past archaeological investigations and known archaeological sites within a 2-km radius of the RE Breen 2 property. It also included a systematic 5-m interval Stage 2 archaeological survey of the Leased Lands in the RE Breen 2 property.

2. Results

The background study determined that no previous archaeological fieldwork had been documented within the RE Breen 2 property or in close proximity to it. However, the study also determined that the property had a moderate to high potential for as-yet undiscovered sites. The survey resulted in the discovery of three sites. Two consisted of isolated First Nations findspots of unknown age and cultural affiliation. The third is a mid 19th Century Euro-Canadian site that is tentatively classified as a homestead. The latter is provisionally designated the RE Breen 2 site. It dates from the 1840s to 1870s.

3. Conclusions

The office of the Ministry of Tourism and Culture has reviewed the Archaeological Assessment Report in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18, and accepted its finding. The two First Nations findspots do not represent significant archaeological resources or planning concerns for the proposed solar generation facility. The Euro-Canadian site designated the RE Breen 2 site could potentially represent a significant archaeological resource and planning concern. It is recommended that a more detailed Stage 3 archaeological assessment be carried out at

the RE Breen 2 site. The main purpose of the proposed Stage 3 investigations will be to confirm whether the RE Breen 2 site does indeed represent a significant archaeological resource and planning concern. Should a significant archaeological resource be present, a Stage 4 archaeological assessment may be required.

Appendix A14
MTC Confirmation Letter

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Culture Programs Unit
Programs & Services Br.
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London, ON N5Y 1A4
Tel: 519-675-6898
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Ministre du Tourisme et de la Culture
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July 21, 2010

Ms. Kim Arnold
Manager, Environmental Services
Renewable Power
4342 Queen Street
Niagara Falls, Ontario
L2E 7J7

RE: RE Breen 2 Solar Generation Facility, 6955 Hamilton Road, North Dorchester Geographic Township, Municipality of Thames Centre, Middlesex County, Ontario, FIT-FCU2DB9, MTC File HD00475, PIF # P316-055-2010

Dear Proponent:

This letter constitutes the Ministry of Tourism and Culture's written comments as required by s. 22(3)(a) of O. Reg. 359/09 under the *Environmental Protection Act* regarding archaeological assessments undertaken for the above project.

Based on the information contained in the report you have submitted for this project, the Ministry believes the archaeological assessment complies with the *Ontario Heritage Act's* licensing requirements, including the licence terms and conditions and the Ministry's 1993 Archaeological Assessment Technical Guidelines. Please note that the Ministry makes no representation or warranty as to the completeness, accuracy or quality of the Report.*

The report recommends the following:

Stage 1-2 Report (P316-055-2010)

The Stage 1-2 archaeological assessment confirmed the presence of three archaeological sites within the Leased Lands in the RE Breen 2 property. Two of these are isolated First Nations findspots of unknown age and cultural affiliation. They do not represent significant archaeological resources or planning concerns. The Third site is Euro-Canadian and dates to the mid 19th century. It has been provisionally designated the Breen 2 site. This may be a homestead or farmstead. It represents a potentially significant archaeological resource planning concern.

In order to better assess the nature and significance of the Breen 2 site it is recommended that a more detailed Stage 3 archaeological assessment be carried out. Two tasks would be involved in the proposed investigations.

One task for the proposed Stage 3 assessment will be to carry out archival research on the history of land tenure of the property that contains the site. The purpose of this research will be to reconstruct the history of the settlement and land tenure of the property during the mid-19th century. It is anticipated that this will assist in identifying the individuals who occupied or were otherwise responsible for the site as well as details on their occupation of the property. That information, in turn, will assist in interpreting the information that will be obtained by the Stage 3 archaeological fieldwork at the site.

The second task for the Stage 3 work plan will be to conduct systematic Stage 3 test excavations of the historic site. It will involve the manual excavations of a checkerboard pattern of one-metre test squares. Additional units will be excavated to investigate any particular artifact concentrations, if and as necessary. All test squares will be excavated to subsoil and all excavated soil will be screened through 6 mm mesh in order to maximize artifact recoveries. Finally, the test units will be backfilled upon completion.

The main purpose of the proposed test excavations will be to confirm whether the Breen 2 site does indeed represent a significant archaeological resource and planning concern. If that were to be confirmed there are two options to mitigate potential impacts to the site from the proposed construction of the RE Breen 2 Solar Generation Facility. One would be preservation by avoidance. The other would be mitigation by implementation of Stage 4 salvage excavations.

If it should evolve that the preferred mitigation option of this site were to be preservation by avoidance, the Stage 3 would effectively confirm the area that will require preservation and avoidance. On the other hand, if the preferred mitigative option for this site should prove to be Stage 4 salvage excavations, the result of the Stage 3 would confirm the limits of concern for salvage excavations. This would also help inform the requirements of the salvage excavations.

It is recommended that archaeological staff of the Ontario Ministry of Tourism and Culture be notified immediately if any deeply buried archaeological remains should be discovered during earthmoving or construction related to the proposed solar generation facility. In the event that human remains should be encountered, it is similarly recommended that the proponent immediately contact Shari Prowse, Archaeological Review Officer, Ontario Ministry of Tourism and Culture (email address Shari.Prowse@ontario.ca, telephone # 519-675-6898) and Michael D'Mello, the Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Small Business and Consumer Services (telephone # 416-326-8404; email address Michael.D'Mello@ontario.ca).

The Ministry is satisfied with these recommendations.

This letter does not waive any requirements which you may have under the *Ontario Heritage Act*. A separate letter addressing archaeological licensing obligations under the Act will be sent to the archaeologist who completed the assessment and will be copied to you.

This letter does not constitute approval of the renewable energy project. Approvals of the project may be required under other statutes and regulations. It is your responsibility to obtain any necessary approvals or licences.

Please feel free to contact me if you have questions or require additional information.

Sincerely,

Shari Prowse
Archaeology Review Officer

cc. Ms. Sherri Pearce, D.R. Poulton and Associates Ltd.
Mr. Bob Leah, Recurrent Energy

*In no way will the Ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.

Appendix A15

Protected Properties and Heritage Resources

Project Report

August 19, 2011

**RE Breen 2 ULC
RE Breen 2 Solar Project**

Protected Properties and Heritage Resources

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1. Introduction

1.1 Project Description

RE Breen 2 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 32-hectare (ha) parcel of land, located in the Municipality of Thames Center, County of Middlesex, approximately 8.5 km southwest of the City of Ingersoll (herein referred to as “RE Breen 2” or the “Project”).

1.2 REA Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the REA Regulation) made under the *Environmental Protection Act* identifies the Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario. As per Section 4 of the REA Regulation, ground mounted solar facilities with a name plate capacity greater than 10 kilowatts (kW) are classified as Class 3 solar facilities and do require an REA.

Section 19 of the REA Regulation requires proponents of Class 3 solar projects to determine whether the project location is on a property described in Column 1 of the Table to Section 19. Table 1.1 has been prepared to meet this requirement.

Section 23 of the REA requires that proponents of Class 3 solar projects determine whether engaging in the renewable energy project may have an impact on a heritage resource described in Subsection 20 (1). Table 1.2: *The Ministry of Culture – Check Sheet for Environmental Assessments: Screening for Impacts to Built Heritage and Cultural Heritage Landscapes* has been completed to address the requirements described in Section 23.

2. Protected Properties

As discussed in Section 1.2, Table 1.1 has been prepared to address Section 19 of the REA Regulation.

3. Heritage Assessment

As discussed in Section 1.2, Table 1.2 has been prepared to address Section 23 of the REA Regulation.

4. Conclusion

Based on the information presented in Table 1.1 the proposed Project is not located on a Protected Property as described in Column 1 of the Table to Section 19. In addition, research and agency consultation undertaken as described within Table 1.2 has not identified the need for a heritage impact assessment under Section 23 of the REA Regulation.

Table 1.1 - Protected Properties Table
Under the Renewable Energy Approval: O. Reg. 359/09 Section 19

19. (1) A person who proposes to engage in a renewable energy project shall determine whether the project location is on a property described in Column 1 of the Table to this Section.

Property: Breen 2

Address: 6955 Hamilton Rd, Putnam, ON, N0L 2B0

Township and County: Township of Thames Centre, County of Middlesex

Item	Description of Property	Reference
1	A property that is subject of an agreement, covenant or easement entered into under clause 10(1)(b) of the <i>Ontario Heritage Act</i> .	See MCL Check Sheet Step 2, Item 4. The property is not designated under Clause 10(1)(b) of the <i>Ontario Heritage Act</i> .
2	A property in respect of which a notice of intention to designate the property to be of cultural heritage value or interest has been given in accordance with section 29 of the <i>Ontario Heritage Act</i> .	Consultation with the municipality, as per MCL Check Sheet Step 2, Item 8 has not determined that a notice of intention to designate has been given. In addition, The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
3	A property designated by a municipal by-law made under section 29 of the <i>Ontario Heritage Act</i> as a property of cultural heritage value or interest.	Consultation with the municipality, as per MCL Check Sheet Step 2, Item 8 has not determined that the Project is located on a property designated by a municipal by-law. In addition, The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
4	A property designated by order of the Minister of Culture made under section 34.5 of the <i>Ontario Heritage Act</i> as a property of cultural heritage value or interest of provincial significance.	The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
5	A property in respect of which a notice of intention to designate the property as property of cultural heritage value or interest of provincial significance has been given in accordance with section 34.6 of the <i>Ontario Heritage Act</i> .	The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.

6	A property that is subject of an easement or a covenant entered into under section 37 of the <i>Ontario Heritage Act</i> .	The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
7	A property that is part of an area designated by a municipal by-law made under section 41 of the <i>Ontario Heritage Act</i> as a heritage conservation district.	The MCL Ontario Heritage Properties Database includes properties designated under Part V of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
8	A property designated as a historic site under Regulation 880 of the Revised Regulations of Ontario, 1990 (Historic Sites) made under the <i>Ontario Heritage Act</i> .	The property is not designated a historic site under Regulation 880.

Table 1.2 - Ministry of Tourism and Culture – Check Sheet for Environmental Assessments Screening for Impacts to Built Heritage and Cultural Heritage Landscapes

This checklist will help identify potential cultural heritage resources, determine how important they are and indicate whether a heritage impact assessment is needed.

Property: Breen 2

Address: 6955 Hamilton Rd, Putnam, ON, N0L 2B0

Township and County: Township of Thames Centre, County of Middlesex

Step 1 – Screening Potential Resources			
		Built heritage resources	Comments
Yes	No	Does the property contain any built structures, such as:	The following resources were assessed using Google Earth 5.1.3533.1731 on February 10, 2010. All leased lands for this project appear to be on land cultivated for agricultural use.
	√	Residential structures (e.g. house, apartment building, trap line shelter)	
	√	Agriculture (e.g. barns, outbuildings, silos, windmills)	
	√	Industrial (e.g. factories, complexes)	
	√	Engineering works (e.g. bridges, roads, water/sewer systems)	
		Cultural heritage landscapes	
Yes	No	Does the property contain landscapes such as:	
	√	Burial sites and/or cemeteries	
	√	Parks	
	√	Quarries or mining operations	An active quarry appears to be operating adjacent to the northwest corner of the property.
	√	Canals	
√		Other human-made alterations to the natural landscape	Land has been cultivated for agricultural use. Drainage tile is likely installed below the surface.

Step 2 – Screening Potential Significance			
Yes	No	A property's heritage significance may be identified through the following:	Comments
			According to the MTC Ontario Heritage Properties Database there are no heritage properties located within the Municipality of Thames Centre. (Website search: 19Feb10)
	√	1. Is it designated or adjacent to a property designated under the Ontario Heritage Act?	See general comment above.
	√	2. Is it listed on the municipal heritage register or provincial register (e.g. Ontario Heritage Bridge List)?	See general comment above.
	√	3. Is it within or adjacent to a Heritage Conservation District?	None of Ontario's Heritage Conservation Districts are located within the Municipality according to the MTC's current list. (Research completed 19Feb10 http://www.culture.gov.on.ca/english/heritage/conservation/conservation_list.htm)
	√	4. Does it have an Ontario Heritage Trust easement or is it adjacent to such a property?	According to the Ontario Heritage Trust website (www.heritagefdn.on.ca) no easement properties are located in the vicinity of the property. In addition, the Ontario Heritage Properties Database did not reveal any easement properties. (Research completed 10Feb10)
	√	5. Is there a provincial or federal plaque?	There are no provincial plaques located in the vicinity of the Project location (Research completed 25Feb10 http://www.ontarioplaques.com/index.html). Federal plaques appear at National Historical Sites of Canada, none of which exist within the vicinity of the Project (See Item 6 below).
	√	6. Is it a National Historic Site?	National Historic Sites are included within the Ontario Heritage Properties Database (Research completed 10Feb10) In addition, no sites within the vicinity of the Project are listed on the Canadian Register of Historic Places (Research completed 19Feb10 www.historicplaces.ca).
	√	7. Does documentation exist to suggest built heritage or cultural heritage landscape potential? (e.g. research studies, heritage impact assessment reports, etc.)	
√		8. Was the municipality contacted regarding potential cultural heritage value?	Thames Centre Municipal Heritage Committee discussed the property at their meeting on April 16, 2010. No heritage values are associated with the property.
	√	Were any concerns expressed?	The Thames Centre Municipal Heritage Committee provided information on a property of interest located in the vicinity of the property known as the "Rath House". While this structure is of interest to the Committee, it is not designated under the Ontario Heritage Act. The Committee expressed its interest to be limited to the structure itself.
		9. What are the dates of construction?	N/A
	√	Are the buildings and/or structures over 40 years old?	There are no buildings and/or structures on the lots where the Project will be located.

√		Is it within a Canadian Heritage River watershed?	Although the property is located within a Canadian Heritage River Watershed, the Upper Thames River Conservation Authority has confirmed that “there are no natural heritage values identified for the Project location as they relate to the Heritage River Designation”. Therefore, it has been determined that a Heritage Impact Assessment is not required based on location within a Canadian Heritage River Watershed.
	√	10. Is a renowned architect or builder associated with the property?	N/A

Note: If you answer “yes” to any of the questions in Step 2, a heritage impact assessment is required.

Step 3 – Screening for Potential Impacts			
Yes	No		Comments
	√	Destruction of any, or part of any, significant heritage attribute or feature.	
	√	Alteration that is not sympathetic, or is incompatible, with the historic fabric or appearance.	
	√	Shadows created that alter the appearance of a heritage attribute or change the visibility of a natural feature or plantings, such as a garden.	
	√	Isolation of a heritage attribute from its surrounding environment, context or a significant relationship.	
	√	Direct or indirect obstruction of significant views or vistas from, within, or to a built and natural feature.	
	√	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces.	
	√	Land disturbances such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource.	

Contents of a Heritage Impact Assessment

As a minimum, the following should be included in a heritage impact assessment:

1. Historical research, site analysis and evaluation
2. Identification of the significance and heritage attributes of the property
3. Description of the proposed development/ site alteration
4. Measurement of impacts
5. Consideration of alternatives, mitigation and conservation methods
6. Implementation and monitoring schedules
7. Summary statement and conservation recommendations

For more information, refer to Ministry of *Culture Info Sheet#5: Heritage Impact Assessments and Conservation Plans* as part of the Ontario Heritage Tool Kit, which is available on the Ministry's website www.culture.gov.on.ca.

Appendix A16

Noise Assessment Study Report Summary

June 29, 2010

1088760100-LTR-G0007-00

RE BREEN 2 DRAFT PROJECT SUMMARY: ACOUSTIC ASSESSMENT

Introduction:

Recurrent Energy, LLC (Recurrent Energy) is proposing to develop a 10 megawatt (MW) facility on a parcel of agricultural land totalling approximately 32.4 hectares (80 acres) located about 8.5 km southwest of Ingersoll, at 6955 Hamilton Road, Putnam, in Township of Thames Centre, County of Middlesex, Province of Ontario (herein referred to as RE Breen 2 project). The project will occupy approximately 19.5 hectares (48 acres) of the site in order to avoid Class 1 and 2 agricultural lands.

This project will use 230W – 280W crystalline photovoltaic modules and 1 megawatt (MW) inverters. Each inverter will be stepped up to medium voltage; this power is then run via underground cabling to a collection box. It is stepped up to grid voltage by a 7.5/10 MVA power transformer. The power passes through protective relays (SEL-351) and fault-breaking switches before being delivered to Hydro One's electrical network.

Acoustic Assessment:

Aercoustics Engineering Limited (Aercoustics) was retained by Wardrop Engineering Inc. (Wardrop), on behalf of Recurrent Energy, to prepare an acoustic assessment for the proposed RE Breen 2 solar farm .

One 7.5/10 MVA ONAN/ONAF transformer, five 2 MVA transformers, and twenty 500 kW inverters are proposed to be installed at the solar farm. Sensitive receptor and proposed equipment locations were provided by Wardrop in the form of a site plan.

Although no final product selection has been made for equipment at the proposed solar farm, conservative estimates of sound power levels for the 500 kW inverters have been established based on Aercoustics' library of measurement data for similarly rated equipment. Transformer sound power levels have been determined based on performance criteria specified by Wardrop.

An acoustic model, based on ISO (International Organization for Standardization) standard 9613-2, was prepared based on the provided site plan and determined sound power levels. Calculations were performed to predict the proposed solar farm's acoustic impact at the nearest sensitive points of reception. Ministry of the Environment (MOE) sound level limit criteria of 40 dBA at the outside plane of a bedroom window during night time hours (2300-0700) was used for each sensitive point of reception.

It was determined that with an acoustic barrier surrounding the proposed 7.5/10 MVA ONAN/ONAF transformer, as well as an acoustically effective inverter enclosure, the predicted solar farm impact at the worst-case points of reception will be in compliance with MOE sound level limits.

