Future Solar Developments Inc.

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Water Assessment Site Investigation Report
Proposed Ground-Mount Solar LP5 & LP6
8338 Scotchmere Drive
Strathroy, ON

Project Number
WSL-00002250-00

Prepared By:

exp
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Canada

Date Submitted
July 2012

Legal Notification

This report has been prepared by **exp** Services Inc. on behalf of Mr. Sam Qin of Future Solar Developments Inc. for the submission to the Ontario Ministry of the Environment as part of the Renewable Energy Approval process.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **Exp** Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

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Report Distributed To: Ontario Ministry of Environment

Mr. Sam Qin
Future Solar Developments Inc.

1 Introduction & Background

Exp Services Inc. (**exp**) was retained by Mr. Sam Qin of Future Solar Developments Inc. to conduct a records review of waterbodies located on, and/or in the surrounding areas of the proposed ground-mounted solar facility set for plot LP 5 and 6 located at 8338 Scotchmere Dr., Strathroy-Caradoc, Ontario. For the purpose of this report the entire Site including the 120 metre buffer from the solar panels will be identified as "subject property", those areas including the panel and construction limits will be identified as "Site". The project involves the design and construction of two (2) 100 kW solar installations.

The purpose of this investigation was to confirm the presence or absence of waterbodies outlined in the records review as completed by **exp** (2012).

1.1 Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals* under Part V.0.1 of the Act, made under the *Environmental Protection Act* (herein referred to as the REA Regulation) 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 therefore, require an REA.

Section 30 of the REA Regulation requires proponents of Class 3 solar projects to undertake a water body records review for to identify whether the project location is:

a. In a water body.

b. 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.

c. Within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity.

d. Within 120 m of the average annual high water mark of a permanent or intermittent stream.

e. Within 120 m of a seepage area.

Subsection 30 (2) of the REA Regulation requires the proponent to prepare a report "setting out a summary of the records searched and the results of the analysis" (O. Reg. 359/09). This water assessment records review report has been prepared to meet these requirements.

Section 31 of the REA Regulation requires proponents of Class 3 solar projects to undertake a waterbody site investigation for the purpose of determining:

a) whether the results of the analysis summarized in the (waterbody records review) report prepared under Subsection 30 (2) are correct or require correction, and identifying any required corrections;

b) whether any additional waterbodies exist, other than those that were identified in the (Water Body Records Review) report 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 records review or the site investigation; and,

d) the distance from the Project location to the boundaries determined under Clause (c).

The REA Regulation has specific requirements if designated lake trout lakes occur within 300 m of the Project area. These requirements were not applicable to this particular Project as no lake trout lakes of any status were identified during the waterbody records review (**exp** 2012).

In Section 1(1) of the REA Regulation, a waterbody is defined as a lake, a permanent stream, an intermittent stream or a 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; and, 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.

Also within Section 4.1 of Water Assessment Requirements in the REA Technical Guide, an intermittent stream is 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 3 of Section 31 of the REA Regulation requires the proponent to prepare a report setting out the following:

1. A summary of any corrections to the report prepared under Subsection 30 (2) and the determinations made as a result of conducting the site investigations under Subsection (1);

2. Information relating to each water body identified in the records review and in the site investigations, 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 (1) (c);

ii. the location and type of each water body identified in relation to the Project location; and,

iii. the distance mentioned in Clause (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:
    a. The dates and times of the beginning and completion of the site investigation.
    b. The duration of the site investigation.
    c. The weather conditions during the site investigation.
    d. Field notes kept by the person conducting the site investigation.

7. If an alternative investigation of the site was conducted:
    a. The dates of the generation of the data used in the site investigation.
    b. 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).

This waterbody site investigations report has been prepared with the guidance of the Ministry of Environment's DRAFT Technical Bulletin – Guidance for Preparing the Water Assessment and Water Body Reports (dated January 28, 2011).

1.2 Summary of Results of Records Review

The Site has been identified to contain natural features, as presented in **Table 1-1** (**exp** Services Inc., 2012). The following site investigation will delineate the boundaries of those waterbodies identified.

Table 1-1: Summary of Records Review for LP5 & LP6

Project Location	Yes/No/Unknown	Feature Existence
Is the Project within a waterbody?	No	The Site is not located within a waterbody
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	The Site is not located within 120 metres of an average annual high water mark Lake that is at or above development capacity.
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	The Site is not located within 300m of a lake trout lake of any status.

Project Location	Yes/No/Unknown	Feature Existence
Is the Project within 120 m of the average annual high water mark of a permanent or intermittent stream?	No	The Site is not located within 120 m of the annual high water mark of permanent or intermittent stream.
Is the Project within 120 m of a seepage area?	Unknown	No known seepages were identified during the Records Review

1.3 Site Visit

A visit to the Site was completed on January 12, 2012. Weather at the time of the visit was cloudy and raining. Temperature at the time of visit ranged from -2 to 2 °C. The Site visit was conducted over the course of two (2) hours, between 1:00pm and 3:00 pm.

1.3.1 Name and Qualifications of Person Conducting Site Investigation

Ms. Melissa Torchia, M.A.Sc., is a junior ecologist with **exp** Services Inc., that specializes in ecological inventories for sites across the province of Ontario. In this regard she is familiar with methods required for natural heritage assessments that help quantify the natural environment in support of environmental assessments, environmental impact studies and endangered species screening. She is a certified Ontario Wetland Evaluator; in addition she has also completed natural heritage data sensitivity training provided by the Ontario Ministry of Natural Resources (OMNR). Examples of past studies include riparian habitats and forest investigations in cities such as, Brantford, Welland, Ivy Lea, Algonquin Park and Picton. These assessments were guided by the *Ontario Environmental Protection Act*, *Ontario Environmental Assessment Act*, *Ontario Endangered Species Act*, and the *Ontario Planning Act*. Melissa has also been involved with the preparation of a planting plan for the endangered species of butternut, in addition to planting plans for creek restoration projects. Melissa Torchia received her Honours Bachelor of Science degree in environmental science at York University. She then received her Master's in Applied Science degree, specializing in urban forestry from Ryerson University. Her Master's thesis focused on the use of trees to cool the urban microclimate, which was conducted in the downtown core of Toronto on the University of Toronto Campus.

Mr. David Praskey, B.Sc., is an aquatic ecologist with **exp** Services Inc. He has over ten years of experience in the aquatic ecology field across Ontario, northern Labrador and British Columbia. David's professional experience includes projects in the fields of municipal and private development; baseline ecological studies and Environmental Effects Monitoring for metal mines; B.C. stream classification for forestry projects; and various MNR and CWS fisheries programs. He has also been responsible for monitoring MTO construction projects as an approved Fisheries Compliance during Contracts Specialist in RAQS, as well as other culvert replacement projects. He has also conducted several fish removal operations. David has a wide range of experience conducting fish, invertebrate, water and sediment sampling using various methods and gear types in lakes, streams, ponds, rivers and wetlands. He has also been involved in Species at Risk mussel relocation projects and has participated in the Mussel Species at Risk Workshop.

1.4 Site Description

This Site is located in Strathroy-Caradoc, Ontario, and is proposed to contain two (2) 100 kW solar farm plots; LP 5 & LP 6. It is estimated that the size of each 100 kW plot is 0.24 hectares.

The Site area for the proposed new solar farm is located north west of an existing house. The area was relatively flat at the time of investigation, and devoid of vegetation.

A provincially significant wetland (Komoka/South Strathroy Creek Wetland Sc.9) is located at the south corner of the property boundary, just outside the subject property (~. South Strathroy Creek was observed to flow in a generally west direction as it meandered through a wetland, exiting southeast under a bridge. Both the creek and wetland area are a part of the Sydenham River watershed, which is the only watershed in Ontario that is inside the Carolinian life zone (SCRCA, 2011). Approximately 82 species of fish and 34 species of freshwater mussels exist in the Sydenham River watershed, which makes it one of the most species-rich watersheds in Canada, and the largest river that supports primarily endangered freshwater mussels (SCRCA, 2011). A total of 23 species found this watershed (fishes, reptiles and mussels) are considered nationally or provincially significant and thereby protected (SCRCA, 2011). At the time the Site visit was conducted, no fish were observed in the creek, however due to the high species count in the Sydenham River watershed, it is highly probably that fish and/or aquatic species exist.

For surface water feature boundaries refer to **Figure 1**; photos of the Site and surrounding areas are found in Appendix A.

2 Methodology

Waterbodies were identified within the records review prepared by **exp** (2012), whereby, unknown and known features were further investigated to identify their presence or absence within the subject property, as well as to delineate boundary limits.

The entire project location and lands within 120 m were investigated by the observer on foot in order to document and identify the presence of waterbody features present. Boundaries outside 120 metres were also investigated in order to determine connectivity of other water features in surrounding areas to those that may have been found within the subject property.

Photographs of the Site were taken in addition to those that pertained to any known or documented water feature.

3 Site Investigation Results

This section identifies the results of the site investigation and discusses the water features observed and noted in the records review as presented in **Table 1-1**. Features documented in relation to the proposed project location are illustrated on **Figure 1**.

3.1 Seepage Areas

No seepage areas were identified in the records review, and were therefore identified as unknown. During the site investigation, this water feature was assessed in order to confirm the presence or absence of these areas. The site investigation confirmed the absence of seepage areas within the subject property. Komoka/South Strathroy Creek Provincially Significant Wetland is located approximately 130 metres away from the Site.

4 Summary

Based on the results of this Site investigation it can be confirmed that no water features exist within the subject property. Therefore, a waterbody impact study will not be prepared for this Site.

5 Closure

We trust this report is satisfactory for your purposes. We would be pleased to provide additional information, to clarify any questions that arise following the review of this report.

Sincerely,

exp Services Inc.

DRAFT

Melissa Torchia M.A.Sc.
Environmental Scientist
Environmental Sciences Division

DRAFT

Dean Fitzgerald, Ph.D.
Team Leader – Ecological Services
Environmental Sciences Division

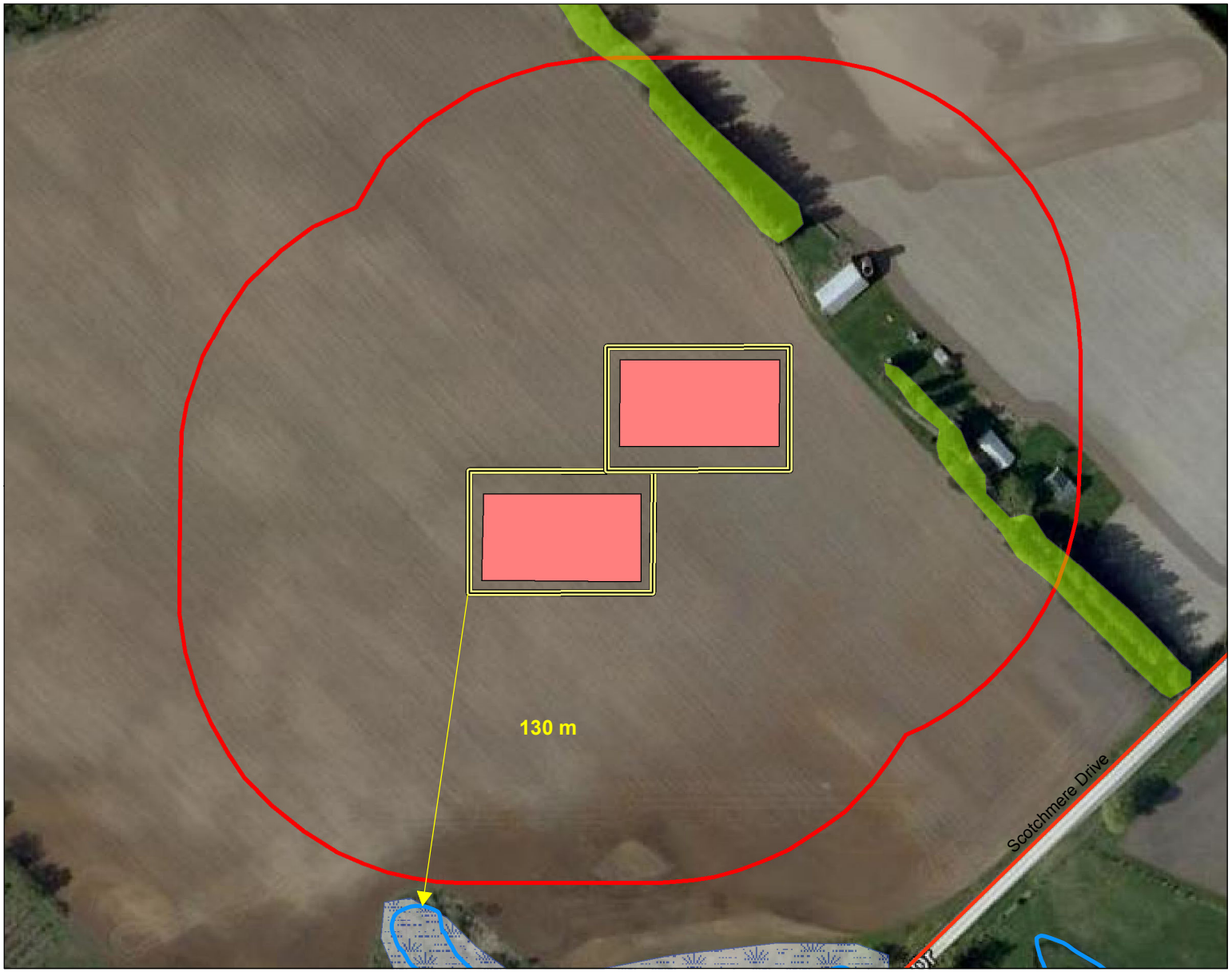
6 References

Exp Services Inc. (2012). Waterbody Assessment Records Review Report LP5 & LP6. Prepared July 2012.

Government of Ontario. Ontario Regulation 359/09: Renewable Energy Approvals under Part V.0.1 of the Act. (Environmental Protection Act). http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_090359_e.htm

St.Clair Region Conservation Authority (SCRCA). 2011. Sydenham River Watershed: Helping Aquatic Species at Risk. Available online. Accessed June 2012. http://scrca.on.ca/Publications/SARNewsletterMarch2011.pdf

Figures



N

Legend

- Surface Water Feature
- Hedgerow
- Provincially Significant Wetland
- Proposed Solar Panel
- Construction Limit
- 120 m Buffer

Source: Google Maps, accessed 2012

0 10 20 40 60 80 100 Meters

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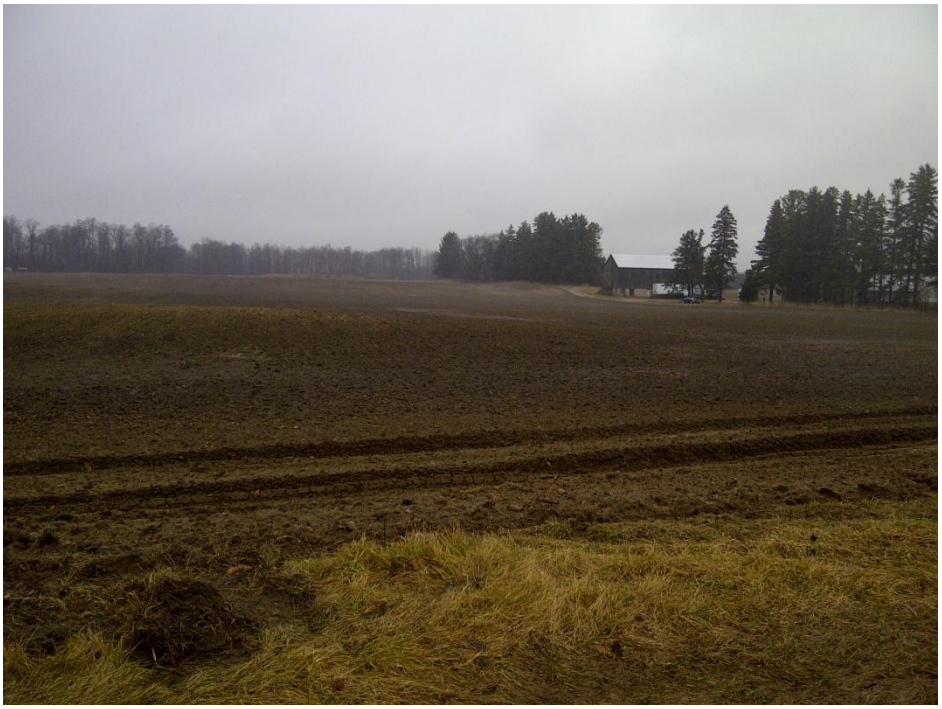
PROJECT TITLE:
FUTURE SOLAR DEVELOPMENTS INC. LP5 & LP6
WATER ASSESSMENT SITE INVESTIGATION
8338 SCOTCHMERE DRIVE
STRATHROY, ONTARIO

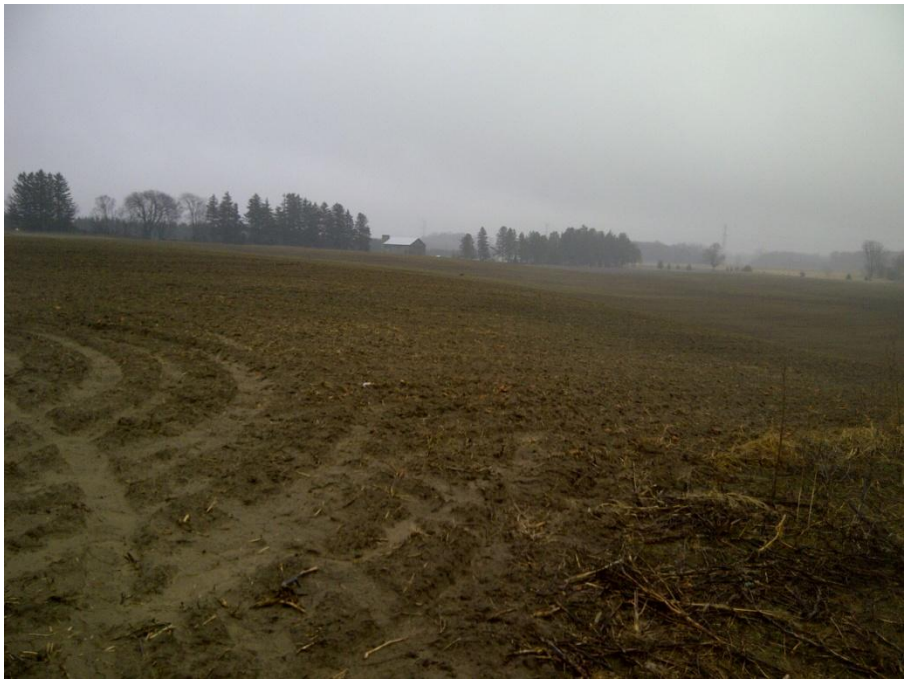
DRAWING TITLE:
WATER ASSESSMENT
SITE MAP

PROJECT No.:	DWN:
WSL-00002250-00	EE
SCALE: AS NOTED	CHKD: DF
DATE: JULY 2012	FIG. No.: 1

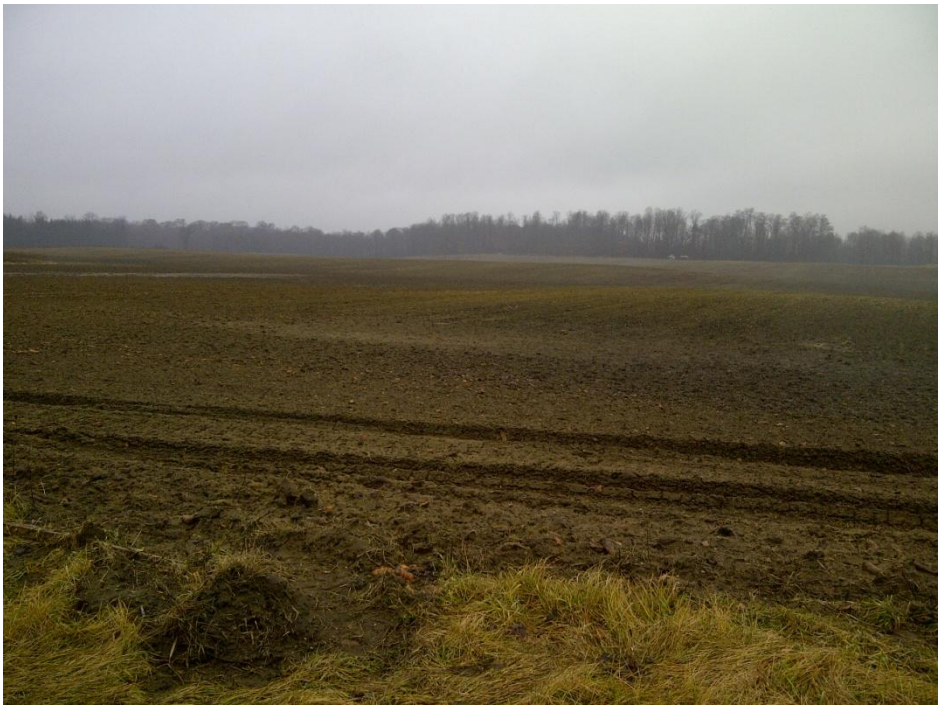
Appendix A – Site Photographs



Photograph No.1: Southern edge of property facing north east; proposed site consists of agricultural land

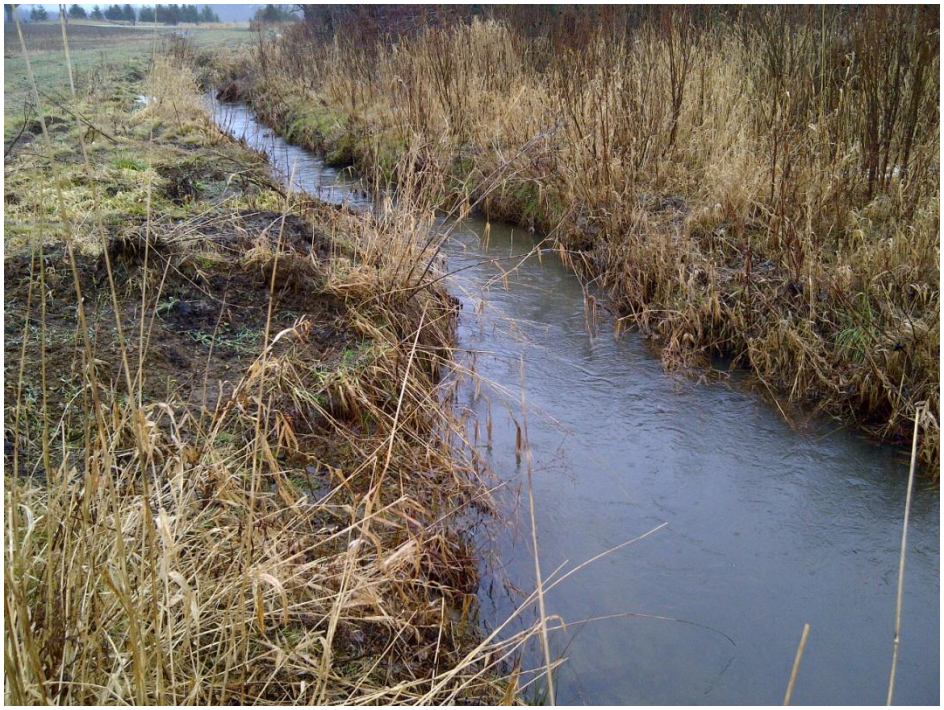


Photograph No. 2: North western corner of property facing south east; slightly depressing topography present in the central portion of the property

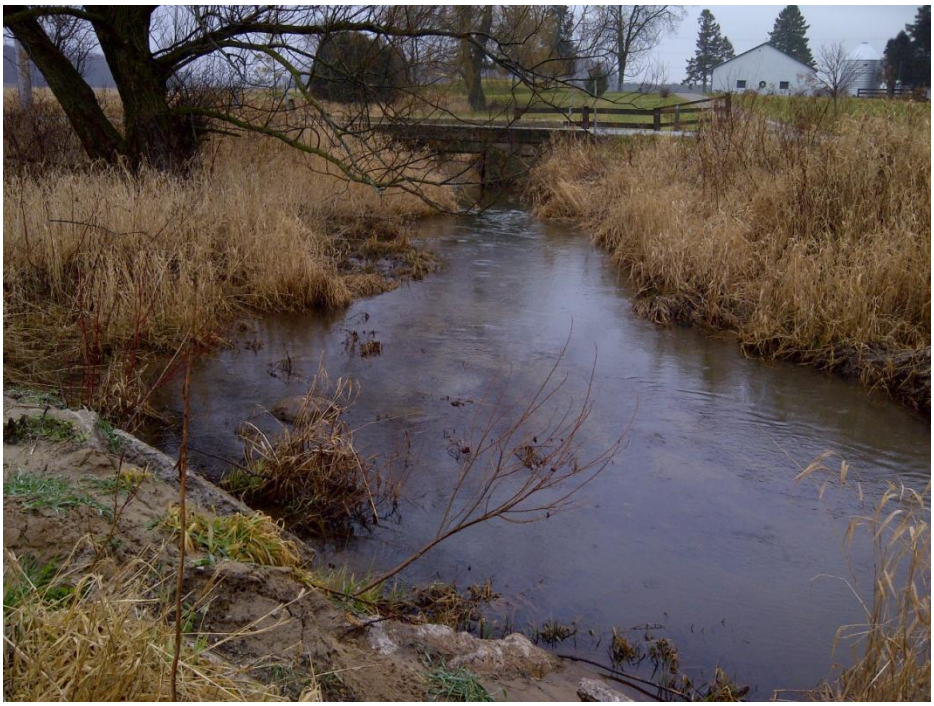


Photograph No. 3: Western edge of property overlooking proposed site facing east; slight depressions in topography present

Photograph No. 4: Provincially significant wetland located in the south corner of property. Predominately grasses and sedges present, with a few deciduous species. South Strathroy creek flows along the edge of the wetland.



Photograph No. 5: Creek flowing beside the provincially significant wetland in the south corner of the property; creek is approximately one meter wide, and 1-2 feet deep.



Photograph No. 6: View of Komoka/South Strathroy Creek as it exits south under Scotchmere Drive.