



Canadian Solar Solutions Inc. and  
UC Solar Ltd.

Draft Water Body Site Investigation  
Report

For

2176047  
Solar Energy Project

H335467  
Rev. C  
May 25, 2011

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Project Report

May 25, 2011

**Canadian Solar Solutions Inc. & UC Solar Ltd.**  
**2176047- Solar Energy Project**

**Draft Water Body Site Investigation Report**

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## 1. Introduction

### 1.1 Project Description

UC Solar Ltd. (“UC Solar”) in partnership with Canadian Solar Solutions Inc. (“Canadian Solar”) is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled 2176047 Solar Energy Project (the “Project”). The Project Location<sup>1</sup> is situated on approximately 36 hectares (ha) of land on Part of Lots 7 & 8, Concession 3 in the Elizabethtown-Kitley Township (lower tier municipality), United Counties of Leeds and Grenville (upper tier Municipality). The southern portion of the Project Location is within the City of Brockville.

### 1.2 Renewable Energy Approval 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), came into force on September 24, 2009 and identifies the Renewable Energy Approval (REA) requirements for renewable energy generation facilities in Ontario. The REA Regulation has since been amended by O. Reg. 521/10, which came in effect as of January 1, 2011.

As per the REA Regulation (Part II, Section 4), ground-mounted solar facilities with a nameplate capacity greater than (>) 12 kilowatts (kW) are classified as Class 3 solar facilities and require an REA.

Part IV, subsection 29 (1) of the REA Regulation requires proponents of Class 3 solar projects to conduct a water assessment consisting of a Water Body Records Review (Hatch Ltd., 2011a) and a Water Body Site Investigation.

Subsection 1 (1) of the REA Regulation defines a water body as a lake, permanent stream, intermittent stream or seepage area, but does not include:

- a) grassed waterways
- b) temporary channels for surface drainage, such as furrows, or shallow channels that can be tilled or driven through
- c) rock chutes and spillways
- d) roadside ditches that do not contain a permanent or intermittent stream
- e) temporarily ponded areas that are normally farmed
- f) dugout ponds, or
- g) artificial bodies of water intended for the storage, treatment or recirculation of runoff from farm animal yards, manure storage facilities and sites and outdoor confinement areas.

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<sup>1</sup> “Project Location means, when used in relation to a renewable energy project, a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person is engaging in or proposed to engage in the project” (O. Reg. 359/09, s. 1 (1)).

Further, intermittent streams are defined as “a natural or artificial channel, other than a dam, that carries water intermittently and does not have established vegetation within the bed of the channel, except vegetation dominated by plant communities that require or prefer the continuous presence of water or continuously saturated soils for their survival” (O. Reg. 359/09).

Seepage areas are defined as “a site of emergence of groundwater where the water table is present at the ground surface, including a spring” (O. Reg. 359/09).

Subsection 31 (1) requires an investigation of the land and water within 120 metres of the Project Location, either by visiting the site or by alternative investigation of the site, in order to determine the following:

- (a) whether the results of the analysis summarized in the *Water Body Records Review Report* (Hatch Ltd., 2011a) prepared under subsection 30 (2) are correct or require correction, and identifying any required corrections;
- (b) whether any additional water bodies exist, other than those that were identified in the *Water Body Records Review Report* (Hatch Ltd., 2011a) prepared under subsection 30 (2);
- (c) the boundaries, located within 120 m of the Project location, of any water body that was identified in the *Water Body Records Review Report* (Hatch Ltd., 2011a) or the site investigation; and
- (d) the distance from the Project location to the boundaries determined under clause (c). O. Reg. 359/09, s. 31 (1); O. Reg. 521/10, s. 18 (1)

Subsection 31 (2) has specific requirements if designated lake trout lakes are present within 300 m of the Project location. The *Water Body Records Review Report* (Hatch Ltd., 2011a) did not identify any lake trout lakes within 300 m of the Project Location, therefore, the requirements under subsection 31 (2) do not apply.

Subsection 31 (3) states that the person mentioned in subsection (1) may, for the purpose of subsection (1) or (2), conduct an alternative investigation of the site only if he or she determines that it is not reasonable to conduct a site investigation by visiting the site. O. Reg. 521/10, s. 18 (2). The site investigation completed for this Project involved visiting the site. Therefore, the requirements for completing an alternative investigation of the site do not apply to this Project.

Subsection 31 (4) requires the proponent to prepare a report setting out the following with respect to the land and water in respect of which any site investigation was conducted:

1. A summary of any corrections to the *Water Body Records Review Report* (Hatch Ltd., 2011a) and the determinations made as a result of conducting the site investigation.
2. Information relating to each water body identified in the *Water Body Records Review Report* (Hatch Ltd., 2011a) and in the site investigation, including the type of water body, plant and animal composition and the ecosystem of the land and water investigated.
3. A map showing,
  - i. the boundaries mentioned in clause 31 (1) (c),

- ii. the location and type of each water body identified in relation to the Project Location, and
  - iii. all distances mentioned in clause 31 (1) (d).
4. A summary of methods used to make observations for the purposes of the site investigation.
5. The name and qualifications of any person conducting the site investigation.
6. If an investigation was conducted by visiting the site:
  - i. the dates and times of the beginning and completion of the site investigation.
  - ii. the duration of the site investigation.
  - iii. the weather conditions during the site investigation
  - iv. field notes kept by the person conducting the site investigation
7. If an alternative investigation of the site was conducted:
  - i. the dates of the generation of the data used in the site investigation.
  - ii. an explanation of why the person who conducted the alternative investigation determined that it was not reasonable to conduct the site investigation by visiting the site. O. Reg. 521/10, s. 18 (2).

Subsection 31 (5) requires the proponent to submit the report prepared under subsection 31 (4) as part of an application for the issue of a renewable energy approval. O. Reg. 521/10, s. 18 (2).

This *Water Body Site Investigation Report* has been prepared to meet the requirements under Section 31. A physical examination of the site was completed and any requirements under Section 31 related to an alternative investigation of the site do not apply to this Project and will not be included in this report.

## 2. Summary of Results of Records Review

Table 2.1 summarizes the results of the *Water Body Records Review Report* (Hatch Ltd., 2011a).

**Table 2.1 Summary of the *Water Body Records Review Report* Determinations**

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

Therefore, based on the information obtained in the *Water Body Records Review Report* (Hatch Ltd., 2011a), the proposed Project is not expected to have any components situated within 120 m of a water body feature. A site investigation is required to verify that no water body features are present on and within 120 m of the Project Location. The following sections outline the methodology and results of the site investigation as per the requirements of the REA Regulation.

### 3. Site Investigation Methodology

A Water Body site investigation was completed for this Project, as described below.

#### 3.1 Site Investigation Details

##### 3.1.1 *Date, Time and Duration of Site Investigation*

- Date: July 22, 2010
- Start Time: 15:30 hours
- Duration: approximately 4 hours

##### 3.1.2 *Weather Conditions During Site Investigation*

- Temperature: 25°C
- Beaufort Wind: 1 (0 to 5.5 km/h)
- Cloud Cover: 10%
- Rainfall on day of site investigation: No
- Rainfall in days preceding site investigation: No
- Other observations: Very humid

##### 3.1.3 *Name and Qualifications of Person Conducting Site Investigation*

The site investigation was completed by Caleb Coughlin of Hatch Ltd.

Caleb is an environmental technologist with experience in fisheries and fish habitat assessments. Recent projects have included spawning surveys (Muskoka and Trout Lake rivers), Riverine Index Netting (White Lake and Mattagami River), Fall Walleye Index Netting (Mattagami River), forage fish collection, Brook Trout mark and recapture studies and Ontario Broad-scale Monitoring (OBM). A recent study required a complete fish community inventory involving electrofishing, trap netting and seine netting (Shickluna hydro development). He has participated in a number of other resource management studies focusing on aquatic and terrestrial ecosystems including assessments of aquatic invasive species, avian populations, large mammals, furbearers and sustainable forestry practises.

#### 3.2 Survey Methods

The entire Project Location and areas within 120 m of the Project Location were searched by the observer on foot to document waterbodies and take photographs. Access onto private residential lands along the east side of County Road 6 was not conducted nor were individual landowners contacted to obtain permission to enter their lands since it was obvious by observations from County Road 6 that there were no waterbodies present in this vicinity. Water body features, including the type of water body, instream habitat types, surrounding riparian areas, average annual high water mark and wildlife use were noted if they were observed. A submeter accuracy global positioning system (GPS) was kept by the observer to document the location of any water body feature and record the average annual high water mark of a stream if encountered during the site investigation. A copy of the field notes kept by the observer during the site investigation is provided in Appendix A.

## 4. Results of the Site Investigation

This section documents the results of the site investigation and discusses specific water body features and other water features (i.e. not considered a water body as defined in subsection 1 (1) of the REA Regulation) observed on and within 120 m of the Project Location. Water body and non-water body features discussed in the following sections are shown on Figure 4.1.

### 4.1 General Site Description

The Project Location is situated on an approximately 36 hectares (ha) of land on Part of Lots 7 & 8, Concession 3, Elizabethtown-Kitley Township (lower tier municipality), United Counties of Leeds and Grenville (upper tier Municipality). The southern portion of the Project Location, north of Centennial Road is within the City of Brockville. Nearby roads include Centennial Road and County Road 6 to the south and east of the Project Location, respectively.

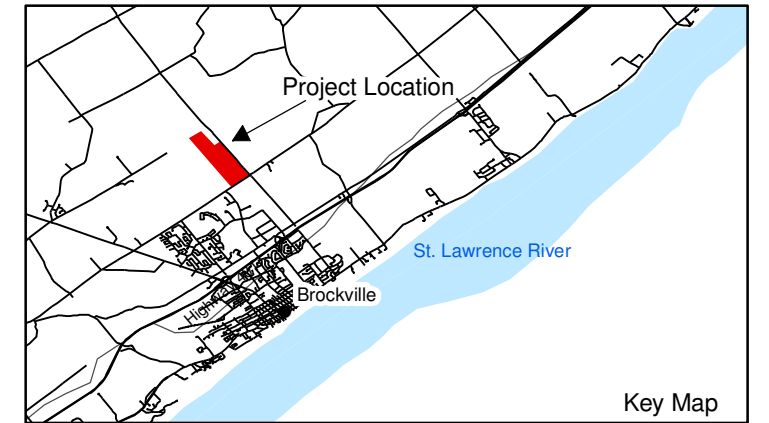
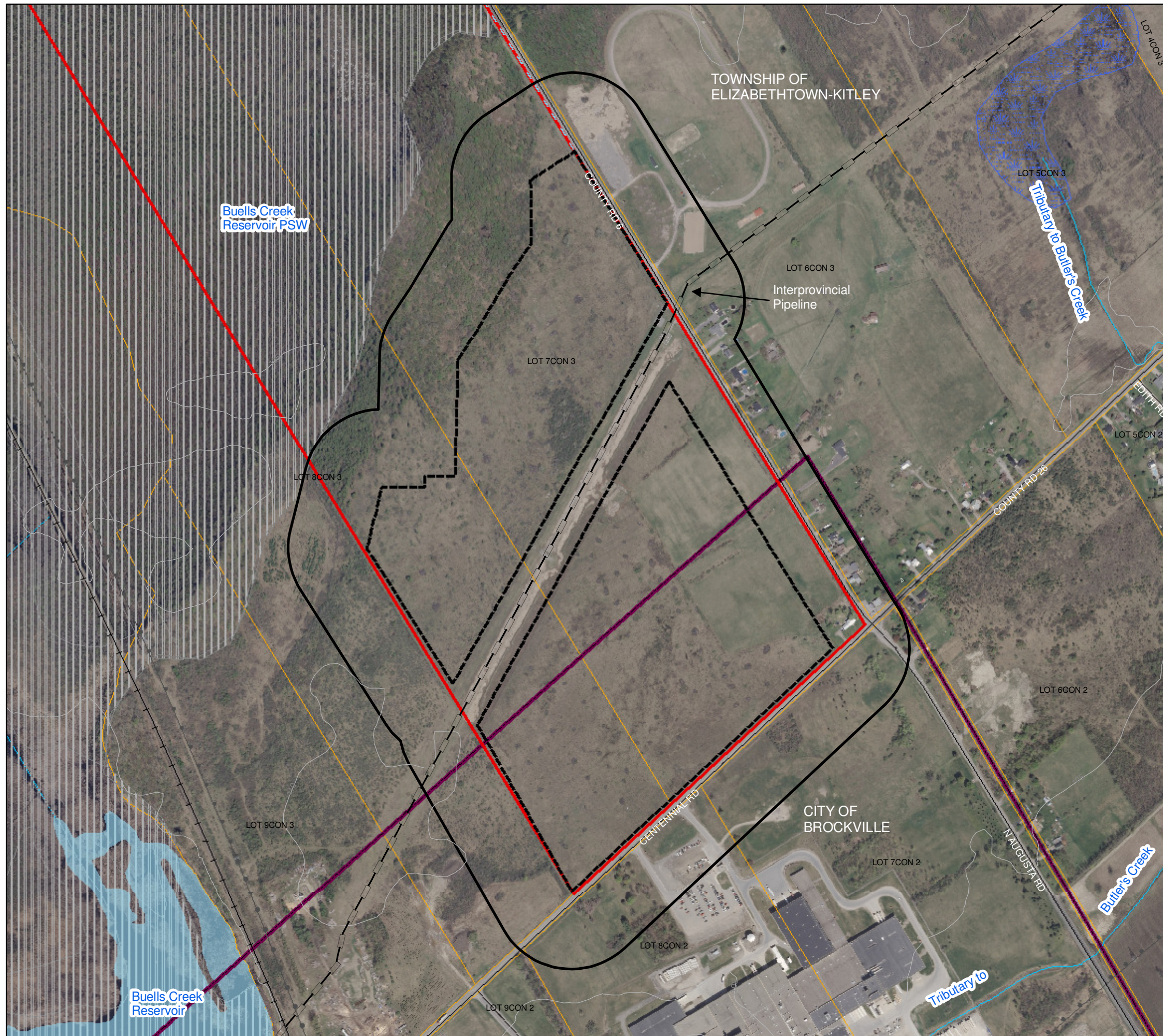
An inter-provincial pipeline corridor passes through the Project Location, separating it into north and south areas. The Buells Creek Reservoir Provincially Significant Wetland (PSW) is situated west and north of the Project Location and is part of the Mac Johnson Wildlife Area, a 532 ha conservation area under the jurisdiction of the Cataraqui Region Conservation Authority (CRCA).

North of the pipeline corridor, the Project Location is comprised of successional vegetation. The Buells Creek Reservoir PSW is situated about 120 m north of the Project Location boundary. Wetlands are considered a natural feature, not a water body and therefore are not discussed in detail in this report. A detailed discussion of the wetlands on and within 120 m of the Project Location is provided in the *Natural Heritage Assessment Site Investigation Report* (Hatch Ltd., 2011b).

Southeast of the pipeline corridor, the Project Location is actively used for agriculture and there is a residential building present. Southwest of the corridor, the lands are idle and covered by successional vegetation. To the west of the Project Location, the lands are forested and there is an electrical transmission corridor and a railway line. Industrial buildings are present to the south of the Project Location and rural residential dwellings align County Road 6 to the east of the Project Location.

There are roadside ditches along County Road 6 northeast of the Project Location, these were dry during the site visit and are discussed further in Section 4.3.1. The site investigation did not observe any water body features on or within 120 m of the Project Location. A discussion of the presence / absence of water features (i.e. water body and non-water body features) on and within 120 m of the Project Location are provided in the following sections and their locations shown in Figure 4.1.

A photograph depicting a general view of the Project Location for the lands south of the pipeline corridor is shown in Figure 4.2.



**LEGEND**

- Electrical Transmission Line
- Pipeline
- Railway
- Road
- Roadside Ditch (Non-Water Body)
- Topographic Contour (5 m Interval)
- Watercourse
- Evaluated Wetland
- Municipal Boundary
- Parcel
- Project Location
- 120 m from Project Location
- Project Site
- Unevaluated Wetland (OBM Mapping)
- Water Body

PSW - Provincially Significant Wetland

- Notes:
1. OBM and NRVIS data downloaded from LIO, with permission.
  2. Spatial referencing UTM NAD 83.
  3. Air Photos from CRCA, flown Spring 2008, scale 1:2000.

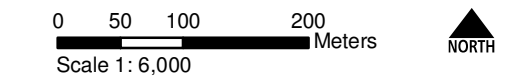


Figure 4.1  
 UC Solar Ltd.  
 2176047  
 Water Body Features



Figure 4.2 Photograph of the Project Location South of the Pipeline Corridor

## 4.2 Water Body Features

### 4.2.1 *Permanent or Intermittent Streams*

Subsection 1 (1) of O. Reg. 359/09 defines permanent stream as “a stream that continually flows in an average year” and intermittent stream as “a natural channel, other than a dam, that carries water intermittently and does not have established vegetation within the bed of the channel, except vegetation dominated by plant communities that require or prefer the continuous presence of water or continuously saturated soil for their survival.”

The *Water Body Records Review Report* (Hatch Ltd., 2011a) did not identify any permanent or intermittent streams on or within 120 m of the Project Location. This was confirmed during a site investigation completed on July 22, 2010.

### 4.2.2 *Lakes*

The *Water Body Records Review Report* (Hatch Ltd., 2011a) did not identify any lakes on or within 120 m of the Project Location. This was confirmed during a site investigation completed on July 22, 2010.

#### **4.2.3 Seepage Areas**

Seepage areas are defined as “a site of emergence of ground water where the water table is present at the ground surface, including a spring” (O. Reg. 359/09). The information sources reviewed in the *Water Body Records Review Report* (Hatch Ltd., 2011a) did not identify any seepage areas on or within 120 m of the Project Location. This information was confirmed during a site investigation completed on July 22, 2010.

#### **4.3 Other Water Features**

Other water features observed during the site investigation that do not meet the definition of a water body are discussed below.

##### **4.3.1 Roadside Ditches that do not Contain a Permanent or Intermittent Stream**

Roadside ditches that do not contain a permanent or intermittent stream are not considered a water body according to subsection 1 (1) of the REA Regulation. They include constructed channels and drainage ditches that periodically convey surface water runoff from roads and lot frontages following rainfall and snowmelt events, but they do not meet the definition of an intermittent stream as defined in O. Reg. 359/09 (discussed in Section 1.2 of this report). The site investigation identified roadside ditches along County Road 6 immediately northeast of the Project Location. The portion of the roadside ditches that are within 120 m of the Project Location were dry during the site visit and did not have established vegetation within the bed of the channel.

## 5. Conclusions

Subsection 31 (1) of the REA Regulation requires that the *Water Body Site Investigation Report* include a summary of any corrections to the *Water Body Records Review Report* (Hatch Ltd., 2011a) and the determinations made as a result of conducting the site investigation. The following table identifies the corrections required (if any) and determinations made for the water body features identified in the *Water Body Records Review Report* (Hatch Ltd., 2011a) and documented during the site investigation (Table 5.1).

**Table 5.1 Summary of the Determinations Made as a Result of the Site Investigation**

Determination to be Made	Yes/No	Corrections Required?
Is the Project Location in a water body?	No	The site investigation determined that there are no water body features on the Project Location. Therefore, no corrections are required to the <i>Water Body Records Review Report</i> (Hatch Ltd., 2011a) with respect to this water body feature.
Is the Project Location 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	The site investigation determined that there are no lakes on or within 120 m of the Project Location. Therefore, no corrections are required to the <i>Water Body Records Review Report</i> (Hatch Ltd., 2011a) with respect to this water body feature.
Is the Project Location within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity?	No	The site investigation determined that there are no lake trout lakes on or within the vicinity of the Project Location. Therefore, no corrections are required to the <i>Water Body Records Review Report</i> (Hatch Ltd., 2011a) with respect to this water body feature.
Is the Project Location within 120 m of the average annual high water mark of a permanent or intermittent stream?	No	The site investigation determined that there are no permanent or intermittent streams on or within 120 m of the Project Location. Therefore, no corrections are required to the <i>Water Body Records Review Report</i> (Hatch Ltd., 2011a) with respect to this water body feature.
Is the Project Location within 120 m of a seepage area?	No	The site investigation determined that there are no seepage areas on or within 120 m of the Project Location. Therefore, no corrections are required to the <i>Water Body Records Review Report</i> (Hatch Ltd., 2011a) with respect to this water body feature.

As shown on Figure 4.1 and summarized in Table 5.1, the site investigation determined that there are no water body features on or within 120 m of the Project Location. As a result, a *Water Body Environmental Impact Study Report* is not required.

## 6. References

Government of Ontario. 2009. Ontario Regulation 359/09 made under the Environmental Protection Act 2007, Renewable Energy Approvals under Part V.0.1. of the Act. September 8, 2009 version.

Printed in the Ontario Gazette: October 10, 2009. On-line at: [Http://www.e-laws.gov.on.ca/html/source/regs/english/2009/elaws\\_src\\_regs\\_r09359e.htm](http://www.e-laws.gov.on.ca/html/source/regs/english/2009/elaws_src_regs_r09359e.htm). Accessed April 4, 2011.

Hatch Ltd. 2011a. 2176047 Solar Energy Project Water Body Records Review Report. Canadian Solar Solutions Inc. and UC Solar Ltd. Niagara Falls, Ontario.

Hatch Ltd. 2011b. 2176047 Solar Energy Project Natural Heritage Assessment Site Investigation Report. Canadian Solar Solutions Inc. and UC Solar Ltd. Niagara Falls, Ontario.

Ministry of Environment (MOE). 2011. Technical Bulletin Guidance for Preparing the Water Assessment and Water Body Reports as part of an application under O.Reg.359/09. Draft document posted for public comment on the Environmental Registry. January 28, 2011. Queen's Printer for Ontario. On-line at: [http://www.downloads.ene.gov.on.ca/envision/env\\_reg/er/documents/2010/011-1962.pdf](http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2010/011-1962.pdf). Accessed April 6, 2011.

# Appendix A

## Field Investigation Notes



## Water Assessment - Site Investigation Field Notes

### Project Identification

Project Name: Upper Canada 647

### Site Information

Lot Number: A 768 Concession Number: 3

Municipality: Elizabethstown-Kitley County: Leed, Grenville -

Location: Centennial Rd.

UTM: \_\_\_\_\_  
or

Latitude: \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ "N Longitude: \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ "W

### Investigator Information

Name: Caleb Coughlin

Title: Aquatic Specialist

Company Name: Hatch

Address: 4342 Queen St. Niagara Falls

Phone: 905 374 5200

### General Information

Date (Day of the week, m/d/y): July 22 2010

Investigation Start Time: 3:30 pm

Duration: 4 hours

### Weather Conditions

Temperature: 25 °C Cloud Cover: 10 % Beaufort Wind: 1

Rainfall: Y  N

Rainfall in days preceding investigation: Y  N

Other: Very Humid.



**Site Investigation Observations**

Water Body/Feature ID# No water course found on property

Map ID #: ~~GA~~

Location (UTM): \_\_\_\_\_

**Water Body Type, Morphology, Habitat and Ecosystem Type Descriptors:**

WB Type	Description		
Lake Trout Lake at/above dev. capacity	<input type="checkbox"/>		
Lake - other than above	<input type="checkbox"/>		
Permanent Stream	<input type="checkbox"/>	Riffle <input type="checkbox"/>	Run <input type="checkbox"/> Pool <input type="checkbox"/>
Intermittent Stream	<input type="checkbox"/>		
Pond	<input type="checkbox"/>	Natural <input type="checkbox"/>	Man-made <input type="checkbox"/>
Seepage Area	<input type="checkbox"/>	Based on:	
Drainage Ditch	<input type="checkbox"/>		
Grassed Waterway	<input type="checkbox"/>		
Other	<input type="checkbox"/>		
<b>Size/Length</b>			
Depth of water (h)			
Wetted width (T)			
High water mark		Based on: Vegetation <input type="checkbox"/> Top of bank <input type="checkbox"/> Other <input type="checkbox"/>	
Estimate of bank full width			
<b>Substrate Type:</b>			
Presence of Riparian Vegetation:			
Presence of Aquatic Vegetation:			
Presence of Wildlife:			

Other Notes: Any water on property directly associated with PSW.

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Suite 500, 4342 Queen Street  
Niagara Falls, Ontario, Canada L2E 7J7  
Tel 905 374 5200 ♦ Fax 905 374 1157