



SkyPower Limited

**Project Description Report
Little Creek Solar Power Project**

April, 2010

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- were prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

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This Statement of Qualifications and Limitations is attached to and forms part of the Report.

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1. Introduction

This Project Description Report has been prepared in accordance with Table 1 of *Ontario Regulation 359/09*. In order to satisfy the requirements of the Renewable Energy Approvals (REA) process, this Project Description Report describes the following in relation to the proposed solar power project at the Little Creek property:

- the energy sources to be used to generate electricity at the renewable energy facility;
- the facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity;
- the activities that will be engaged in as part of the installation of the solar energy facility;
- the ownership of the land on which the proposed solar energy facility will be situated;
- any negative environmental effects that may result from engaging in the project; and
- appropriate mapping showing the project location and the land within 300 metres of the project location.

2. Project Background

2.1 Site Description

The proposed site for a solar energy facility is located on the south side of Little Creek Road, in the County of Lennox and Addington. The site is part of Lot 14 & 15, Concessions 4 and 5 in the geographic Township of North Fredericksburgh (see **Key Map**). The site occupies a total area of approximately 49.9 hectares (116 acres).

The proposed site is located on private property with geographic coordinates as follows:

- Latitude: 44°13'46.05"N
- Longitude: 76°54'27.23"W

The site is located in the Little – Big Creeks Watershed, under the jurisdiction of Cataraqui Conservation Authority. Little Creek, a large and permanent watercourse, crosses the northeast corner of the site. A tributary of Little Creek enters the northwestern portion of the site through a culvert under Little Creek Road and terminates approximately 100 m on the site. Further, the site lies within the Napanee Plain physiographic region (Chapman and Putnam 1984). The flat to undulating topography is dominated by limestone. The soil is very shallow (a few centimetres deep) in most of the region, although some deeper glacial till occurs in stream valleys.

The site is located within the Ecoregion 6E which is called Lake Simcoe-Rideau. Approximately 57% of this ecoregion is under agricultural use (OMNR 2007).

The lands surrounding the property are characterized as low density residential housing and include a number of agricultural buildings. The project site is currently fallow agricultural. Properties adjacent to the site are active agricultural lands and associated rural residential.

2.2 Renewable Energy Source

Solar power derived from the sun will be used to generate electricity at the renewable energy generation facility. The purpose is to supply solar energy to help meet Ontario's existing and growing electricity needs, and to address the consumer demand for cleaner energy sources.

2.3 Technology Components

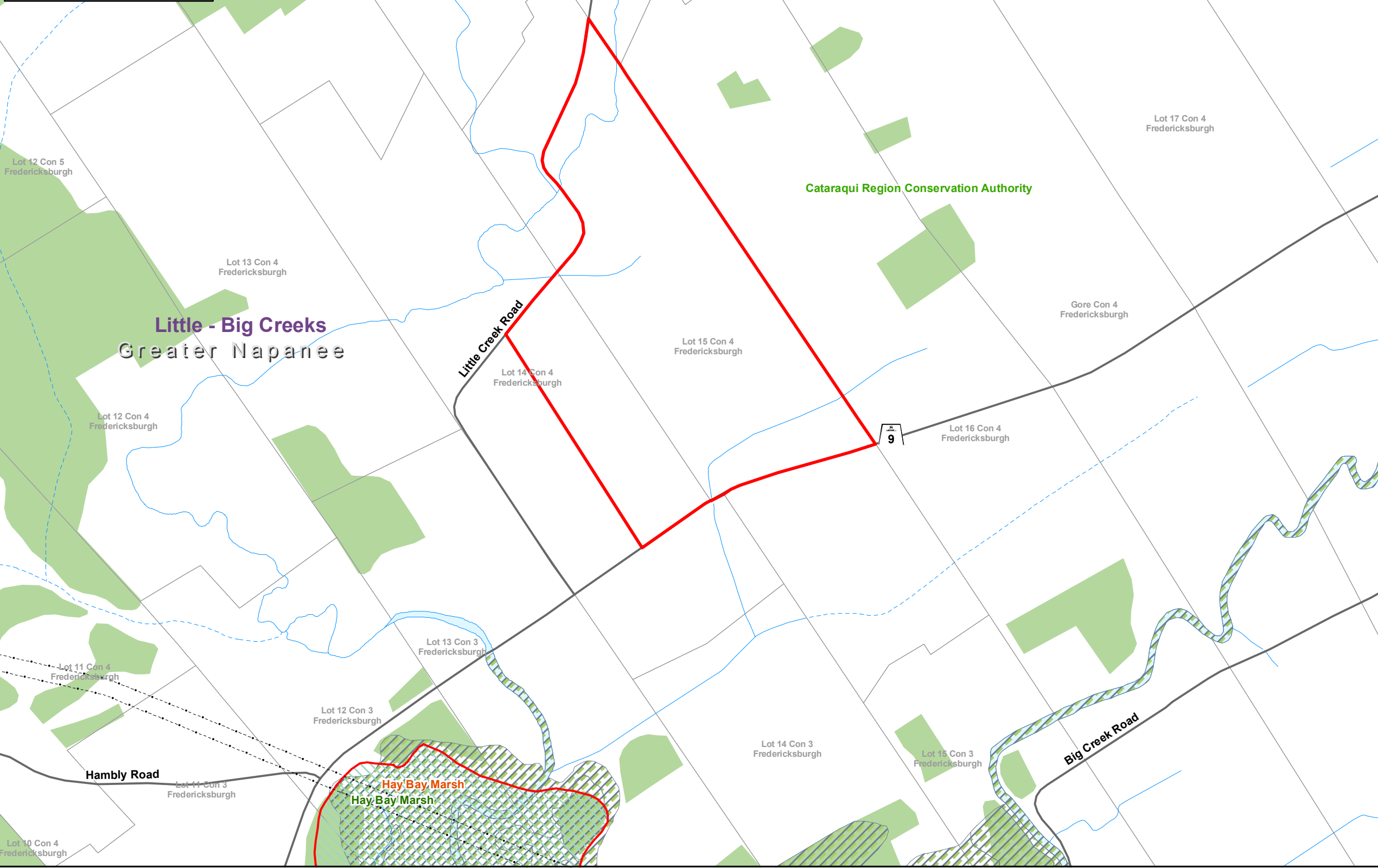
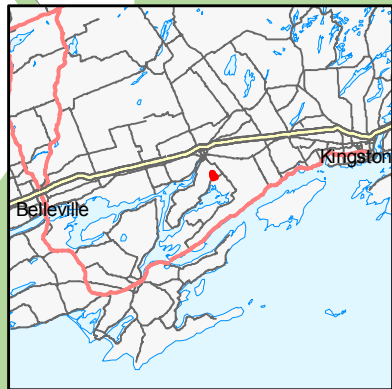
Photovoltaic panels will be the technology used to convert solar radiation into electricity. Direct Current (DC) electricity generated from the panels will be collected and converted into Alternating Current (AC) electricity by

inverters. From the inverters, the electricity will be metered and transferred into the local distribution grid for regular use.

- Photovoltaic modules – The solar panel used for a project of this scale range from 60 to 200 watts each. For a 10 MW project, it is expected that approximately 50,000 to 200,000 PV panels will be installed, depending on panel type and manufacturer subject to Ontario content requirements. Panels will be aligned in rows approximately 20 feet apart.
- Racking – The racking systems will be used to attach the large number of solar panels to the galvanized steel support structures.
- Inverters – Solar panels create DC electricity, which is then converted to AC electricity through the inverter. AC electricity is suitable for distribution to the local grid. The number of inverters and inverter models used vary from project to project based on electrical engineering and interconnection requirements.

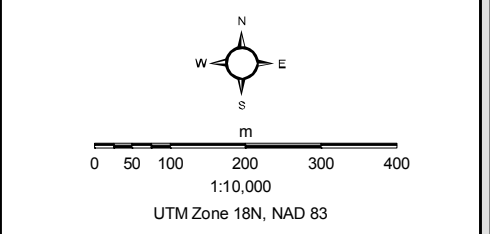
Updated information and further detail will be available as the project progresses through the project's Construction, Design and Operations and Decommissioning Reports. In addition, updates to the Project Description will be posted on SkyPower's website.

DRAFT



- Legend**
- Transmission Line
 - Intermittent Stream
 - Permanent Stream
 - Study Area
 - Watershed and Conservation Authority Boundary
 - Township Boundary
 - Lot Boundary
 - Wooded Area
 - Provincially Significant Wetland
 - Provincially Significant Life Science ANSI
 - Municipal Division

Basemapping from Ontario Ministry of Natural Resources



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SkyPower Limited.

Little Creek Site

February 2010
Project 60147318

Key Map

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2.4 Class of Renewable Energy Generation Facility

The proposed facility will be mounted to the ground and will have a name plate capacity of 10MW. As a result, this solar power project is deemed to be a Class 3 renewable energy generation facility under *Ontario Regulation 359/09*.

3. Key Activities

3.1 Construction, Operation and Decommissioning

The following key activities are anticipated for the life of the undertaking, from Pre-Construction to Decommissioning.

Pre-Construction

Prior to the project's construction, several on-site studies are required, in order to evaluate and assess the proposed project and its design. The results of these studies will be presented in the following reports as required by *Ontario Regulation 359/09*:

- Construction Plan Report
- Consultation Report
- Decommissioning Plan Report
- Design and Operations Reports
- Noise Study Report

Construction

It is expected that some construction equipment will be required to facilitate the construction of the various components of the solar power project. A construction report will be created and made available prior to the start of construction and after sufficient studies have been conducted. Some of the activities anticipated during construction include:

- Grading to ensure proper drainage and to facilitate construction;
- Gravel road installation to facilitate installation, delivery of equipment and maintenance as required;
- Drilling or piling to anchor the racking system in place;
- Trenching for electrical infrastructure;
- Foundation pouring to protect equipment; and
- Fencing to ensure safety.

All construction will be conducted by licensed contractors in accordance with required standards and codes and all activities will abide by local laws and requirements. Additionally, all construction related activities will be conducted on-site.

Additional maintenance or service may be required if there are issues such as equipment damage or malfunction, however, this will not be a common occurrence. The facility will be continuously monitored using an online system that will identify any system problems in real-time. Site inspections for all project components will occur on a semi-annual basis.

Timing of Construction Activities:

- Anticipated Construction Start Date – Spring 2012
- Duration of Construction – Approximately 6 to 9 months

Testing and commissioning will occur over the last few weeks of construction according to ESA and Hydro One requirements and under their supervision.

Further details will be available in the Construction Plan Report on such activities:

- Site Preparation
- Site Commissioning
- Foundations and Underground Infrastructure
- Inverter Installation
- Transformer Installation

Operation

Overall, little activity is expected to occur during the project's operation phase. Since the solar power project will be monitored and managed remotely, minimal onsite activity is required for its daily operation. An operation report will be prepared and made available prior to the start of construction of the project. Security and minor maintenance will be the only regular activities anticipated on site. Occasional activities expected during operation include:

- Maintenance and replacement of equipment as required;
- Ground maintenance on a designated frequency to ensure that noxious weeds are contained and the panels are not shaded;
- Cleaning of panels and equipment as required; and
- Inspections and testing as required by local utility and other governing bodies.

Decommissioning

Most of the materials used in a solar power project are reusable or recyclable, and some equipment may have manufacturers take back and recycling requirements. Through the decommissioning phase of the project, the site will be returned to a state suitable to its original or future use. Materials such as the steel for racking and copper from the electrical infrastructure will be removed and recycled. The PV panels will be removed and either returned through manufacturers recycling protocols or refurbished and recycled as possible. Any remaining materials will be removed and disposed off-site to an appropriate location.

3.2 Name Plate Capacity

The name plate capacity of the renewable energy generation facility is approximately 10 MW DC.

3.3 Ownership

SkyPower Limited is the current owner of the land on which the project location is to be situated.

4. Records Review Findings

4.1 Natural Heritage Analysis

The site's fallow agricultural lands have been naturally populated with weedy species (Golder Associates 2008). The hedgerows which intersect the site are dominated by White Oak (*Quercus alba*), White Elm (*Fraxinus pennsylvanica*), Common Buckthorn (*Rhamnus cathartica*), Prickly Ash (*Zanthoxylum americanum*), Choke Cherry (*Prunus virginiana*), Grey Dogwood (*Cornus racemosa*), Juniper species (*Juniperus* sp.) and Hawthorn species (*Crataegus* sp.) (Golder Associates 2008).

No woodlots have been identified within or immediately adjacent to the project site through a review of ortho-photographs, MNR NRVIS mapping and background sources (**Figure 1**).

No rare species have been identified through the Natural Heritage Information Centre (NHIC) database within or in the vicinity of the site (greater than 2 km of the site).

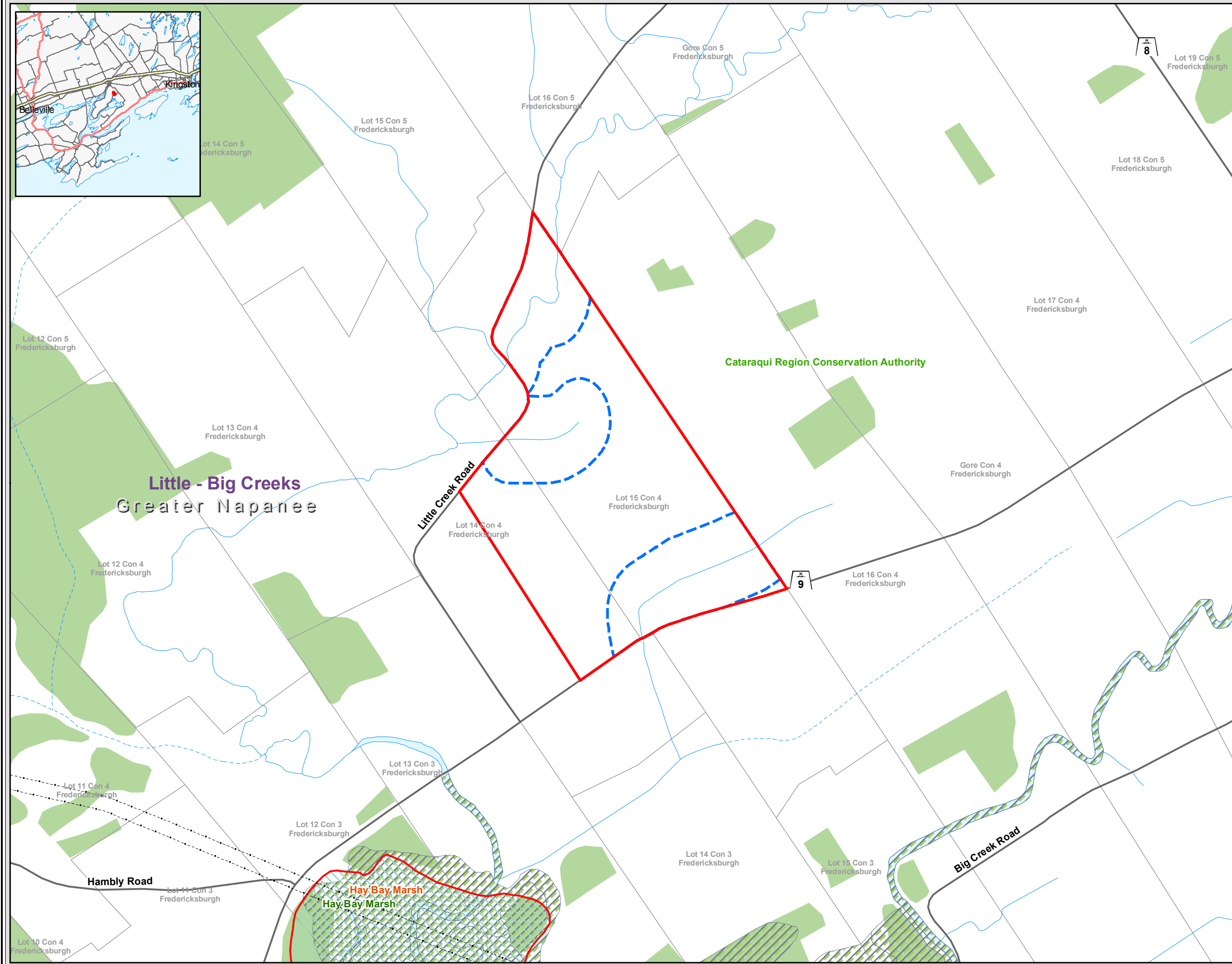
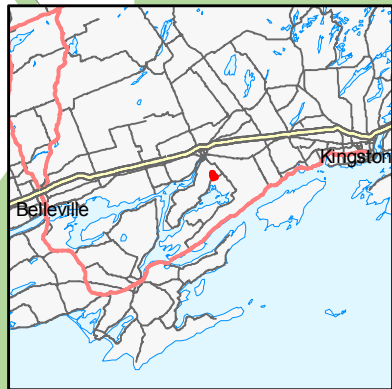


There are no Areas of Natural and Scientific Interest (ANSI), Provincially Significant Wetlands (PSWs), Conservation Reserves or Provincial Parks within 120 m of the project site.

The provincially significant Hay Bay Marsh is located approximately 425 m from the boundaries of the project site. This wetland is part of the larger coastal wetland complex (1333 ha) that is composed of two wetland types (7% swamp and 93% marsh) (NHIC Natural Areas Report). This area of wetland has also been designated as a provincially significant Life Science ANSI.

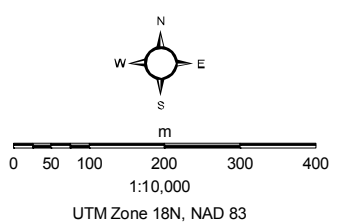
Based on the review of background/secondary sources and of the NHIC database, it is unlikely that there are any natural heritage setbacks that apply to the Little Creek site.

View to southwest from centre of Little Creek property
(*Advance Archaeology, 2008*)



- Legend**
- Transmission Line
 - Intermittent Stream
 - Permanent Stream
 - Watercourse Buffer - 120 m
 - Study Area
 - Watershed and Conservation Authority Boundary
 - Lot Boundary
 - Wooded Area
 - Provincially Significant Wetland
 - Provincially Significant Life Science ANSI
 - Municipal Division

Basemapping from Ontario Ministry of Natural Resources



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Little Creek Site

February 2010
Project 60147318

Figure 1

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4.2 Water Body Analysis

Little Creek, a large and permanent watercourse, crosses the northeast corner of the site. A tributary of Little Creek enters the northwestern portion of the site through a culvert under Little Creek Road and terminates approximately 100 m on the site. During site reconnaissance (July 8 2008) conducted by Golder Associates no flow was recorded in this tributary, however the soil was wet, indicating some intermittent flow. The watercourse feature that crosses the southern portion of the site was characterized as a swale with terrestrial vegetation growing within the depression. This feature was dry during site reconnaissance (July 8, 2008) (Golder Associates 2008).

There are no lakes within 300 m of the site. As reported by Conservation Ontario, no fish Species at Risk have been identified within or in the vicinity of the site.

The proposed Little Creek site is underlain by a thin veneer of glaciolacustrine silt and clay and silty to sandy Newmarket Till (**Figure 2**). These thin deposits overlie Paleozoic Bedrock. The Paleozoic bedrock can also be found at surface on and adjacent to the subject site. Modern alluvial deposits are found along the banks of Little Creek and likely consist of layered silts, sands and gravels. The glaciolacustrine and till materials at the site have a low permeability meaning that their presence impedes groundwater flow and infiltration, and promotes surface run-off. Significant seepage areas or springs are not generally associated with low permeability deposits. No wetlands, which are commonly associated with seepage, are present within 120 m of the site. There is likely some minor, localized seepage that occurs from the alluvial sediments surrounding Little Creek into the watercourse. Standard watercourse setback distances should be applied to potential development near this feature. There is also a small drainage channel on the property, but it is not anticipated to be fed by any seepage, rather it is likely fed by surface water run-off. Due to the site specific and small nature of natural heritage features such as seepage areas and springs, a site visit is required to confirm this analysis.

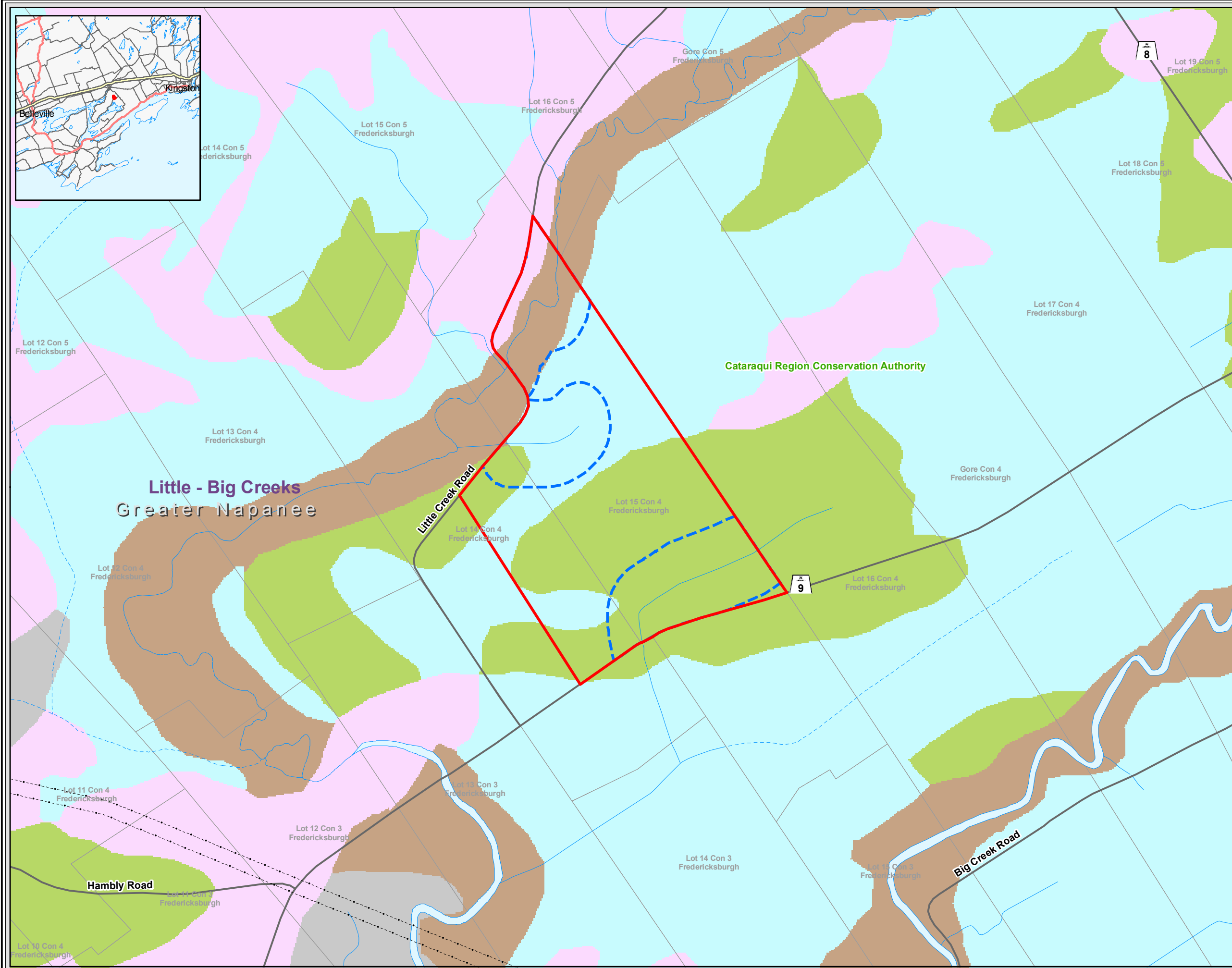
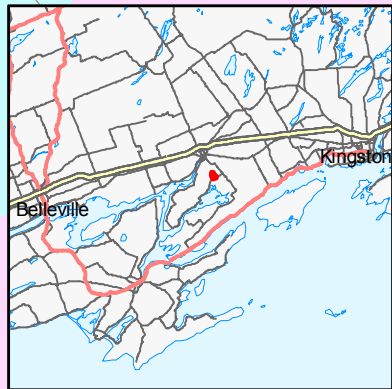


Little Creek on northeast of the Site
(Jacques Whitford, 2008)

Table 1 below summarizes the water body setback requirements that are potentially applicable to the Little Creek site based on the features present.

Table 1 Water Body Setback Requirements Applicable to Little Creek Site

Feature	Setback Required	Study Alternative
Permanent and intermittent streams	120 metres of the shoreline	An environmental impact study that demonstrates the ability to mitigate negative impacts, limited to a 30 metre distance from the shoreline
Seepage areas and springs	120 metres of the shoreline	An environmental impact study that demonstrates the ability to mitigate negative impacts, limited to a 30 metre distance from the shoreline



Legend

- Transmission Line
- - - - - Intermittent Stream
- Permanent Stream
- [Blue dashed box] Watercourse Buffer - 120 m
- [Red solid box] Study Area
- [Grey outline] Municipal Division
- [Thin grey line] Lot Boundary

Surficial Geology

Recent Deposits

- [Grey box] 20: Organic deposits
- [Brown box] 19: Modern alluvial deposits

8: Fine-textured glaciolacustrine deposits

- [Light blue box] 8a: Massive-well laminated

5: Tills

- [Green box] 5b: Stone-poor, carbonate-derived silty to sandy till

3: Paleozoic Bedrock

- [Pink box] 3: Paleozoic bedrock

Basemapping from Ontario Ministry of Natural Resources

UTM Zone 18N, NAD 83

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**Little Creek Site
Surficial Geology**

February 2010
Project 60147318

Figure 2

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4.3 Records Review Recommendations

The Little Creek site is predominately fallow agricultural lands. Potential development is constrained adjacent to the three watercourse features occurring with the project site boundaries.

If development is proposed within the *Ontario Regulation 359/09* "Setbacks Required", then there is a requirement for the preparation of an Environmental Impact Study (EIS). The setback requirements in accordance with *Ont. Reg. 359/09* have been applied on the constraint mapping (see **Figure 1**).

Through the preparation of an EIS, where required, site-specific setbacks are recommended based on ecological and hydrogeological requirements. These setbacks should be varied in relation to the existing features and functions that they are designed to protect and the nature of the proposed land use. In other words, setbacks may vary depending on the proposed land use adjacent to the feature, the functions, sensitive attributes and species associated with the feature, and the contributing function of lands adjacent to the feature.

The specific setbacks/buffers for this application will be determined through the preparation of the EIS and through consultation with MNR and the Conservation Authority.

4.4 Potential Environmental Effects

Solar projects represent a proven method of generating clean, renewable and reliable electricity. A central benefit of using photovoltaic technology to convert sunlight into electricity is the minimal impact on the natural environment.

Based on the records review, it is unlikely that there are any natural heritage setbacks that apply to the Little Creek site. Potential development is constrained adjacent to the three watercourse features occurring with the project site boundaries. If development is proposed within the Setback Areas of *Ont. Reg. 359/09*, then there is a requirement for the preparation of an Environmental Impact Study (EIS).

PV panels do not produce air emissions and the vegetative cover under and around the panels will allow for only natural soil loss to occur. Cleaning of panel surfaces will be done a few times per year. Snow clearing will be done as necessary and vegetation maintenance will take place on a monthly or bi-weekly basis (depending on conditions) during the summer months. No harsh chemicals will be used to clean or manage the vegetation. The photovoltaic technology and associated equipment will not produce any solid, liquid or gaseous wastes.

During construction it is expected that ground disturbance and levelling activities may disturb the site. Many similar activities and equipment are expected during decommissioning. Our contractors will be required to have an Environmental Management Plan (EMP) in place to ensure these natural features are protected during the construction. Some of the key elements we expect in the contractors EMP include:

- Refuelling and spill management for onsite equipment including spill kits absorbent pads and safe refuelling practices.
- Temporarily fence areas with valued environmental features, such as rare plants, and exclude construction from these fenced areas.
- Stormwater management especially in areas of disturbed soils such as silt fences, screening dams and monitoring.
- Whenever feasible, construction activities to periods when the ground surface is best able to support construction equipment.

- Upon clean-up to replace topsoil stored on-site and re-vegetate areas that were temporarily cleared where possible, with native seed mixtures or, with a mix of species similar to those on adjacent lands, to restore affected lands to their previous condition.

The project has an expected lifespan of over 25 years, and once the project has completed its useful life it will be decommissioned. Since the majority of the project components can be recycled for their raw materials (steel, glass), it is expected that after the projects useful life the majority of the project materials will be easily recycled at an appropriate facility.

DRAFT

5. References

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The Official Plan of the Town of Greater Napanee (Office Consolidation) March 2002

Jacques Whitford, July 2008:

Phase I Environmental Site Assessment, Lots 14 and 15, Concession 5, Napanee, ON, July 2008

Appendix A

**Ministry of Culture Clearance
Letter, December 2008**

Ministry of Culture

Culture Programs Unit
Programs and Services Branch
400 University Avenue, 4th floor
Toronto, ON, M7A 2R9
Telephone: 416/314-7132
Facsimile: 416/314-7175
Email : Jim.Sherratt@ontario.ca

Ministère de la Culture

Unité des programmes culturels
Direction des programmes et des services
400, avenue University, 4^e étage
Toronto, ON, M7A 2R9
Téléphone: 416/314-7132
Télécopieur: 416/314-7175
Email : Jim.Sherratt@ontario.ca



December 4, 2008

Ms. Donna Morrison
Advance Archaeology
P.O. Box 493
Port Hope, Ontario
Facsimile: 905-342-3250

RE: Review and Acceptance into the Provincial Register of Reports: Archaeological Assessment Report Entitled, "Stage 1 to 3 Archaeological Assessment of the Little Creek Solar Farm Project, Part Lots 14 and 15, Concession 4 and Part of Lot 15, Concession 5, Geographic Township of North Frederickburgh, Now in the Town of Greater Napanee, Lennox and Addington County," Report Dated December 3, 2008, Report Received electronically December 3, 2008, MCL Project Information Form Number P121-062&066-2008, MCL RIMS Number HD00135.

Dear Ms. Morrison:

This office has reviewed the above-mentioned report, which has been submitted to this Ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. This review is to ensure that the licensed professional consultant archaeologist has met the terms and conditions of their archaeological licence, that archaeological sites have been identified and documented according to the 1993 technical guidelines set by the Ministry and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

As the result of our review, this Ministry accepts the above titled report into the Provincial register of archaeological reports. The report indicates two archaeological sites, BdGf-42 and BdGf-43, found on the subject property underwent Stage 3 investigations and it is recommended that both be considered sufficiently documented. This Ministry concurs with the recommendation that the provincial interest in the archaeological sites identified as BdGf-42 and BdGf-43 has been addressed.

Given the above, this Ministry is satisfied that concerns for archaeological sites have been met for the area of this development project as depicted by Figures 1 and 4 of the above titled report and by the Site Plan provided by SkyPower Corp. and SunEdison dated August 18, 2008, Project No. ON-07-0006.

If you have not already done so, please provide two additional hard copies of the report for report register and archives purposes.

I trust this information is of assistance. Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Jim Sherratt". The signature is written in a cursive style with a long horizontal flourish extending to the right. It is placed on a light gray rectangular background.

Jim Sherratt
Archaeology Review Officer
Eastern Region

cc. Archaeological Licensing Office
Mr. Allen Newell, SkyPower Corp.