



# Renewable Energy Approval Documents

## Rideau Lakes Solar Project

### Executive Summary

January 7, 2011

January 7, 2011

**Northland Power Solar Rideau Lakes L.P.  
Rideau Lakes Solar Project**

**Executive Summary**

**Table of Contents**

<b>1. Introduction .....</b>	<b>3</b>
1.1 Project Location .....	3
1.2 Project Proponent .....	4
1.3 Project Benefits .....	5
Green Energy Act & Feed in Tariff program .....	5
Advantages of Solar Energy .....	6
1.4 Project Description .....	6
<b>2. REA Process.....</b>	<b>6</b>
2.1 Brief Summary of the Rideau Lakes Solar REA Reports .....	7
<b>3. Next Steps.....</b>	<b>8</b>
Figure 1: Site Layout.....	9
Figure 2: Report Name & Purpose .....	10
Figure 3: Appendices of Project Report Summaries.....	11

**Disclaimer**

This report has been prepared solely for the use of Northland Power Solar Rideau Lakes L.P., who is submitting this document to the Ministry of the Environment as part of the Renewable Energy Approval process. This document is in DRAFT form and subject to further revision. The content of this document is not intended for the use of, nor is it intended to be relied upon by any person, firm or corporation. Northland Power Solar Rideau Lakes L.P. and Hatch Ltd. deny any liability whatsoever to other parties for damages or injury suffered by such third party arising from use of this document by them. Neither Northland Power Solar Rideau Lakes L.P. nor Hatch Ltd. nor any of their directors, officers or employees, shall have any liability (for negligence or otherwise) to any third party for any use of this document for any reason whatsoever.

## 1. Introduction

The Rideau Lakes Solar Project (hereinafter referred to as the “Project”) is a proposed 10-megawatt (MW) solar farm in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville. The Project is being developed by Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”). As required, Northland is commencing with the Renewable Energy Approval (REA) described in Ontario Regulation 359/09 under the *Environmental Protection Act*.

Northland is the proponent of the Project. The contact information is as follows:

Tom Hockin  
Development Manager – Renewables  
Northland Power Inc.  
30 St. Clair Ave. West, 17th Floor  
Toronto, ON  
M4V 3A1

Tel: 647-288-1046  
Fax: 416-962-6266  
Email: [Tom.Hockin@northlandpower.ca](mailto:Tom.Hockin@northlandpower.ca)

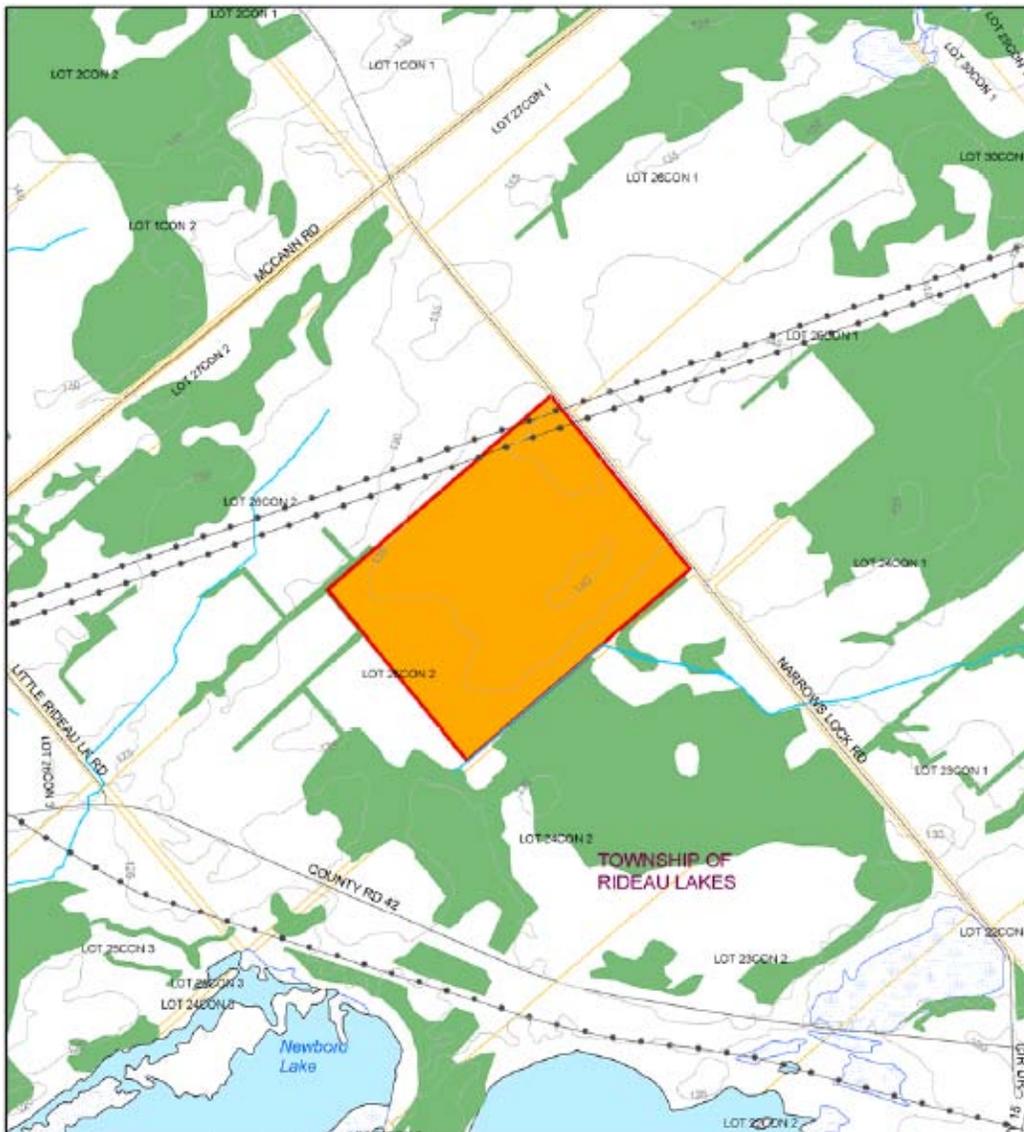
Northland has retained Hatch Ltd. (Hatch) to assist Northland in meeting the REA requirements. Contact information for Hatch is as follows:

Sean Male, MSc  
REA Coordinator  
Hatch Ltd.  
4342 Queen Street, Suite 500  
Niagara Falls, ON  
L2E 7J7

Tel: 905-374-0701, Ext. 5280  
Fax: 905-374-1157  
Email: [smale@hatch.ca](mailto:smale@hatch.ca)

### 1.1 Project Location

The Project is located northeast of the Town of Newboro. The Project location is approximately 50 hectares (ha) in size and located on Narrow Locks Road.



## 1.2 Project Proponent

Northland Power develops and operates clean and green power generation projects, mainly in the provinces of Ontario and Quebec, with Saskatchewan being added to that list shortly. Our facilities produce about 900 MW of electricity. Northland has been in business since 1987, and has been publicly traded on the Toronto Stock Exchange since 1997.

Sustainability is a core value at Northland Power. All of their development efforts and operational practices focus on ensuring the ability to provide long-term benefits to their customers, investors, employees, communities and partners.

Sustainability has many dimensions for Northland Power.

- Environmental: Northland Power was founded on the belief that clean and green energy sources are vital to the future of our planet. Northland Power produces nothing else. Their construction

- and operational practices are engineered to meet the highest environmental standards, even in jurisdictions where lower standards are legislated.
- **Health and Safety:** Northland Power ensures that their staff has the knowledge, tools and time to work safely. This is Northland's first priority. Their culture of safety, respect and independence helps to ensure they attract and retain the people that they need to perform.
  - **Operational:** Northland Power maintains and reinvests constantly in their operating assets to achieve maximum efficiency and economic life.
  - **Community:** Northland Power takes an active interest in its host communities, to ensure they remain vibrant, healthy places to live.
  - **Financial:** Northland Power consistently chooses long-term success over short-term gain. Northland Power only pursues projects that meet strict return thresholds and have creditworthy customers. As a result, they have paid stable monthly dividends since 1997.

Northland's business model is to develop, finance, construct, own and operate its facilities for the duration of the project's useful life. As such, Northland considers itself to be members of the local community in which it operates and has a track record of being a good neighbour.

### **1.3 Project Benefits**

#### ***Green Energy Act & Feed-in-Tariff (FIT) Program***

The Ontario Government passed the "Green Energy and Green Economy Act" into law on May 14, 2009. The Act is expected to boost investment in renewable energy projects and increase conservation, creating green jobs and economic growth.

The Ontario Government lists the following objectives for the Ontario Green Energy Act:

- Spark growth in clean and renewable sources of energy such as solar, wind, hydro, biomass and biogas in Ontario.
- Create the potential for savings and better managed household energy expenditures through a series of conservation measures.
- Create 50,000 jobs for Ontarians in its first 3 years.

The FIT program was launched on October 1, 2009 to encourage use of renewable energy sources, and promote growth within the environmental industry. The Green Energy and Green Economy Act (2009) enabled the creation of the FIT program. Taken from the Program's website, the FIT program will create new jobs, boost economic activity and further the development of renewable energy technology and expertise in Ontario, while helping to phase out coal-fired electricity generation by 2014.

The Ontario Power Authority awarded 184 FIT contracts to renewable power developers in Ontario on April 8, 2010. Northland Power was awarded a total of 13 ground mount solar contracts for proposed development throughout the province. These projects are currently proceeding through the REA process.

### ***Advantages of Solar Energy***

Solar power has a multitude of advantages compared to fossil fuel powered energy plants. Most simplistically, the fuel is free. As many fossil fuels are expected to increase in price, having solar energy on the grid at a set price will give greater stability to future energy prices. Another key benefit is the lack of polluting emissions. With solar PV there are no emissions; this ensures that the surrounding local community will not have to live with poor air quality, disruptive sounds or noxious odours. Also, since solar PV is modular, it is well suited to distributed generation, meaning the power can be produced close to where it will be consumed. In addition, the solar PV systems are comprised of safe, common materials that will not affect the lands on which they are located, allowing for easy remediation upon decommissioning, unlike the vast majority of power plants.

As a source of electricity, solar PV has even more advantages when compared to other types of electricity generation. Peak power production with solar PV coincides with peak demand, during the middle of the day, reducing the need for gas-fired peaking power plants.

Solar PV does not require any moving parts or water, unlike most other generation technologies, which greatly reduces its impact on the environment, its maintenance costs and its noise levels.

## **1.4 Project Description**

Northland proposes to install ground mounted stationary photovoltaic panels which, when exposed to sunlight, will generate DC (direct current) electricity. The DC electricity will be conveyed through underground cabling to an inverter which converts the DC electricity to AC (alternating current) electricity. The electricity will then be conveyed to a single substation which will increase the voltage to 44 kV and a short transmission line will transfer the electricity to a connection tie-in point with the local distribution grid. The construction period is estimated to be approximately 6 months in duration, with Project commissioning anticipated in October 2011.

## **2. REA Process**

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. The Project is considered to be a Class 3 facility, as it is ground mounted and has a name plate capacity greater than 10 kW, and therefore requires a REA.

The REA Regulation details the required activities and reports to be completed and submitted in order to obtain the REA. The activities include Aboriginal, public, municipal and agency consultation in order to provide information on the Project to these groups and obtain feedback. Upon completion of these activities, they will be documented in the Consultation Report and submitted to the Ontario Ministry of the Environment (MOE) as part of the REA application.

The REA Regulation requires the preparation of reports, including:

- Project Description Report
- Construction Plan Report
- Design and Operations Report

- Decommissioning Plan Report
- Noise Report
- Natural Heritage Records Review, Site Investigations, Evaluation of Significance and Environmental Impact Study Reports
- Water Body Records Review, Site Investigation and Environmental Impact Study Reports
- Stage 1 and 2 Archaeological Assessment Reports.

As per Sections 16 and 17 of the REA Regulation, these draft documents are to be made available to the Aboriginal communities greater than 60 days from the second Public Meeting and to the public at least 60 days from the second Public Meeting. In addition, a summary of each document is to be prepared and sent to the Aboriginal communities.

In addition, a Letter of Confirmation is to be obtained from the Ontario Ministry of Natural Resources based on their review of the Natural Heritage Reports and is to be provided to the same groups aforementioned, at the same time as the draft documents. Similarly, a Letter of Confirmation is to be obtained from the Ontario Ministry of Tourism and Culture based on their review of the Stage 1 and 2 Archaeological Assessment Report and provided to the same groups and at the same time as the draft documents.

Also, as per section 20 of the REA Regulation, a determination is to be made as to whether or not a heritage resource is located on the project site and whether an assessment is required.

Therefore, this package has been prepared to meet these requirements and the reports as listed above are contained within. For clarity and ease of understanding, the Natural Heritage and Water Body Reports should be read in the order in which they appear below.

## **2.1 Brief Summary of the Rideau Lakes Solar Project REA Reports**

A brief summary of some of the Rideau Lakes Solar REA Reports is provided below. A description of the purpose of each of the REA Reports is provided in Figure 2, while Figure 3 provides the location of the complete summary of each REA report, along with the required confirmation letters and report on heritage considerations.

The Natural Heritage and Water Body reports have been prepared to identify potential negative environmental effects the Project may have on existing significant natural features or waterbodies, respectively. Where potential negative impacts have been identified, mitigation measures are proposed to prevent these effects from occurring or in the event that they do occur, to minimize the magnitude, extent, duration and frequency to an acceptable level.

During the course of the natural heritage evaluation, woodland within 120 m south of the Project location and a wildlife habitat on and within 120 m of the Project location were identified as significant and therefore an Environmental Impact Study was completed. It has been determined that there are no significant environmental effects to these features as a result of the Project.

A Confirmation Letter from the Ontario Ministry of Natural Resources is included in Appendix O that confirms that the Natural Heritage Assessment satisfies the REA Regulation criteria. 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.

An archaeological assessment has been conducted on the Rideau Lakes project location which included a Stage 1 background study of past archaeological investigations and known archaeological sites within a 2 km radius of the Rideau Lakes Solar Project location. It also included a systematic 5-m interval Stage 2 archaeological surveying the property.

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 two findspots highlighted in the Archaeological Assessment are considered provincially significant and may warrant further investigation, namely a Stage 3 Archaeological Assessment.

Research and agency consultation undertaken has not identified the need for a heritage impact assessment under Section 23 of the REA Regulation. A noise study has also been undertaken and identifies mitigation measures the project will incorporate in order to meet MOE requirements.

### **3. Next Steps**

A second Public Meeting will be held for the Project on March 10, 2011 at the Portland Community Hall, 24 Water Street, Portland, Ontario. Everyone is welcome to attend this meeting and they are also welcome to ask questions about the Project during this 60 day comment period. Questions or concerns related to these reports should be sent to:

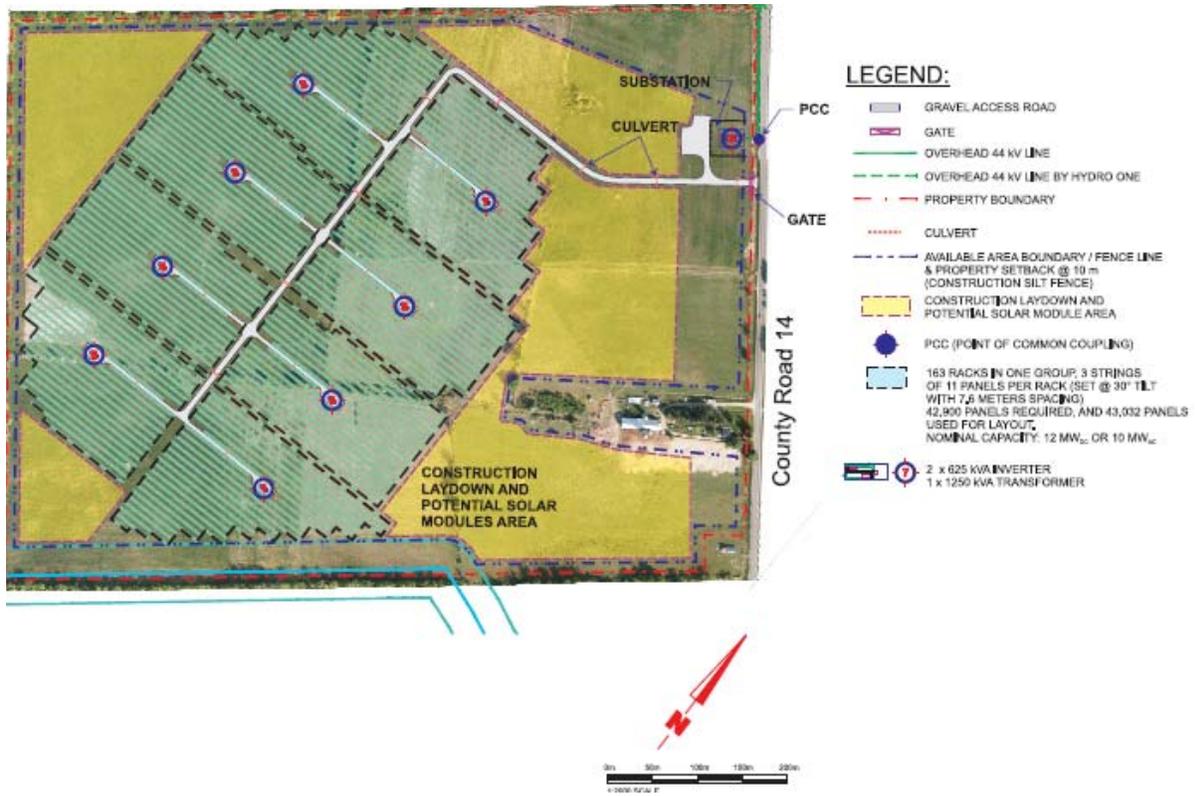
Sean Male, MSc  
REA Coordinator  
Hatch Ltd.  
4342 Queen Street, Suite 500  
Niagara Falls, ON  
L2E 7J7

Tel: 905-374-0701, Ext. 5280  
Fax: 905-374-1157  
Email: [smale@hatch.ca](mailto:smale@hatch.ca)

Once the comments have been received, a Consultation Report will be prepared to show how those comments have been addressed and included in the design of the Project.

After the second Public Meeting, all the Reports and a REA Application Form will be sent to MOE for review and processing. The MOE has 6 months to review and make a decision on the Project. The MOE's decision will be posted for a 15-day review period on the Environmental Registry. Provided no appeal requests have been submitted, the Project will commence, pending receipt of all other required permits and approvals.

**Figure 1 Site Layout**



**Figure 2 Report Name & Purpose**

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	Provides details on the construction activities, timelines, materials, temporary uses of land and waste materials generated and environmental effects, mitigation and monitoring during construction.
Design and Operations Report	Provides the site layout plan, Project components, operations and maintenance activities, communications and emergency response plan, and environmental effects monitoring plan.
Decommissioning Plan Report	Provides the activities to be undertaken during decommissioning and restoring the Project site.
Natural Heritage Records Review Report	Provides information from existing documentation 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, proposes mitigation measures to prevent or minimize adverse effects and provides monitoring program.
Water Body Records Review Report	Provides information from existing documentation 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, proposes mitigation measures to prevent or minimize adverse effects and provides monitoring program.
Stage 1 & 2 Archaeological Assessment Report	Documents the results of the Stage 1 assessment which is a desktop study identifying any archaeological potential and the Stage 2 assessment which is a site investigation confirming the archaeological potential.
Heritage Resources	Documents the results of the assessment of potential effects on protected properties and heritage resources.
Noise Study Report	Documents the results of noise modeling to identify noise emissions levels at nearby sensitive receptors and mitigation requirements to meet MOE noise emissions guidelines.

### **Figure 3 Appendices of Project Report Summaries**

Contained as appendices to this Executive Summary are as follows:

- Appendix A Project Description Report Summary
- Appendix B Construction Plan Summary
- Appendix C Design and Operations Report Summary
- Appendix D Decommissioning Plan Summary
- Appendix E Natural Heritage Records Review Report Summary
- Appendix F Natural Heritage Site Investigation Report Summary
- Appendix G Natural Heritage Evaluation of Significance Report Summary
- Appendix H Natural Heritage Environmental Impact Study Summary
- Appendix I Water Body Records Review Report Summary
- Appendix J Water Body Site Investigation Report Summary
- Appendix K Water Body Environmental Impact Study Summary
- Appendix L Stage 1 and 2 Archaeological Assessment Report Summary
- Appendix M Noise Study Summary
- Appendix N Protected Properties and Heritage Resource Information
- Appendix O Letter of Confirmation – Ontario Ministry of Natural Resources
- Appendix P Letter of Confirmation – Ontario Ministry of Tourism and Culture

**Appendix A**  
**Project Description**  
**Report Summary**

**Northland Power Inc.  
Rideau Lakes 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 Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled the Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

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. Summary of Project**

The proposed Project consists of a 10-MW Class 3 solar facility, constructed on privately owned land in the Township of Rideau Lakes. Northland Power has entered into a lease agreement with the private landowner for the length of the Project. Northland Power 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 facility is expected to remain in commission for approximately 35 – 40 years. Following the expected lifespan of the Project, decommissioning of the facility will occur to remove all of the Projects components and re-grade the Project site back to original conditions, to the extent possible.

It is anticipated that the time for construction is 4 to 8 months, depending on time of year and various other factors. This timeframe includes 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. The Project will typically be scheduled for maintenance every 2 to 3 months. Typically,

maintenance includes checking the structures and interconnections. The proposed facility would not consume any fuels nor produce any waste as a result of generation activities.

### **3. Potential Environmental Effects**

The PDR summarized the existing environmental features on the Project site. The site primarily consists of agricultural land with a tributary of Sucker Creek within 120 m of the Project location.

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

- potential erosion and sedimentation due to construction activities
- temporary loss of agricultural lands due to facility installation and operation
- removal of not at risk tree species in the hedgerows
- noise emissions from the invertors and transformer.

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

**Appendix B**  
**Construction Plan**  
**Report Summary**

**Northland Power Inc.  
Rideau Lakes Solar Project****Summary****Construction Plan 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 Construction Plan Report for the Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as "Northland") is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled the Rideau Lakes Solar Project (hereinafter referred to as the "Project"). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

The proposed Project will use solar photovoltaic technology to generate electricity. The solar modules will be mounted on fixed steel supports and arranged in the form of 8 arrays, each of 1.25 MW. Electricity generated by solar photovoltaic modules from each array will be converted from direct current (DC) to alternating current (AC) by an inverter, and subsequently stepped up from a medium voltage to 44 kV in order to connect to the nearby distribution line. The connection point will be on Narrow Locks Road, northeast of the Project location. The Project will connect to a distribution line that Hydro One will extend approximately 1000 m from its current location.

**2. Construction**

The construction process of the Project consists of four phases:

- Phase 1 – Site Preparation
- Phase 2 – Construction and Installation of Plant
- Phase 3 – Testing and Commissioning
- Phase 4 – Site Restoration.

The site work is scheduled to start in early summer of 2011 and have an estimated 6 to 8 month construction period.

**2.1 Phase 1 - Site Preparation**

Site preparation refers to all necessary activities prior to the construction of foundations, substation, and installation of the PV modules. It includes surveying/staking, site clearing and grubbing,

construction of access roads and drainage systems, installation of security gate and fencing, and construction of a staging area.

The site preparation work will take place from August to October 2011.

## 2.2 Phase 2 - Construction and Installation of Plant

Construction and installation of the facility consists of building foundations, trenches for cabling, structural support and finally installation of the panels on the structural support. The substation and associated electrical equipment will also be installed. This includes the underground and above ground cabling on the Project site. In addition, an overhead distribution line to transmit power from the Project substation to the local distribution network will be installed.

The construction and installation of the plant will take place from September 2011 to February 2012.

## 2.3 Phase 3 – Testing and Commissioning

Testing and commissioning will be performed on the installation prior to start-up and connection to the power grid. Solar modules, inverters, collection system, and substation will be checked for system continuity, reliability, and performance standards. If problems or issues are identified, modifications will be made prior to start-up.

The testing and commissioning will take place in February 2012.

## 2.4 Phase 4 – Site Restoration

Site restoration will be applicable for the entire Project location. The main objective will be to re-instate the area to the original pre-construction condition, such as the ecosystem, vegetation, and drainage. All construction material, equipment, temporary facilities, and waste will be removed from the site. Topsoil will be backfilled where required, including landscaping to achieve proper drainage. Revegetation will include planting of native plants and hydro-seeding where required.

The revegetation where possible will take place in October 2011 and the remaining site restoration will be completed in the spring of 2012.

## 3. Environmental Effects

Environmental effects and proposed mitigation measures are summarized in the table below.

Environmental Feature	Anticipated Impact	Proposed Mitigation
Soils	Negative effects on soil quality, loss of soils due to erosion and soil compaction.	Erosion and sedimentation control measures will be implemented and soil loosening measures could be applied, if necessary.
Groundwater	Pumping of groundwater could lower water table locally.	Limited impacts due to the duration of pumping (e.g., only during excavations). Any pumped water will be treated.

Environmental Feature	Anticipated Impact	Proposed Mitigation
Surface Water Quality	Surface water quality could be impacted by erosion/ sedimentation of excavated or exposed soils, erosion caused by increased runoff from impervious or less pervious areas, deposition of fugitive dust, or disturbance of channel bed sediments during water crossing installation	Erosion and sedimentation control measures, spill prevention and response plan, air quality measures will all mitigate impacts
Aquatic Habitat and Biota	Limited impacts, as a 30 m setback from all watercourses.	N/A
Vegetation	Minor removal of vegetation and trees from a non-significant woodland to occur. Dust deposition and spills could also impact vegetation.	In order to minimize potential losses from surrounding vegetation communities, areas where clearing is required will be well marked, and workers will be instructed not to enter areas of natural vegetation.
Wildlife	Impacts to wildlife could occur as a result of loss of habitat, disturbance from construction activities, or incidental mortality as a result of collision with construction vehicles.	In order to minimize the potential for habitat loss, work areas will be demarcated in order to ensure that the contractor does not work beyond those bounds. Vegetation ground cover to be used on the Project location will be selected in consideration of promotion of wildlife features. In order to minimize potential for disturbance or incidental take of wildlife, construction activities will be timed outside of the breeding bird period (generally May through July), wherever possible.
Air Quality and Noise	Dust may become airborne from vehicular traffic, heavy machinery use, and soil moving activities. Dust in the air can have a range of effects including, but not limited to: impacts on human health as a result of irritation to lungs, eyes, etc, which could impact construction workers or nearby residents, impacts on surface water quality and aquatic habitat if the dust is deposited into waterbodies, impacts on vegetation if heavy dust loads build up on photosynthetic surfaces, thereby resulting in mortality of the plants. Construction and installation activities have the potential to result in increased noise levels on and within the vicinity of the Project location.	These mitigation measures are to include, as required, use of dust suppression (i.e., water) on exposed areas including access roads, stockpiles and work/laydown areas as necessary, hard surfacing (addition of coarse rock) of access roads or other high-traffic work areas, phased construction, where possible, to limit the amount of time soils are exposed, avoid earth-moving works during excessively windy weather. Stockpiles to be worked (e.g., loaded/unloaded) from the downwind side to minimize wind erosion, stockpiles and other disturbed areas to be stabilized as necessary (e.g., taped, mulched, graded, revegetated or watered to create a hard surface crust) to reduce/prevent erosion and escape of fugitive dust, dust curtain to be used on loaded dump trucks delivering materials from off site, workers to utilize appropriate personal protective equipment (e.g., masks, safety goggles) as necessary.

Environmental Feature	Anticipated Impact	Proposed Mitigation
Traffic	Increased traffic volumes and equipment delivery to the Project location and temporary disruption along routes utilized by construction vehicles may result in occasional delays to local community traffic flow during the construction period.	Mitigation measures include: designated transportation routes will be utilized; a police or security escort will be utilized to guide or accompany major equipment deliveries to the Project location if necessary; flagmen will be utilized as required to facilitate traffic flow and control if necessary; construction vehicles will be driven in a proper manner with respect for all traffic laws, signage providing any detour directions will be prominently displayed, vehicle imprints or erosion gullies will be repaired or regraded as necessary.
Municipal Roadways	The use of municipal roadways by construction vehicle traffic may result in some minor damage to roadways during the construction of the Project, given their proximity to the Project location.	Mitigation measures include: designated and appropriate transportation routes will be utilized; construction vehicles will be driven in a proper manner with respect for all traffic laws; roadways will be photographed prior to construction and damage to municipal roadways, above and beyond normal wear and tear, will be repaired as necessary.
Public and Construction Site Safety	Construction of the proposed development poses potential public and construction site safety concerns in the vicinity of the Project location.	Mitigation measures include: public access to the construction area will be prevented through the use of fences, gates, and security procedures; signage will be posted to notify the public of construction in the area; workers will be required to adhere to prescribed safety procedures; proper procedures for construction traffic will be developed, where required.
Waste Management	Construction activities will likely result in the generation of recyclable material, as well as construction and sanitary waste.	Mitigation measures include, construction waste will be properly stored on site prior to disposal off site at local, registered disposal facilities, all sanitary waste is to be contained and hauled off site by a designated hauler throughout the construction period, hazardous wastes will be properly stored in secure containers inside impervious berms or other containment areas until disposal off site at a registered facility, reuse and recycling will be practiced wherever possible.
Land Use	Lands within the Project location will be removed from agricultural production upon Project construction.	Land use could be retained upon completion of the Project.
Protected Properties	No protected properties, as defined in Section 19(1) of O. Reg. 359/09, exist in the vicinity of the Project location.	N/A

Environmental Feature	Anticipated Impact	Proposed Mitigation
Built Heritage and Cultural Heritage Landscapes	No negative effects to built heritage and cultural heritage landscapes are anticipated as no potential impacts to the resources were identified.	N/A
Archaeological Resources	A Stage 1 and 2 Archaeological Assessment was conducted for the Project location. Two find spots were discovered during the course of the Stage 2 Archaeological Assessment.	Through consultation with the MTC it was determined that a setback from the identified resources of 20 m will ensure the protection of these resource. If deeply buried resources are recovered, work shall stop and OPP and MTC shall be contacted. Work will resume only after the site is cleared by an archaeologist.
Spills	Spills of petroleum hydrocarbon materials from vehicles/ equipment operating on site, such as fuel or hydraulic oils, or spills of concrete materials from concrete trucks, could occur during the construction process.	Best management practices shall be implemented, including but not limited to: all refuelling and equipment maintenance activities will be conducted at specified locations; equipment is to be monitored to ensure it is well maintained and free of leaks; spill containment and clean-up supplies are to be maintained on site at all times; spills will be cleaned up immediately and reported accordingly.

#### 4. Conclusion

Weekly inspections will ensure conformance with environmental mitigation measures. Overall, no adverse impact to the environment is anticipated when the mitigation measures are implemented.

**Appendix C**  
**Design and Operations**  
**Report Summary**

**Northland Power Inc.  
Rideau Lakes Solar Project****Summary****Design and Operation Plan 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 Design and Operation Plan Report for the Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as "Northland") is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled the Rideau Lakes Solar Project (hereinafter referred to as the "Project"). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

The proposed Project will use solar photovoltaic technology to generate electricity. The solar modules will be mounted on fixed steel supports and arranged in the form of 8 arrays, each of 1.25 MW. Electricity generated by solar photovoltaic modules from each array will be converted from direct current (DC) to alternating current (AC) by an inverter, and subsequently stepped up from a medium voltage to 44 kV in order to connect to the nearby distribution line. The connection point will be on Narrow Locks Road, northeast of the Project location. The Project will connect to a distribution line that Hydro One will extend approximately 1000 m from its current location.

**2. Facility Components**

Facility component consist of security gate, fencing and lighting, access roads, drainage systems, foundations, trenches for cabling and instrumentation control, structural support and temporary construction staging area. The Project is designed to generate 10 MW (AC) by using eight arrays of photovoltaic modules. Each array has a nominal capacity of 1.25 MW and is comprised of two sub-arrays, each with one inverter with a nominal capacity of 630 kW. The modules, inverters, intermediate transformers, AC switch, main step-up transformer, and the equipment control and monitoring system are the main electrical components of a solar facility.

**3. Facility Operation Plan**

The Project does not require any permanent on-site operator as it will be operated remotely. For general monitoring and maintenance purposes, two part time or full-time local personnel may be hired and will be dispatched from a central operations office as needed. Any damage or faults with

the PV modules and electrical systems will be alerted to staff remotely and repaired (or replaced) by facility staff or qualified professionals. Access to the site will be limited to Project personnel.

### **3.1 Maintenance**

The weather conditions, such as the quantity and frequency of rain and snow at the Project location will determine the frequency of cleaning. At the very most, it is expected that the modules will require cleaning quarterly, but it is possible cleaning the modules will not be necessary at all. If required, water trucks will bring water to the site to supply the water required. No chemicals would be used for cleaning.

The transformers will be visually inspected on a monthly basis and their status recorded. Any leaks will be repaired immediately. Spill response equipment will be left on site or in the maintenance trucks should leaks be observed.

### **3.2 Environmental Effects Monitoring Plan**

The Project Environmental Effects Monitoring Plan will be implemented through all phases of the Project. The purpose of the plan is to ensure that performance objectives and mitigation measures are working as designed to mitigate negative impacts. As well, it provides additional measures, if primary measures are not functioning. Table 4 in the Design and Operations Report provides the details of the proposed monitoring plan to monitor the impacts to the natural and social environments.

### **3.3 Emergency Response Plan**

The Project Emergency Response Plan will be implemented through all phases of the Project. The purpose of the plan is to establish and maintain emergency procedures required for effectively responding to accidents and other emergency situations, and for minimizing associated losses. The Plan provides the emergency response and communications procedures to be used in response to these three potential emergency scenarios (i.e. fire, personal injury and spills).

All Project personnel will be trained in the following emergency response and communications procedures.

**Appendix D**  
**Decommissioning Plan**  
**Report Summary**

**Northland Power Inc.  
Rideau Lakes Solar Project****Summary  
Decommissioning Plan 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 Decommissioning Plan Report for the Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-megawatts (MW) solar photovoltaic project titled Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

The proposed Project will use solar photovoltaic technology to generate electricity. The solar modules will be mounted on fixed steel supports and arranged in the form of 8 arrays, each of 1.25 MW. Electricity generated by solar photovoltaic modules from each array will be converted from direct current (DC) to alternating current (AC) by an inverter, and subsequently stepped up from a medium voltage to 44 kV in order to connect to the nearby distribution line. The connection point will be on Narrow Locks Road, northeast of the Project location. The Project will connect to a distribution line that Hydro One will extend approximately 1000 m from its current location.

As required, two scenarios were taken into consideration for the Decommissioning Plan which include decommissioning after ceasing operation and decommissioning during construction should the Project be cancelled/abandoned during construction. The following provides the activities to be completed for the former scenario. For the latter scenario, the decommissioning activities depends on when the construction has ceased; however, the following provides a complete list of potential decommissioning activities under the latter scenario.

It is anticipated that the Project will have a useful lifetime of at least 20 years, which can be extended up to 50 years or more with proper maintenance, component replacement and repowering. It is assumed that the Project will be decommissioned after the 20-yr power purchase agreement with the Ontario Power Authority concludes.

**2. Decommissioning Activities****2.1 Equipment Dismantling and Removal**

All decommissioning of electrical devices, equipment, and wiring/cabling will be in accordance with local, municipal, provincial and federal agencies standards and guidelines. Any electrical decommissioning will include obtaining the required permits and following lockout/tag out

procedures before de-energizing, isolating, and disconnecting electrical devices, equipment and wiring/cabling.

## 2.2 Site Restoration

The proposed Project area will be restored to its pre-development state, subject to environmental requirements and the wishes of the landowner. The following will be undertaken:

- any trenches/drains excavated will be filled with suitable materials and leveled
- any roads or embankments will be removed completely, filled with suitable sub-grade material and leveled
- any compacted ground will be tilled, mixed with suitable sub-grade materials and leveled
- any damage to any existing tile drainage system caused by the Project will be repaired/restored
- prepared soil, with all the nutrients required by the crop to grow, will be spread wherever necessary.

## 2.3 Management of Waste and Excess Materials

All waste and excess materials will be disposed of in accordance with municipal, provincial and federal regulations. Waste that requires disposal will be disposed of in a provincially licensed facility by a provincially licensed hauler. Although hazardous waste is not anticipated on site (with the exception of the aforementioned transformer oil), any hazardous waste will be removed from site and disposed of in accordance with federal, provincial and municipal requirements.

## 2.4 Emergency Response

The Project Emergency Response Plan will be implemented through all phases of the Project. The purpose of the plan is to establish and maintain emergency procedures required for effectively responding to accidents and other emergency situations, and for minimizing associated losses. The Plan provides the emergency response and communications procedures to be used in response to these three potential emergency scenarios (i.e. fire, personal injury and spills).

All Project personnel will be trained in the following emergency response and communications procedures.

## 3. Restoration of Land Negatively Affected by the Project

Following decommissioning of the Project, if any lands or water features are negatively affected by the Project, Northland is committed to restoring the site as close to its pre-construction state as feasible. This would be subject to environmental requirements and wishes of the landowner.

**Appendix E**  
**Natural Heritage**  
**Records Review Report Summary**

**Northland Power Inc.  
Rideau Lakes Solar Project****Summary****Natural Heritage Records Review 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 Natural Heritage Records Review Report for the Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled the Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

Section 25 of the REA Regulation requires proponents of Class 3 solar projects to undertake a Natural Heritage Records Review. Records were searched within a minimum distance of 1 km from the Project location and lands within 120 m from Ministry of Natural Resources (MNR), federal government, Cataraqui Region Conservation Authority (CRCA), Township of Rideau Lakes, United Counties of Leeds and Grenville and other relevant sources.

**2. Results**

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

- there is a large woodland within 120 m south of the Project location
- no specific wildlife habitat features, valleylands, wetlands, or ANSI's were identified within 120 m of the Project location
- no Crown land and, therefore Crown Forest Resources were identified within the vicinity of the Project location
- no active petroleum resource operations were identified within 300 m of the Project location
- records from the Natural Heritage Information Centre (NHIC) identified occurrences of Prairie Warbler (*Dendroica discolor*) and Early Hairstreak (*Erora laeta*) within 1 km of the Project location
- Kemptonville MNR District indicated that Butternut (*Juglans cinerea*), which are designated as Endangered under the Ontario Endangered Species Act (ESA), may occur within woodlands on or

within 120 m of the Project location. An occurrence of Prairie Warbler, a provincially tracked species was also relayed.

- the Ontario Herpetofaunal Summary Atlas identified several species of reptile and amphibian whose ranges may include with the Project location of which several are species at risk and species of conservation concern including, Blanding’s Turtle (*Emydoidea blandingi*), Snapping Turtle (*Chelydra serpentina*), Northern Map Turtle (*Graptemys geographica*), Common Musk Turtle (*Sternotherus odoratus*), Western Chorus Frog (*Pseudacris triseriata*), Eastern Milksnake (*Lampropeltis triangulum*), Eastern Ribbonsnake (*Thamnophis sauritus septentrionalis*), Gray Ratsnake (*Elaphe obsoleta*) and Five-lined Skink (*Eumeces fasciatus*)
- information provided by the CRCA identified the “The Bog Marsh” a Class 3 PSW located 700 m south of the Project location as the closest natural heritage feature
- in the Ontario Breeding Bird Atlas, ten species at risk and species of conservation concern were identified within the vicinity of the Project location: Loggerhead Shrike (*Lanius ludovicianus migrans*), Least Bittern (*Ixobrychus exilis*), Cerulean Warbler (*Dendroica cerulean*), Canada Warbler (*Wilsonia canadensis*), Golden-winged Warbler (*Vermivora chrysoptera*), Chimney Swift (*Chaetura pelagica*), Bobolink (*Dolichonyx oryzivorus*), Whip-poor-will (*Caprimulgus vociferus*), Black Tern (*Chlidonias niger*), Red-headed Woodpecker (*Melanerpes erythrocephalus*).

### 3. Conclusions

Table 3.1 summarizes the results of the records review.

**Table 3.1 Summary of Records Review Determinations**

Determination to be Made	Yes/No	Description
Is the Project in a natural feature?	No	The Project location is not located in a natural feature.
Is the Project within 50 m of an ANSI (earth science)?	No	There is no ANSI located within 50 m of the Project location.
Is the Project within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	There is a woodland within 120 m of the southern border of the Project location.

Therefore, depending on the layout of the proposed Project, the Project location is located within 120 m of a natural feature. As per Section 26 of the REA Regulation, a site investigation will be required to confirm the features identified during this records review. The site investigation will i) identify if any corrections to the information presented herein are required, ii) determine whether any additional natural features exist on or adjacent to the Project location, iii) confirm the boundaries of the natural features within 120 m of the Project, and iv) determine the distance from the Project to the natural feature boundary.

**Appendix F**  
**Natural Heritage**  
**Site Investigation Report Summary**

**Northland Power Inc.  
Rideau Lakes Solar Project****Summary****Natural Heritage Site Investigations 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 Natural Heritage Site Investigations Report for the Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located northeast of the Town of Newboro in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

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

**2. Results**

The Project location is composed primarily of sheep pasture lands and hay fields, some of which had been recently ploughed. Deep furrows remained present within the ploughed fields, with bare soil on the tops of the furrows, however grasses had started to become re-established. Since the time of the site investigation, all fields have been ploughed and currently exist as exposed soils with limited vegetation growth. Several of the fields are separated by hedgerows.

The Significant Wildlife Habitat Technical Guide (SWHTG) identified the following types of wildlife habitat: habitat for seasonal concentrations of animals, rare or specialized habitats for wildlife, habitat for species of conservation concern, wildlife movement corridors:

- no candidate significant seasonal concentration areas were identified on or within 120 m of the Project location
- no rare vegetation communities were identified on or within 120 m of the Project location
- specialized habitats for wildlife were considered during the site investigation and habitat for Savannah Sparrow and Ovenbird, area sensitive species, as well as old-growth forest and high

diverse areas associated with the woodland, were noted as a specialized habitat and will be considered in the Evaluation of Significance

- candidate significant wildlife habitat for species of conservation concern was considered during the site investigation, and candidate significant wildlife habitat for Milksnake, Baltimore Oriole and Eastern Kingbird were noted and will be considered in the Evaluation of Significance
- animal movement corridors are present within the hedgerows on and within 120 m of the Project location and the woodland within 120 m of the Project location and will be considered in the Evaluation of Significance

Bobolink, a species at risk, was observed on the Project location during the site investigation within suitable breeding habitat. However, since the time of the survey the fields have been ploughed and Bobolink habitat no longer exists on the Project location. Suitable Bobolink habitat is found on the hayfields that surround the Project location to the west and south. No further species at risk were observed and therefore, those species identified as having the potential to occur on the Project location are not expected to occur.

### 3. Conclusions

No corrections to the Records Review are required.

There are several natural features present on and within 120 m of the Project location that will require an Evaluation of Significance in order to determine whether Environmental Impact Studies (EIS) are required. These are

- woodland located south of the Project location (including significant wildlife habitat features for Ovenbird, old-growth forest, and highly diverse areas)
- all lands on and within 120 m of the Project location for Milksnake, a species of conservation concern
- hedgerows as breeding habitat for Baltimore Oriole and Eastern Kingbird, species of conservation concern
- agricultural grasslands on and within 120 m of the Project location for Savannah Sparrow, an area sensitive species
- hedgerows and woodland as animal movement corridors.

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

**Appendix G**  
**Natural Heritage**  
**Evaluation of Significance**  
**Report Summary**

**Northland Power Inc.  
Rideau Lakes Solar Project****Summary****Natural Heritage Evaluation of Significance****1. Introduction**

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

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10 megawatt (MW) solar photovoltaic project titled the Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

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 of the Project area, specifically
  - ◆ hedgerows and woodlands as animal movement corridors
  - ◆ habitat for species of conservation concern (including Milksnake, Baltimore Oriole and Eastern Kingbird)
  - ◆ specialized habitats for area sensitive species (Savannah Sparrow and Ovenbird)
  - ◆ specialized habitat for wildlife present within the woodland (old-growth forest and a highly diverse area)
- woodland located within 120 m south of the Project location.

**2. Results****2.1 Wildlife Habitat**

The criteria and processes outlined in the Ministry of Natural Resources 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.

### ***Old-Growth Forest***

Criteria for evaluation of specialized habitat for wildlife are identified within Table Q-2 of Appendix Q of the SWHTG. The woodland met the criteria for degree of disturbance, stand history, provision of significant wildlife habitat and old growth characteristics, therefore the woodland is a significant old-growth forest.

### ***Highly Diverse Areas***

Criteria for evaluation of specialized habitat for wildlife are identified within Table Q-2 of Appendix Q of the SWHTG. The woodland located to the south of the Project location met the criteria for current representation in the planning area, natural community diversity, species diversity, presence of rare species and the size of the site. Therefore this woodland is considered a significant highly diverse area.

### ***Habitat for Savannah Sparrow, an Area-Sensitive Species***

Criteria for evaluation of specialized habitat for wildlife are identified within Table Q-2 of Appendix Q of the SWHTG. Though two of the criteria were met (presence of declining species and adjacent residential development), those criteria simply apply to the presence of the species and adjacent development, and do not truly provide an indication as to the overall value of the site to Savannah Sparrow. Based on the abundance of this habitat type in the area and the level of disturbance present within the suitable habitat, this feature is determined to not meet the criteria for significance.

### ***Habitat for Ovenbird, an Area-Sensitive Species***

Criteria for evaluation of specialized habitat for wildlife are identified within Table Q-2 of Appendix Q of the SWHTG. Several of the criteria were met during the evaluation, and therefore Ovenbird habitat is considered a significant wildlife habitat feature.

### ***Habitat for Milksnake, a Species of Conservation Concern***

Criteria for evaluation of specialized habitat for wildlife are identified within Table Q-3 of Appendix Q of the SWHTG. Given that Milksnake are habitat generalists, the entire Project location was considered to be suitable habitat for Milksnake. Milksnake are identified as a species of Special Concern on the ESA, and therefore though use is unconfirmed, the area is treated as significant wildlife habitat.

### ***Habitat for Baltimore Oriole and Eastern Kingbird, Species of Conservation Concern***

Criteria for evaluation of habitat for species of conservation concern are identified within Table Q-3 of Appendix Q of the SWHTG. Confirmed breeding habitat for Baltimore Oriole and Eastern Kingbird was noted within the hedgerows of the Project location. Suitable alternate breeding habitat is found within the home ranges adjacent to where these species were observed. Given the small size of populations on or within 120 m of the project location and the abundance of suitable breeding habitat within the region, this habitat type is not considered to meet the criteria for significance.

### ***Animal Movement Corridors***

Criteria for evaluation of animal movement corridors are identified within Table Q-4 of Appendix Q of the SWHTG. Given that there is a large animal movement corridor present in the local area (represented by the woodland south of the Project location), that the hedgerows are generally restricted to a depth of a single tree width and do not connect the woodland to other natural areas, these features are not considered to be significant wildlife habitat.

The woodland south of the Project location likely provides shelter for animal movement across the landscape. Given the large size of the woodland, and that it connects several different habitat types (agricultural fields, wetlands, waterbodies, other wooded areas), this feature is considered to be significant.

## 2.2 Woodlands

The criteria for establishing woodland significance is identified within Section 7 of the NHRM. Criteria, and includes: woodland size (> 50 ha in size), ecological function (e.g., woodland interior, proximity to other woodlands or other habitats, linkages, water protection, woodland diversity), uncommon characteristics, and economical and social functional values.

The woodland adjacent to the southern boundary is considered significant as it met the criteria for size, forest interior, linkages, proximity to water features, and old-growth characteristics.

## 3. Conclusions

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

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

Natural Feature		Project Location	Adjacent Lands (within 120 m)
<b>SIGNIFICANT</b>	Valleyland	No	No
	Woodland	No	Yes
	Wildlife Habitat	Yes	Yes
<b>PROVINCIAALLY SIGNIFICANT</b>	Wetland	No	No
	Earth Science ANSI	No	No
	Life Science ANSI	No	No

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

**Appendix H**  
**Natural Heritage**  
**Environmental Impact**  
**Study Summary**

**Northland Power Inc.  
Rideau Lakes Solar Project****Summary****Natural Heritage Environmental Impact Study****1. Introduction**

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

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled the Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

Section 38 of the REA Regulation requires proponents of Class 3 solar projects to complete an Environmental Impact Study (EIS) for all significant natural heritage features determined to be within a specified setback in order to obtain a REA. The EIS is required in order to determine i) any potential negative environmental effects on the natural features ii) identify mitigation measures iii) describe how the environmental effects monitoring plan in the Design and Operations Report addresses any negative environmental effects and iv) describe how the Construction Plan Report addresses any negative environmental effects. A woodland within 120 m south of the Project location and wildlife habitat on and within 120 m of the Project location were identified as significant and therefore an EIS was completed. It has been determined that there are no significant environmental effects to these features as a result of the Project.

**2. Results**

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

**Table 2.1 Summary of Potential Negative Environmental Effects and Proposed Mitigation**

<b>Project Phase</b>	<b>Potential Negative Environmental Effect</b>	<b>Proposed Mitigation Measure</b>
<b>Vegetation Communities/Wildlife Habitat</b>		
Construction	Removal of vegetation due to direct encroachment on the natural feature	The woodland and associated significant nature features will be protected by a 30 m buffer associated with the setback from the watercourse located along the edge of the feature. Temporary direct encroachment onto Milksnake ( <i>Lampropeltis triangulum</i> ) habitat

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
		will occur, resulting in a minor loss of habitat for this species during construction. However, as Milksnake are a habitat generalist, this will result in a negligible loss of habitat.
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, avoid earthworks during windy days.
Construction	Increase in surface water runoff rate and alter surface water pattern and therefore effect vegetation due to land grading and ditching, soil compaction, and vegetation removal.	Minor grading will occur and take into consideration current land grade to replicate present storm water flow pattern. Discing or other soil loosening methods will be used on compacted areas. Long-term ground cover will be planted.
Operations	Placement of solar panels on Milksnake habitat.	Presence of Project components on Milksnake habitat is not expected to impact Milksnake as they are a habitat generalist and are commonly found around manmade structures.
Operations	Alterations to surface water runoff and therefore vegetation communities due to changes in grading and ditching, impervious or less pervious surfaces and changes in vegetation.	Minor grading will occur and take into consideration current land grade to replicate present stormwater flow pattern. Long-term ground cover will be planted. Impervious and less pervious soils drain into ditches or localized areas; therefore no appreciable impact to local drainage patterns.
Decommissioning	Alterations to surface water runoff due to changes in grading and changes in vegetation.	All infrastructure will be removed, including access roads and drainage ditches, thereby bringing the site back to pre-construction conditions.
<b>Wildlife Communities</b>		
Construction/ Decommissioning	Auditory and visual disturbance of local wildlife populations may result in a short-term reduction of resident populations.  Potential for incidental take of wildlife.	Major construction activities with the potential to disturb breeding wildlife will be timed wherever possible to occur outside of the breeding bird period (generally May through July). If these activities are required during the breeding wildlife period, the areas potentially impacted will be search by a trained biologist within 48 hours of the proposed activity. If nests are found, work will be suspended within 100 m of the nest location until such a time as the nest is successful or abandoned. Vehicular speeds on access roads will be restricted.  Daily visual monitoring of the work area and construction equipment will be completed to search for reptiles and amphibians. Construction workforce will be made aware of the potential for wildlife occurring on the Project location and to avoid wildlife

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

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

### 3. Conclusions

The EIS has been prepared to identify potential negative environmental effects that all phases of the Project may have on the significant woodland and wildlife habitat. Potential negative effects are associated with:

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

Mitigation measures have been proposed to prevent these effects from occurring or minimize the magnitude, extent, duration and frequency in the event that they do occur to an acceptable level.

**Appendix I**  
**Water Body**  
**Records Review Report Summary**

**Northland Power Inc.  
Rideau Lakes 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 Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

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, Cataraqui Region Conservation Authority (CRCA), Rideau Valley Conservation Authority (RVCA), Township of Rideau Lakes, United Counties of Leeds and Grenville and other relevant sources.

**2. Results**

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

- An unnamed tributary of Sucker Creek originates approximately 50 m south of the Project location and flows into Sucker Creek approximately 2 km downstream. Sucker Creek drains into Newboro Lake approximately 800 m southwest of the Project location.
- Another unnamed tributary of Newboro Lake is located approximately 250 m northwest of the Project location.
- Newboro Lake Marsh Area of Natural and Scientific Interest (ANSI) located approximately 1 km south of the Project location.

### 3. Conclusions

Table 3.1 summarizes the results of the records review.

**Table 3.1 Summary of Records Review Determinations**

<b>Determination to be Made</b>	<b>Yes/No</b>	<b>Description</b>
Is the Project in a water body?	No	The Project will not be in 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	There are no lakes 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 in the Project location.
Is the Project within 120 m of the average annual high water mark of a permanent or intermittent stream?	Yes	There is one watercourse located within 120 m of the Project location. The tributary of Sucker Creek is located within 120 m south of the Project location.
Is the Project within 120 m of a seepage area?	No	No seepage areas are present within 120 m of the Project location.

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 on or within 120 m of the Project location, 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 J**

## **Water Body Site Investigation Report Summary**

**Northland Power Inc.  
Rideau Lakes 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 Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-megawatts (MW) solar photovoltaic project titled Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

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

**2. Results**

A single water body was identified on and within 120 m of the Project location.

***Unnamed Tributary of Sucker Creek***

- Tributary was found running along nearly the entire boundary of the Project site and the woodlot to the south, before turning south.
- Watercourse is a slow-moving run, with little variation in flow velocity or channel features.
- An Environmental Impact Study (EIS) is required to assess the potential for adverse effects of the Project and mitigation measures necessary to prevent or minimize these effects.

**3. Conclusions**

Based on the results of the site investigation discussed above, the Water Body Records Review would be changed to indicate that the tributary of Sucker Creek runs through the woodlot within 120 m south of the Project location in an area where it was not noted on mapping.

Based on the results of the site investigation and the proposed Project components and boundaries, an EIS will be required.

**Appendix K**  
**Water Body**  
**Environmental Impact Study**  
**Summary**

**Northland Power Inc.  
Rideau Lakes Solar Project****Summary****Waterbodies Environmental Impact Study****1. Introduction**

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

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as "Northland") is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled the Rideau Lakes Solar Project (hereinafter referred to as the "Project"). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

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

This EIS was completed on the tributary of Sucker Creek which is a water body located within 120 m of the Project location. It has been determined that there are no significant environmental effects to the tributary of Sucker Creek.

**2. Results**

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

**Table 2.1 Summary of Potential Negative Environmental Effects and Proposed Mitigation**

<b>Project Phase</b>	<b>Potential Negative Environmental Effect</b>	<b>Proposed Mitigation Measure</b>
<b>Surface Water Runoff</b>		
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	Install flow dissipation measures near the 30 m setback from the water body. Ditches will be vegetated with appropriate grass species to aid in flow dissipation and water uptake. Enhanced vegetation swales will be

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
	compaction, and vegetation removal.	used in roadside ditches to promote ponding in order to decrease turbidity and increase water retention. Vegetated filter strips will be used where runoff enters agricultural lands or where the ditches discharge in close proximity to watercourses. 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
<b>Surface Water Quality</b>		
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	Increase in soil erosion and sedimentation due to construction of access road and water crossing.	Construction will be in accordance with the <i>Environmental Guidelines for Access Roads and Water Crossings</i> and sediment and erosion controls will be installed per the guidance in the <i>Erosion &amp; Sediment Control Guideline for Urban Construction</i> . Sediment and erosion controls to be in place prior, during and following construction. Culvert installation will occur in dry conditions behind instream cofferdams. Access roads will be aligned 90 degrees to watercourse. Culvert installation during low flow periods. Limited heavy machinery use on the stream

Project Phase	Potential Negative Environmental Effect	Proposed Mitigation Measure
		bed. Stabilize and revegetate exposed areas as soon as possible. Riprap should be placed on the upstream and downstream fill slope around the culvert inlet to prevent erosion of fill.
Construction/ Decommissioning	Heavy dust may impact surface water quality.	Use of dust suppressant, phased construction and decommissioning, stockpiles to be stabilized and/or covered, hard surfaces for access roads, and avoid earthworks during windy days.
Construction/ Operations/ Decommissioning	Accidental spills contaminating surface water.	Fuelling stations and hazardous materials storage to be located outside of the 1:100-yr flooding hazard. Emergency spill kit on site at all times and the spill kit will have adequate materials/equipment for spill response. Machinery arriving on site to be clean and free of leaks. Contractor to have spill response procedure and all workers will be properly trained on the procedure. No cement products to be placed into any watercourse. Concrete truck rinsing station at least 120 m away from any known watercourse. Cement storage to be raised and placed in a waterproof shelter.
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.
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. It is assumed that a re-instatement of row crops will occur.
<b>Aquatic Biota and Habitat</b>		
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, is anticipated to be sufficient.
<b>Groundwater</b>		
Construction	Recharge or seepage areas may be impacted by altered surface water runoff or excavations.	The amount and duration of dewatering for excavations will be minimized to the extent possible.
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 waterbodies. Mitigation measures have been proposed to prevent these effects from occurring or minimize the magnitude, extent, duration and frequency in the event that they do occur. The primary mitigation measure that will prevent adverse effects on the water bodies 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 will be operated remotely and maintenance is only expected to occur periodically throughout the year. Decommissioning activities will be similar to construction activities and as such they may cause short-term minor impacts yet once the Project location has been restored to its previous condition no long-term impacts are anticipated.

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

**Appendix L**  
**Stage 1 and 2**  
**Archaeological Assessment Report**  
**Summary**

**Northland Power Inc.  
Rideau Lakes 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 Report, prepared by Archaeological Research Associates Ltd for the Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as "Northland") is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled the Rideau Lakes Solar Project (hereinafter referred to as the "Project"). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

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 Rideau Lakes 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 Rideau Lakes Solar Project site. It also included a systematic 5-m interval 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 Rideau Lakes Solar Project site or in close proximity to it and no archaeological sites had been registered or otherwise recorded within a 2 km radius of the property. Research indicated a high potential for the presence of both pre-Contact and Historic-era archaeological sites in the study area. During the study, three Historic-era findspots were identified. Of these, two appeared significant enough to warrant further protection. Accordingly, it is recommended that the two findspots be protected through an avoidance and buffering strategy.

### 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. Two findspots are considered provincially significant and do warrant further protection, namely avoidance and buffering.

# **Appendix M**

## **Noise Study Report Summary**

**Northland Power Inc.  
Rideau Lakes Solar Project****Summary****Noise Study 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 Noise Assessment Study Report for the Rideau Lakes Solar Project.

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

This Noise Assessment Study has been prepared based on the document entitled “Basic Comprehensive Certificates of Approval (Air) – User Guide” by the Ontario Ministry of the Environment (MOE). The sound pressure levels at the points of reception (POR) have been estimated using ISO 9613-2, implemented in the CADNA-A computer code. The performance limits used for verification of compliance correspond to the values for rural areas (45 dBA for day time, 40 dBA for night time). The results presented in this report are based on the best available information at this time. It is the intention that, in the detailed engineering phase of the project, certified noise data based on final plans and designs will confirm the conclusions of this noise study.

**2. Results**

- The main sources of noise from the Project will be the step-up transformer, located at the substation, and eight inverter clusters which also include medium-voltage transformers.
- Presently inverters for the Project consist of the Sunny Central SC1250MV unit which comprises two 630HE inverters (630 kW), contained in an e-house or enclosure. The main sources of noise are the cooling/ventilation fans for the inverters, the electrical components on the inverters and the medium-voltage transformer.
- The Points of Reception (POR) used in this study have been taken from the Ontario Base Map for the Rideau Lakes area. Some additional receptors (residential buildings) were added based on satellite imagery from Google Earth Pro (2005). The total number of POR within a 1-km radius from the substation is 21.
- The sound pressure levels at the POR were predicted using procedures from ISO 9613-2, which is a widely used standard for evaluation of noise impact in environmental assessments. The

sound power levels were estimated from the National Electrical Manufacturers Association standards (NEMA) for the substation transformer.

### 3. Conclusion

Based on the results obtained in this study, we believe that the sound pressure levels at POR will not exceed MOE requirements for rural areas. Any noise issues that might arise during commissioning will be manageable and can be resolved by implementing typical remediation measures as described in this report. It is our intention to verify by field measurements taken on completion of installation and during commissioning that the noise levels at the POR are within the limits set by the MOE.

# **Appendix N**

## **Protected Properties and Heritage Resource Information**

Project Report

December 22, 2010

**Northland Power Inc.  
Rideau Lakes Solar Project**

**DRAFT Heritage Resources and Protected Properties**

**Table of Contents**

<b>1. Introduction .....</b>	<b>3</b>
1.1 Project Description .....	3
1.2 REA Legislative Requirements .....	3
<b>2. Protected Properties .....</b>	<b>3</b>
<b>3. Heritage Assessment .....</b>	<b>3</b>
<b>4. Conclusion .....</b>	<b>3</b>

Blank back

## 1. Introduction

### 1.1 Project Description

Northland Power Solar Rideau Lakes L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled the Rideau Lakes Solar Project (hereinafter referred to as the “Project”). The Project will be located on approximately 50 hectares (ha) of land, located in the Township of Rideau Lakes, within the United Counties of Leeds and Grenville.

### 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, as a result of the consideration mentioned in subsection 20, 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:** Northland Power Solar Rideau Lakes

**Address:** Longitude and Latitude Coordinates: 44.67048, -76.274671

**Township and County:** Township of Rideau Lakes within the United Counties of Leeds and Grenville

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

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

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

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

**Property:** Northland Power Solar Rideau Lakes

**Address:** Longitude and Latitude Coordinates: 44.67048, -76.274671

**Township and County:** Township of Rideau Lakes within the United Counties of Leeds and Grenville

Step 1 – Screening Potential Resources			
		Built heritage resources	Reference
Yes	No	Does the property contain any built structures, such as:	The following resources were assessed using Google Earth 5.1.3535.3218 on May 26, 2010. There are no buildings on the site, but there are several buildings just east of the site. The site for this project appears to be on land cultivated for agricultural use.
√		Residential structures (e.g. house, apartment building, trap line shelter)	There is a house on the property but not in the Project location
√		Agriculture (e.g. barns, outbuildings, silos, windmills)	There are two large buildings that are like storage or barns near the main residence, again this is not on the Project location.
	√	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	Land appears to be cultivated for agricultural use in the past.

Step 2 – Screening Potential Significance			
Yes	No	A property's heritage significance may be identified through the following:	Reference
	√	1. Is it designated or adjacent to a property designated under the Ontario Heritage Act?	According to the Ontario Heritage Properties Database, there are no properties designated under the Ontario Heritage act on or adjacent to the site. The Rideau Lakes Township contains 25 heritage sites, but none are located in the vicinity of the site. (Website search: 26May10)
	√	2. Is it listed on the municipal heritage register or provincial register (e.g. Ontario Heritage Bridge List)?	As above.
	√	3. Is it within or adjacent to a Heritage Conservation District?	None of Ontario's Heritage Conservation Districts are located within the Municipality according to the MCL's current list. (Research completed 26May10 <a href="http://www.culture.gov.on.ca/english/heritage/conservation/conservation_list.htm">http://www.culture.gov.on.ca/english/heritage/conservation/conservation_list.htm</a> )
		4. Does it have an Ontario Heritage Trust easement or is it adjacent to such a property?	According to the Ontario Heritage Trust website ( <a href="http://www.heritagefdn.on.ca">www.heritagefdn.on.ca</a> ) no easement properties are located in the vicinity of the property. In addition, the Ontario Heritage Properties Database did not reveal any easement properties. (Research completed 26May10)
	√	5. Is there a provincial or federal plaque?	There are no provincial plaques located in the vicinity of the Project location (Research completed 26May10 <a href="http://www.ontarioplaques.com/index.html">http://www.ontarioplaques.com/index.html</a> ). 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 26 May10) In addition, no sites within the vicinity of the Project are listed on the Canadian Register of Historic Places (Research completed 26May10 <a href="http://www.historicplaces.ca">www.historicplaces.ca</a> ).
	√	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?	Doug Bond, Chair of the Rideau Lakes Township MHAC was contacted on May 26, 2010. As of May 31 <sup>st</sup> , 2010 there are no heritage structures on the site or within the 300m perimeter of the site.
	√	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 on the Project location

√		Is it within a Canadian Heritage River watershed?	The site is located within the watershed of the Rideau Waterway which is considered a Canadian Heritage River. Consultation with Park's Canada, the authority responsible for the Rideau Waterway, determined that there would be no impact on the cultural heritage value or viewscape of the Rideau Canal.
	√	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		Reference
	✓	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](http://www.culture.gov.on.ca).

# **Appendix O**

**Letter of Confirmation –  
Ontario Ministry of Natural Resources**

Ministry of  
Natural Resources

Ministère des  
Richesses naturelles



Kemptville District  
10 Campus Dr.  
Kemptville, ON  
K0G 1J0

---

December 8, 2010

Sean Male  
Hatch  
Environmental Assessment & Management  
Niagara Falls, Ontario

Dear 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 Rideau Lakes Solar Project in the township of Rideau Lakes in the United Counties of Leeds and Grenville submitted by Northland Power Solar Rideau Lakes L.P.

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.
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 at 613-258-8366 or at [Heather.Zurbrigg@ontario.ca](mailto:Heather.Zurbrigg@ontario.ca)

Sincerely,



Alex Gardner  
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 P**

**Letter of Confirmation –  
Ontario Ministry of Tourism and Culture**

**Ministry of Tourism and Culture**

Culture Programs Unit  
Programs and Services Branch  
401 Bay Street, Suite 1700  
Toronto, ON M7A 0A7  
Telephone: (416)-314-7691  
Facsimile: (416)-314-7175  
Email : lan.Hember@ontario.ca

**Ministère du Tourisme et de la Culture**

Unité des programmes culturels  
Direction des programmes et des services  
401 Rue Bay, Suite 1700  
Toronto, ON M7A 0A7  
Téléphone: (416)-314-7691  
Télécopieur: 416-314-7175  
Email : lan.Hember@ontario.ca



January 6, 2011

Tom Hockin  
Northland Power Inc.  
30 St. Clair Avenue West  
17th Floor  
Toronto, Ontario,  
Canada  
M4V 3A1

**RE: Rideau Lakes Solar Generation, Township of Rideau Lakes, United Counties of Leeds and Grenville, Ontario, FIT-F58Q7J8, MTC File no. HD00504, PIF No. P007-246-2010.**

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(s) 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(s).\*

The report(s) recommends the following [quote the recommendations from the report]:

*In sum, Findspots 1-3 have the potential to be archaeologically significant. However, each of the sites lies well away from lands to be impacted by project activities. Accordingly, and in consultation with the proponent and MTC, it was agreed that the findspots could be protected by a combination of avoidance and a project buffer of 20m (see Appendix A). As a result, it is recommended that the project be allowed to proceed without further heritage concerns.*

*This report is filed with the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. The report will be reviewed to ensure that the licenced consultant archaeologist has met the terms and conditions of their archaeological licence, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.*

*Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site*

*immediately and engage a licenced consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. This condition provides for the potential for deeply buried or enigmatic local site areas not typically identified in evaluations of potential.*

*The Cemeteries Act requires that any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Small Business and Consumer Services. All work in the vicinity of the discovery will be suspended immediately. Other government staff may be contacted as appropriate; however, media contact should not be made in regard to the discovery.*

*Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the Ontario Heritage Act, and may not be altered, or have artifacts removed, except by a person holding an archaeological licence.*

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,

Ian Hember  
Archaeology Review Officer

c. Paul Racher, Archaeological Research Associates

---

\*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.