

RENEWABLE ENERGY APPROVAL DOCUMENTS

RE Smiths Falls 4 Solar Project
Executive Summary

September 30, 2011

RECURRENT
ENERGY



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RE Smiths Falls 4 Project Site



Moth found on site

Disclaimer

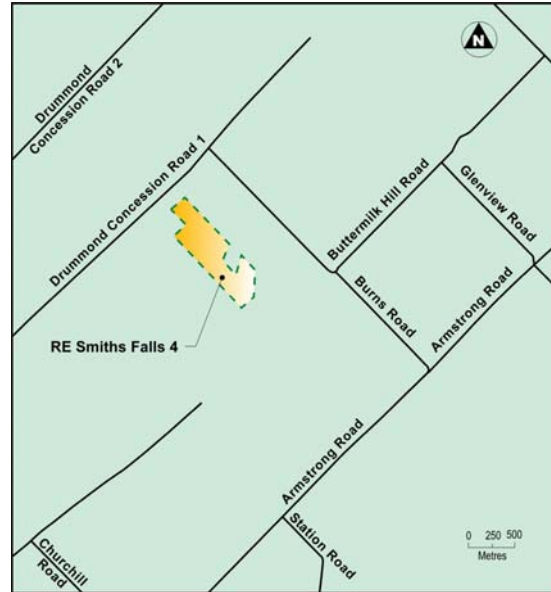
This report has been prepared by or on behalf of RE Smiths Falls 4 ULC for submission to the Ontario Ministry of the Environment as part of the Renewable Energy Approval process. The content of this report is not intended for the use of, nor is it intended to be relied upon by, any other person. Neither RE Smiths Falls 4 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 Smiths Falls 4 ULC is proposing to develop a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land. This proposed facility is referred to as “RE Smiths Falls 4” and is also referred to as the “Project.”

RE Smiths Falls 4 is located in the Township of Drummond/North Elmsley within the County of Lanark, approximately 8 km west northwest of the Town of Smiths Falls. The Project will not be located on any Class 1 or Class 2 agricultural lands.



Project Location

1.2: Project Proponent

The RE Smiths Falls 4 Project is being proposed by **RE Smiths Falls 4 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 Smiths Falls 4 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.



Examples of Comparable Solar Arrays

Contact Information	
<p>Primary Contact</p> <p>Kimberley Arnold, B.Sc., M.E.S Environmental Coordinator Hatch Ltd. 4342 Queen Street, Suite 500 Niagara Falls, ON, Canada L2E 7J7 Tel: 905-374-0701 ext. 5318 Email: karnold@hatch.ca</p>	
<p>Project Contact</p> <p>RE Smiths Falls 4 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 RE Smiths Falls 4 ULC 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 Armstrong Road, southeast of the Project site. Other Project components include a small parking area, control house and internal access road network. The proposed site layout is provided in Figure 1.

Construction of the Project is scheduled to commence in June 2012, subject to receipt of the REA and any other permits or approvals that may be required. Construction will last for approximately 6 to 10 months, with the earliest possible commissioning of the facility scheduled for January 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 14.7 million kWh of electricity per year, enough to power approximately 1400 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 using 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.

The RE Smiths Falls 4 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 Smiths Falls 4 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 Investigation, Evaluation of Significance and Environmental Impact Study (EIS) Reports
- Water Body Records Review, Site Investigation 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 a groundwater seepage area, significant woodlands and an unnamed Provincially Significant Wetland. 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.

Stage 1 & 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 potential presence of one aboriginal artifact, but the find was determined to not be a significant archaeological resource. Mitigation and response measures will be in place during construction should any previously undiscovered artifacts be uncovered. 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.

Benefits to Ontario

Power 1,400 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.

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.

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

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 1.5 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 2 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 Ms. Arnold 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:

Kimberley Arnold B.Sc., M.E.S
Environmental Coordinator
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4342 Queen St., Suite 500
Niagara Falls, ON L2E 7J7
Phone: 905-374-0701
Fax: 905-374-1157
Email: karnold@hatch.ca

Figure 1: Site Layout

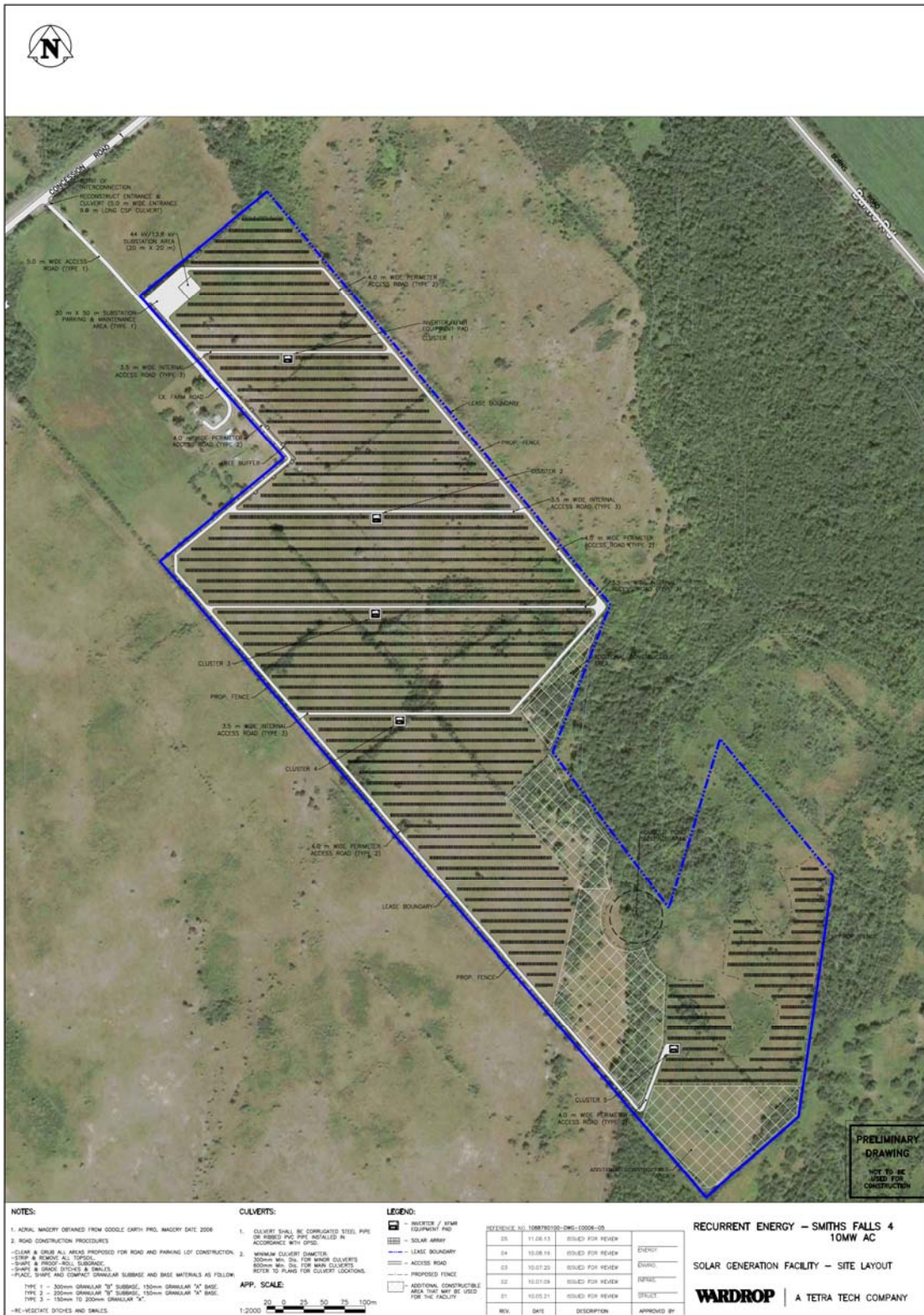


Figure 2: Project Reports

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 Assessment 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.

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 Summary
- 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 Smiths Falls 4 ULC
RE Smiths Falls 4 Solar Project****Summary****Project Description Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals 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 Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as "RE Smiths Falls 4" 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 Smiths Falls 4 Project is being proposed by RE Smiths Falls 4 ULC, a Nova Scotia Unlimited Liability Company owned by Recurrent Energy, LLC through its subsidiaries.

RE Smiths Falls 4 ULC 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 Drummond/North Elmsley. RE Smiths Falls 4 ULC has entered into a lease agreement with the private landowner for a lease term of 30 years. RE Smiths Falls 4 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 January 14, 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, scrubland and a small portion of a larger woodlot. There is a groundwater seepage area which drains to an isolated swamp adjacent to the Project location. The site is surrounded by several woodlands and a larger wetland.

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

- potential erosion and sedimentation due to construction activities
- temporary loss of agricultural lands due to facility installation and operation
- minor removal of tree species in hedgerows/wooded areas
- 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 SMITHS FALLS 4 PROJECT SUMMARY: CONSTRUCTION PLAN

Introduction:

RE Smiths Falls 4 (the "Project") is made by RE Smiths Falls 4 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 Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10 megawatt (MW) facility on a parcel of agricultural land totalling approximately 35 hectares located about 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley, County of Lanark, Province of Ontario (herein referred to as RE Smiths Falls 4 project).

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 February 2012 and a completion date between August 2012 and November 2012. 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: February 11, 2012 to June 19, 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. The site will accommodate approximately 36,800 solar panels.

Schedule: April 25, 2012 to August 29, 2012

Phase 3 – Post-installation

Post-installation activities include: re-seeding/re-vegetating the site including ditches and swales and testing of systems prior to commencement of operations known as commissioning, commissioning of the interconnection.

Schedule: August 14, 2010 to August 29, 2012

The site will be re-seeded in the fall of 2012 or the spring of 2013, weather permitting.

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 SMITHS FALLS 4 PROJECT SUMMARY: DESIGN & OPERATIONS

Introduction:

RE Smiths Falls 4 (the "Project") is made by RE Smiths Falls 4 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 Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10 megawatt (MW) facility on a parcel of agricultural land totalling approximately 35 hectares located about 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley, County of Lanark, Province of Ontario (herein referred to as RE Smiths Falls 4 project).

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 3,930 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 subsoils encountered on the site.

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. Inspections will occur monthly and all items will be documented and repairs will take place accordingly, as required.

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 SMITHS FALLS 4 PROJECT SUMMARY: DECOMMISSIONING

Introduction:

RE Smiths Falls 4 (the "Project") is made by RE Smiths Falls 4 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 Smiths Falls 4 Solar Project.

Decommissioning includes details for the RE Smiths Falls 4 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 Smiths Falls 4 ULC is proposing to develop and operate a 10 megawatt (MW) facility on a parcel of agricultural land totalling approximately 35 hectares located about 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley, County of Lanark, Province of Ontario (herein referred to as RE Smiths Falls 4 project).

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 re-use, 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 authorities.

Site Restoration:

All roads 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 rangeland 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 Smiths Falls 4 ULC RE Smiths Falls 4 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 Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as "RE Smiths Falls 4" 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 site from Ministry of Natural Resources (MNR), federal government, Rideau Valley Conservation Authority (RVCA), County of Lanark, Township of Drummond/North Elmsley and other relevant sources.

2. Results

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

- a portion of a large unevaluated wetland is located within 120 m of the Project site
- the Black Creek Provincially Significant Wetland is located several kilometres to the east
- woodlands occur on and within 120 m of the Project location
- no ANSIs, specific wildlife habitat features or valleylands were identified in the vicinity of the Project site
- no Crown land and, therefore, Crown Forest Resources were identified in the vicinity of the Project site.
- the Natural Heritage Information Centre (NHIC) did not identify any occurrences of species of conservation concern on or within the vicinity of the Project site
- The Ontario Herpetofaunal Summary Atlas identified several reptile and amphibian species of conservation concern whose ranges may overlap with the Project site including Milksnake (*Lampropeltis triangulum*), Northern Ribbonsnake (*Thamnophis sauritus*), Snapping Turtle (*Cheylдра serpentine*) and Northern Map Turtle (*Graptemys geographica*).

- the Ontario Breeding Bird Atlas identifies several species of conservation concern and area-sensitive species within the vicinity of the Project site.

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?	Yes	There is a portion of a larger woodlot that occurs within the Project site.
Is the Project within 50 m of an ANSI (earth science)?	No	The nearest earth science ANSI is located several kilometres from the Project site.
Is the Project within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	A large unevaluated wetland occurs within 120 m southwest of the Project site. Two woodlots are also within 120 m of the Project site.

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 site, (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.

Appendix A6
Natural Heritage
Site Investigation Report Summary

RE Smiths Falls 4 ULC RE Smiths Falls 4 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 Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as "RE Smiths Falls 4" 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, 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 site are correct. To obtain this information a site visit was completed. If any features are located within the specified setbacks an Evaluation of Significance is required.

2. Results

The Project site is comprised of agricultural lands. The areas on and adjacent to the Project site that are not in agricultural production are comprised of natural features such as woodlands, wetlands and cultural vegetation communities (i.e., hedgerows, scrublands).

The hedgerow communities identified on the Project site are found along the property line and are used to separate one field from another. Cultural thicket vegetation communities were identified on and in the vicinity of the Project site. Cultural meadow communities was identified on and in the vicinity of the Project site and was generally found in close proximity to the cultural thicket communities. The site investigation confirmed the presence of woodlands and wetlands on and/or within 120 m of the Project location, and determined that the boundaries of these features varied from those identified in the Records Review.

During the site investigation, the following candidate significant wildlife habitats were identified that were previously unknown during the records review:

- habitat for Milksnake and Northern Flicker, species of conservation concern
- habitat for Northern Harrier, an area-sensitive species

- forest providing a high diversity of habitats
- old-growth or mature forest
- woodland supporting amphibian breeding habitat
- raptor winter feeding and roosting habitat
- animal movement corridors on and within 120 m of the Project location.

3. Conclusions

There are several features present within the vicinity of the Project site that will require an Evaluation of Significance in order to determine whether Environmental Impact Studies are required:

- wildlife habitat on and within 120 m of the Project site
- woodlands located on and within 120 m of the Project site
- wetland within 120 m of the Project site.

Therefore, some components of the Project are located within 120 m of a natural feature. As per Section 27 of the REA Regulation, an Evaluation of Significance is required to determine if these natural features are significant.

Appendix A7
Natural Heritage
Evaluation of Significance
Report Summary

RE Smiths Falls 4 ULC RE Smiths Falls 4 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 Report for the RE Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as “RE Smiths Falls 4” 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

- wildlife habitat on and within 120 m of the Project site
- woodlands located on and within 120 m of the Project site
- wetland within 120 m of the Project site.

2. Results

2.1 Wildlife Habitat

The criteria and processes outlined in the Ministry of Natural Resources (MNR) Natural Heritage Reference Manual (NHRM) and Significant Wildlife Habitat Technical Guide (SWHTG) 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. The following significant wildlife habitats were determined to be present on and/or within 120 m of the Project location:

- forest providing a high diversity of habitats
- old-growth or mature forest stands
- woodland supporting amphibian breeding habitat
- milksnake habitat

- animal movement corridor.

2.2 Woodlands

The Evaluation of Significance was completed in consideration of the Evaluation Approach outlined in the NHRM. The evaluation criteria recommended in the NHRM to assess significance of a woodland include: woodland size, ecological function, woodland interior, proximity to other woodlands or other habitats, linkages, water protection, woodland diversity, uncommon characteristics, economic and social functions. Woodland communities were determined to be significant.

2.3 Wetland

The Ontario Wetland Evaluation System (OWES) was developed by the MNR to determine the significance of wetlands. The wetland on and south of the Project site was evaluated in accordance with OWES and determined to be Provincially Significant as it would be complexed to the existing Black Creek Provincially Significant Wetland.

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 Site

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

Therefore, of the natural heritage features evaluated, there are wildlife habitats, woodlands and wetlands on and within 120 m of the Project site that meet the criteria of significance. These significant natural features require an Environmental Impact Study as per Section 38 of the REA Regulation.

Appendix A8
Natural Heritage
Environmental Impact Study
Summary

**RE Smiths Falls 4 ULC
RE Smiths Falls 4 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 Natural Heritage Environmental Impact Study (EIS) for the RE Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as “RE Smiths Falls 4” or the “Project”.

Section 38 of the REA Regulation requires proponents of Class 3 solar projects to complete an 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.

Significant woodlands, wetlands, and wildlife habitats were identified on and/or within 120 m of the Project location and therefore an EIS was completed. The EIS concluded that there would be no significant negative effects on these features.

2. Results

The results of the EIS on the significant natural features are summarized in Table 2.1.

Table 2.1 Summary of 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 features	<p>Work areas in proximity to the woodland (the portion that will not be entered) and wetland to be marked, workers to be made aware not to enter these areas. Trees to be felled into cleared areas, and placed along perimeter of Project location for wildlife habitat enhancement.</p> <p>A 15 m setback is proposed from the area of old-growth forest.</p>

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
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, and avoid earthworks during windy days.
Construction/ Operation	Potential impact to provincially significant wetlands/amphibian breeding habitat	A 5-m setback to be in place in open areas; there will be no construction within 50 m of the wetlands within wooded areas. Vegetation management within the 5-m setback will consist of occasional tree removal to be conducted in the late fall.
Wildlife Communities		
Construction/ Operation/ Decommissioning	Potential for incidental take	Daily monitoring of work areas, access roads, and construction equipment for wildlife. Observation/response protocol to be followed.
Construction	Trapping wildlife within fence	Following completion of fence, Project location to be searched for trapped wildlife, and any trapped wildlife removed following specified protocols
Construction	Impacts to nesting birds	Major construction activities timed outside of breeding bird period wherever possible. If not possible to avoid, nest searches to be undertaken and identified nests protected.
Construction/ Decommissioning	Auditory and visual disturbance of local wildlife populations may result in a short-term reduction of resident populations	A 60-m setback from the amphibian breeding area during construction within the amphibian breeding period. Due to existing disturbances, it is not anticipated that wildlife disturbance will be significant; therefore, no mitigation required.

Table 5.1 in the EIS summarizes the proposed monitoring plan.

As discussed in the Design and Operations Report, 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 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 these significant natural features. 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 to an acceptable level.

Appendix A9
MNR Confirmation Letter

**Ministry of Natural
Resources**

Kemptville District

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**Ministère des Richesses
naturelles**

District de Kemptville

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Télééc.: 613-258-3920



June 27, 2011

Sean Male
Hatch
Environmental Assessment & Management
Niagara Falls, Ontario

To Mr. Male:

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 and environmental impact study for Smiths Falls 4 solar project in the township of Drummond/North Elmsley submitted by RE Smiths Falls 4 ULC.

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

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 (if required).
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 natural heritage assessment 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 S.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 or additional comments provided, please contact Heather Zurbrigg, Renewable Energy Planning Ecologist at 613-258-8366 or at heather.zurbrigg@ontario.ca

Sincerely,

A handwritten signature in black ink, appearing to read 'Ken Durst', followed by a large, horizontal, oval-shaped flourish.

Ken Durst
District Manager
Kemptville District MNR

cc. Jim Beal, Renewable Energy Provincial Field Program Coordinator, Regional
Operations Division, MNR
Narren Santos, Environmental Assessment and Approvals Branch, MOE

Appendix A10
Water Body
Records Review Report
Summary

**RE Smiths Falls 4 ULC
RE Smiths Falls 4 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 Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as "RE Smiths Falls 4" 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, Rideau Valley Conservation Authority (RVCA), County of Lanark, Township of Drummond/North Elmsley and other relevant sources.

2. Results

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

- There are no waterbodies on or within 120 m of the Project location.
- There are watercourses east and south of the Project location, but they are located greater than 120 m away. Both flow into the Black Creek Drain.
- The Ministry of Natural Resources (MNR) noted the presence of a small pond draining to an adjacent wetland on the location. It is unknown if this would meet the definition of a waterbody, per the REA Regulation.
- There are no RVCA Regulated Areas within 120 m of 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 120 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	MNR information notes the presence of a small pond within 120 m of the Project location that drains to a wetland
Is the Project within 120 m of a seepage area?	No	No groundwater seepage information for the area was noted 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 Smiths Falls 4 ULC
RE Smiths Falls 4 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 Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as "RE Smiths Falls 4" or the "Project".

Section 31 of the REA Regulation requires proponents of Class 3 solar projects to undertake a Water Body Site Investigation for the purpose of determining if the information provided in the Water Body Records Review Report is correct, 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

A groundwater seepage area was noted on the Project location. The seepage is present at the periphery of a dug out pond on the site. The seepage appears to be associated with surface water infiltrating into the ground on the Project location, running along the shallow bedrock layer and discharge at the low point created by the dug out pond. The dug out pond does not meet the definition of a water body, per the REA Regulation. The pond does not have a discharge channel and water either appears to infiltrate into the bed of the pond or overflow into the surrounding wooded areas during high water periods.

No intermittent or permanent watercourses or lakes were observed on the Project location.

3. Conclusions

The groundwater seepage area will require an EIS as per Sections 39 and 40 of the REA Regulation since the area is located between 30 and 120 m from the Project footprint.

Appendix A12
Water Body
Environmental Impact
Study Summary

**RE Smiths Falls 4 ULC
RE Smiths Falls 4 Solar Project****Summary****Waterbodies Environmental Impact Study****1. Introduction**

As per Section 17 of the Renewable Energy Approvals 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 Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as “RE Smiths Falls 4” or the “Project”.

Sections 39 and 40 of the REA Regulation requires 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 the groundwater seepage area on the Project location. It has been determined that there are no significant environmental effects to this feature.

2. Results

The results of the EIS on the seepage area 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 seepage area. 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 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 stormwater flow patterns. 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.
Decommissioning	Altered surface water runoff pattern and rate causing an increase in surface water runoff to the receiving water body if land grading and ditching are left in place after decommissioning.	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 increased 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, 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, phased construction and decommissioning, stockpiles to be stabilized and/or covered, 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 1:100 year flooding hazard. Emergency spill kit on site at all times and the spill kit will have adequate materials/equipment for spill response.

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
		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.
Operations	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.	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 affect surface water quality.	Panel washing will us up to 25,700 L over a 4 to 5 day period approximately three times per year. 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 and Habitat		
Construction/Operation/Decommissioning	Indirect effects to aquatic biota and habitat due to changes in surface water quality, surface water runoff rate and groundwater.	Proposed mitigation for surface water quality, surface water runoff and groundwater as above anticipated to be sufficient.
Groundwater		
Construction	Recharge or seepage areas may be impacted by altered surface water runoff or excavations.	If dewatering of excavations is necessary, the effects will be minor and short term.
Construction	Groundwater resources potentially affected by water withdrawals from a new on-site well during construction.	Typical withdrawals will be approximately 10,000 L/d. If additional water is required, withdrawals will be limited to less than 45,000 L/d to minimize effects on the local 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 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, 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 the seepage area. 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 seepage area 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 waterbodies as the Project is operated remotely and maintenance is expected to infrequently 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 waterbodies 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 Smiths Falls 4 ULC RE Smiths Falls 4 Solar Project

Summary

Stage 1 and 2 Archaeological Assessment 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 Archaeological Assessment (Stage 1 and 2) Report, prepared by Mayer Heritage Consultants Inc. for the RE Smiths Falls 4 Solar Project.

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as "RE Smiths Falls 4" 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 present assessment was to confirm the presence or absence of significant archaeological resources that could represent potential constraints for the proposed RE Smiths Falls 4 Solar Generation Facility. The assessment included a Stage 1 background study of past archaeological investigations and known archaeological sites within a 2 km radius of the RE Smiths Falls 4 Project location. It also included a systematic Stage 2 archaeological survey of all of the Leased Lands in the property.

2. Results

The background study determined that no previous archaeological fieldwork or discoveries had been documented within the RE Smiths Falls 4 Project location or in close proximity to it and no archaeological sites had been registered or otherwise recorded within a 2 km radius of the property. 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 one site. The one site was a single find spot that exhibited low information potential by provincial standards and precedents.

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 findings. The one find spot does not warrant further investigation and does not represent significant archaeological resources or planning concerns for the proposed solar generation facility.

Appendix A14
MTC Confirmation Letter

Ministry of Tourism and Culture
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Ministère du Tourisme et de la Culture
Division de culture
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September 8, 2010

Ms. Kathleen Vukovics
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Niagara Falls, Ontario
L2E 7J7

RE: RE Smith Falls 4 Solar Generation Facility, Part Lot 8, Concession 10, Drummond/North Elmsley Township, Lanark, Ontario, FIT-EZEID4G, MTC File no. HD00483, PIF No. P040-339-2010.

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 [P040-339-2010] recommends the following:

- 1. Additional assessment or mitigative measures are not warranted for Location 1 because it exhibits low information potential by provincial standards and precedents. The Ministry of Tourism and Culture is requested to issue a letter concurring with this recommendation.*
- 2. The above recommendation is subject to concurrence by the Ministry of Tourism and Culture. It is an offence to destroy or alter an archaeological site without approval from the Ministry of Tourism and Culture. No landscaping, grading or other activities that may result in the destruction or disturbance of any of the archaeological sites documented in this report is permitted prior to the Ministry of Tourism and Culture's approval.*
- 3. Although every reasonable effort was made to locate all archaeological resources, it is possible that some remain to be discovered within the study area. Should deeply buried archaeological material be found during construction, the Ministry of Tourism and Culture (416-314-7148) and Mayer Heritage Consultants Inc. in London (519-652-1818 or 800-465-9990) should be immediately notified.*
- 4. As on virtually any property in southern Ontario, it is possible that Aboriginal or Euro-Canadian burials could be present within the study area. In the event that human remains are encountered during construction, the proponent should immediately contact both the Ministry of Tourism and Culture, and the Cemeteries Regulation Unit of the Ontario Ministry of Consumer*

and Commercial Relations in Toronto (416-326-8392), as well as the appropriate municipal police, the local coroner, and Mayer Heritage Consultants Inc.

5. *The licensee shall keep in safekeeping all artifacts and records of archaeological fieldwork carried out under this licence, except where those artifacts and records are transferred to by the licensee to Her Majesty the Queen in right of Ontario or the licensee is directed to deposit them in a public institution in accordance with subsection 66(1) of the Act.*

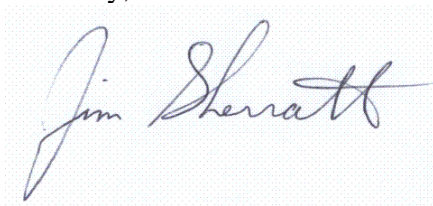
The Ministry is satisfied with these recommendations.

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,



Jim Sherratt
Archaeology Review Officer
Eastern Region

- c. Mr. Paul O'Neal, Mayer Heritage Consultants Inc.
Mr. Bob Leah, Recurrent Energy

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*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

September 30, 2011

**RE Smiths Falls 4 ULC
RE Smiths Falls 4 Solar Project**

Protected Properties and Heritage Resources

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1. Introduction

1.1 Project Description

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as “RE Smiths Falls 4” 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: Smiths Falls 4

Address: 319 Drummond Concession 1, Perth ON K7H 3C3

Township and County: Township of Drummond North Elmsley, Lanark County

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 MTC 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 MTC Check Sheet Step 2, Item 8 has not determined that a notice of intention to designate has been given. In addition, The MTC 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 MTC 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 MTC 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 Tourism and 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 MTC 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 MTC 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 MTC 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 MTC 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: Smiths Falls 4

Address: 319 Drummond Concession 1, Perth ON K7H 3C3

Township and County: Township of Drummond North Elmsley, Lanark County

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 on February 23, 2010. This project appears to be on land that was once cultivated for agricultural use, and is now sitting idle with scrub brush grown in. Google Earth Imagery date, July 25, 2005, and Google Earth map coordinates: Latitude: 44 degrees 56' 32, 38" N and Longitude 76 degrees 07'34. 24 'W, elevation 426 ft. This location was cross referenced with Google Maps on February 23, 2010, at http://maps.google.com/maps?ll=44.941929,-76.126219&z=16&t=h&hl=en
	√	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	
	√	Canals	
√		Other human-made alterations to the natural landscape	Some lands have been cultivated for agricultural use.

Step 2 – Screening Potential Significance			
Yes	No	A property's heritage significance may be identified through the following:	Comments
			The Ministry of Tourism and Culture: Ontario Heritage Properties Database was reviewed. No heritage significance for the Smiths Falls 4 or adjacent sites was found. (Website Search: February 3, 2010)
	√	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?	See general comment above.
	√	4. Does it have an Ontario Heritage Trust easement or is it adjacent to such a property?	See general comment above.
	√	5. Is there a provincial or federal plaque?	There are no provincial plaques located in the vicinity of the Project location (Research completed 22Feb10 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 3Feb10) In addition, no sites within the vicinity of the Project are listed on the Canadian Register of Historic Places (Research completed 22Feb10 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?	The Municipality of Drummond/North Elmsley, Planner Tracy Zander, was contacted on March 3, 2010.
	√	Were any concerns expressed?	
		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 the Rideau River Watershed, which is a Canadian Heritage River Watershed, consultation with Parks Canada (April 6, 2010 – Jeannie Gagnon, Parks Canada) has confirmed that a Heritage Impact Assessment is not required based on the Project’s location within the Rideau 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

**RE Smiths Falls 4
RE Smiths Falls 4 Solar Project****Summary****Noise Assessment Study Report****1. Introduction**

This report summarizes the results of the Noise Assessment Report for the RE Smiths Falls 4 Solar Project, required under Regulation 359/09 as part of the Renewable Energy Approval Process (REA).

RE Smiths Falls 4 ULC is proposing to develop and operate a 10-megawatt (MW) solar photovoltaic (Solar PV) facility, on an approximately 35-hectare (ha) parcel of land, located approximately 10 km northwest of Smiths Falls in the Township of Drummond/North Elmsley in the County of Lanark; herein referred to as “RE Smiths Falls 4” or the “Project”.

This Noise Impact Assessment has been prepared based on the document entitled “Basic Comprehensive Certificates of Approval (Air) – User Guide” by the Ontario Ministry of the Environment (MOE), which requires that the sound pressure levels at the points of reception (POR) are estimated using ISO 9613-2. The performance limits used for verification of compliance correspond to the values for Class 3 areas (45 dBA for day time, 40 dBA for night time) as established by MOE.

2. Results

- The main sources of noise from the solar facility will be the step-up transformer, located at the substation, and five inverter clusters which also contain step-up transformers.
- The sound pressure levels at the POR were predicted using procedures from ISO 9613-2 as required by MOE (Basic Comprehensive Certificates of Approval (Air) – User Guide), which is a widely used standard for evaluation of noise impact in environmental assessments
- For the purpose of evaluating the potential noise impacts of the substation transformer, the sound power level was estimated using data from the National Electrical Manufacturers Association (NEMA). This standard provides maximum sound level values for transformers, and manufacturers routinely meet this specification.
- Noise data was obtained for two inverter manufacturers: Satcon and Xantrex. Both inverters had the same capacity at 500 kW. Xantrex data was more complete, including third-octave band data, and it was also higher than the Satcon data in terms of sound power level. For that reason, Xantrex data was used for modelling the inverter clusters. The attenuation caused by the inverter enclosures/e-house and solar panels was not considered in the model.
- To ensure compliance with MOE standards at the receptors located close to the facility noise mitigation measures (sound barriers) were introduced at the substation transformer and three of

the inverter clusters. Minimum construction requirements for the noise barriers, as well as the absorption coefficients used in the noise model, were specified. While analysis indicates that no additional mitigation will be required, the noise levels will be verified at the closest receptors after the RE Smiths Falls 4 facility goes into service. If measurements indicate a need to reduce sound levels to satisfy MOE criteria, the mitigation measures will be taken at the sources.

3. Conclusions

Based on the results obtained in this study, it is concluded that the sound pressure levels at the POR, following implementation of mitigation measures, will be below MOE requirements for Class 3 areas at night time (40 dBA), and well below the limits at day time (45 dBA).

