Future Solar Developments Inc.

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Natural Heritage Evaluation of Significance
Proposed Groundmount Solar Facility LP 8
419 Penetanguishene Road
Barrie, ON

Project Number
WSL-00002250-00

Prepared By:
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Date Submitted
September 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 Natural Resources as part of the Renewable Energy Approval process.

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Report Distributed To:

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Southern Region Renewable Energy Operations Team Coordinator
Ontario Ministry of Natural Resources

Mr. Sam Qin
Future Solar Developments Inc.

Chapter 1 – Introduction & Background

1 Introduction & Background

Exp Services Inc. (**exp**) was retained by Mr. Sam Qin of Future Solar Developments Inc. to conduct an Evaluation of Significance for natural features located on and or in the surrounding areas of the proposed ground-mounted solar facility set for plot LP 8 located at 419 Penetanguishene Road, Barrie, Ontario. For the purpose of this report all aspects of the proposed project layout, including the panel, road, transmission, laydown area and construction limits will be collectively identified as the "project location". The project involves the design and construction of one (1) 100 kW solar farm.

The purpose of this evaluation is to determine if any of the natural features identified in the site investigation report for this project location (**exp**, 2012b) are considered significant or provincially significant. Any potential effect(s) that the construction activities will have on the natural environment will be resolved.

1.1 Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals*, 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. In accordance with Section 4 of the REA Regulation, ground mounted solar facilities with a name plate capacity greater than 12 kilowatts (kW) are classified as a Class 3 solar facility and therefore, require a REA.

Subsection 1 of Section 24 of the REA Regulation requires the preparation of a natural heritage assessment which includes the completion of a records review, a site investigation, and an evaluation of significance of each natural feature that has been identified in the records review and site investigation. Legislative requirements for each of these components are outlined in the subsections below.

Natural features are defined in Part 1.1 of the REA Regulation as:

a) An ANSI (earth science)
b) An ANSI (life science)
c) A coastal wetland
d) A northern wetland
e) A southern wetland
f) A valleyland
g) A wildlife habitat
h) A woodland

Applicable evaluation criteria or procedures established or accepted by the Ontario Ministry of Natural Resources (OMNR) shall be used to identify and determine the boundaries of natural features in the records review and site investigation.

1.1.1 Records Review Report

Section 25 of the REA Regulation requires the following natural heritage records review for Class 3 solar projects in order to identify whether the project is:

a) In or within 120 metres of a provincial park or conservation reserve area;
b) In a natural feature;
c) Within 50 metres of an area of natural or scientific interest (ANSI) (earth science); and,
d) Within 120 metres of a natural feature that is not an ANSI (earth science).

Therefore, according to Subsection 3 of Section 25 the proponent shall prepare a report setting out a summary of the records searched and the results of the analysis conducted under subsection (1). O. Reg.

359/09, s. 25 (3). A records review report (**exp**, 2012a) has been prepared according to requirements outlined in Section 25 of the REA regulation.

1.1.2 Site Investigation Report

Section 26 of the REA Regulation requires the proponent to conduct a site investigation in order to determine the following:

a) A physical investigation of the air, land and water within 120 metres of the project location in order to determine if:

   i. The results of the analysis summarized in the "records review" report are correct or require correction , and identify any required corrections;

   ii. Whether any additional natural features exist, other than those that were identified in the "records review" report;

   iii. The boundaries, located within 120 metres of the project location, of any natural feature that was identified in the records review or the site investigation; and,

   iv. The distance from the project location to the boundaries determined under clause (iii).

b) The proponent must also prepare a report setting out the following as part of Subsection 3 of Section 26:

   i. Any corrections to the "records review" report and the determinations made as a result of conducting the site investigation;

   ii. Information relating to each natural feature identified in the records review and in the site investigation including the type, attributes, composition and function of the feature.

   iii. A map the shows the following features:

      - The boundaries, located within 120 metres of the project location, of any natural feature that was identified in the records review or the site investigation;
      - The location and type of each natural feature identified in relation to the project location; and,
      - The distance of the boundaries from the project location.

   iv. The date and time of the beginning and completion of the Site investigation;

   v. The duration of the site investigation;

   vi. The weather conditions at the time the site investigation was conducted;

   vii. A summary of the methods used to make the observations for the purposes of the site investigation;

   viii. The name and qualifications of any person conducting the site investigation; and,

   ix. Field notes kept by the person conducting the site investigation.

A site investigation report (**exp**, 2012b) has been prepared according to requirements outlined in Section 26 of the REA regulation.

1.1.3 Evaluation of Significance Report

Section 27 of the REA Regulation requires the proponent to prepare an evaluation of significance for natural features identified in the records review report and the site investigation report, as well as for natural features identified in consultation with the public, aboriginal communities, or municipalities.

The evaluation of significance shall include the following:

a) Determination that a woodland, a valleyland or a wildlife habitat is significant if:
    i. The OMNR has identified the feature as significant.
    ii. Evaluation, using criteria or procedures established or accepted by the OMNR, has determined the feature to be significant.

b) Determination that a southern wetland, a northern wetland, a coastal wetland, an ANSI (earth science) or an ANSI (life science) is provincially significant if:
    i. The OMNR has identified the feature as provincially significant.
    ii. Evaluation, using criteria or procedures established or accepted by the OMNR, has determined the feature to be provincially significant.

c) A report that sets out the following:
    i. For each natural feature shown on the map contained within the site investigation report, a determination of whether the feature is provincially significant, significant, not provincially significant or not significant.
    ii. A summary of the evaluation criteria or procedures used to determine significance.
    iii. The name and qualifications of any person who determined evaluation of significance.
    iv. The dates of the beginning and completion of evaluation.

This Evaluation of Significance report has been prepared to meet the above requirements as presented in Subsection 3 of Section 27 of the REA Regulation.

1.2 Property Description

This project location is situated in Barrie, Ontario, and is proposed to contain one (1) 100 kW solar farm plot identified as LP 8. A general land classification for the project location is noted as previous agricultural land. The ground was covered with snow at the time the site investigation was conducted in January, but evidence of herbaceous plants was observed throughout the area, and confirmed during the August site investigation.

The project location is located at the end of the gravel road that exits onto Penetanguishene Road. There is one (1) residential property closer to Penetanguishene Road, with cleared land leading up to the project location. The LP 8 plot area for the proposed solar farm is located west of the property owner's residential dwelling. The land is fairly flat, with an absence of woody vegetation. A hedgerow of mid-age to mature deciduous trees was present along the west edge of the project location, which continued along the northern edge of the property. The woodland on the east was dominated by a mixture of coniferous and deciduous tree species. This wooded area contained several small ponds that were frozen during the January Site Investigation. At that time, the landowner explained these ponds contain no fish, and that they were not connected to any water courses. During the August site investigation, we observed the ponds located within the woodland east of the residential dwelling to be dry, with no connections to other features. Another large pond located just west of the residential dwelling, did contain water during the August site investigation, and was observed to not be connected with other features.

The gravel driveway leading up to the property owner's residential dwelling is lined with mid-age to mature coniferous and deciduous trees.

For natural features identified in the Site Investigation refer to **Figure 1**.

1.3 Summary of Records Review and Site Investigation Results

Natural features that require an evaluation of significance were initially identified in the records review report (**exp**, 2012a), and then confirmed through a site investigation (**exp**, 2012b). The results of the records review and site investigation are summarized below in **Table 1-1**. As such, natural features that require an evaluation of significance include the woodland located east of the project location, amphibian breeding habitat (woodland), and amphibian movement corridors within 120 metres of the project location as identified in the site investigation report (**exp**, 2012b).

Table 1-1: Summary of Natural Features requiring an Evaluation of Significance

Natural Feature	Present in Project Location	Present within 120 m of Project Location	Evaluation of Significance Required?
ANSI (Earth Science)	No	No	No
ANSI (Life Science)	No	No	No
Coastal Wetland	No	No	No
Northern Wetland	No	No	No
Southern Wetland	No	No	No
Woodland	No	Yes	Yes
Valleyland	No	No	No
Wildlife Habitat			
a) Seasonal concentration areas	No	No	No
b) Rare vegetation communities or specialized habitat	No	Yes – Amphibian Breeding (Woodland)	Yes – Amphibian Breeding (Woodland)
c) Animal movement corridors	No	Yes – Amphibian Movement Corridor	Yes – Amphibian Movement Corridor
d) Habitat of species of conservation concern	No	No	No

Chapter 2 – Methodology

2 Methodology

2.1 Evaluation Criteria and Procedures for Determining Significance

Natural features that require an evaluation of significance include a woodland and wildlife habitat features located within 120 metres of the project location, as was identified in Section 1.3 of this report. Evaluation criteria and procedures used to determine the significance of these natural features include those outlined in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011) in addition to the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement (1999) for woodlands, and the Significant Wildlife Habitat Ecoregion 6E Criterion Schedule (OMNR, 2012) and Significant Wildlife Habitat Technical Guide (OMNR, 2000) for wildlife habitat.

In evaluating woodlands, a combination of aerial imagery obtained from Google Earth (2004), information obtained from MNR SOLRIS (LIO, 2012), and site investigations were used to determine the significance of the woodland located east of the project location, according to Section 6.2.2.1 of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011).

In evaluating wildlife habitat, a combination of aerial imagery obtained from Google Earth (2004) and investigations were used to determine the significance of wildlife habitat located within 120 metres of the project location, according to the Significant Wildlife Habitat Ecoregion 6E Criterion Schedule (OMNR, 2012).

2.2 Dates of Beginning and Completion of Evaluation

The evaluation of both woodlands and wildlife habitat was initiated with a review of existing records on the presence of these natural features in the region. The results of this review are provided in the records review report (**exp**, 2012a). In addition to the records review, site investigations were conducted in January, May, June and August 2012 to confirm the presence or absence of natural features, and to delineate their boundaries if present. The results of these site investigations are provided in the site investigation report (**exp**, 2012b). Natural features identified in the records review and site investigation reports were evaluated for significance in September 2012. The results of these evaluations are contained in Section 3 of this report.

2.3 Site Investigation

A visit to the project location was completed on January 11, 2012. Weather at the time of the investigation was sunny. Temperature at the time of the investigation ranged from -2 to 2 °C. The site investigation was conducted over the course of two (2) hours, between 1:00 pm and 3:00 PM. A second site investigation was completed on August 15, 2012 between 3:00 and 4:30 PM, with temperatures ranging between 15 and 20 °C. During the site investigation, incidental observations of terrestrial and aquatic wildlife and birds were noted.

Subsequent site investigations were completed on May 7th and June 28th to conduct frog surveys at the project location. These Investigations were completed after sunset as per the Marsh Monitoring Program protocol (MMP). Further details regarding these site visits are provided in the site investigation report (**exp**, 2012b).

2.4 Names and Qualifications of Person Applying Evaluation Criteria and Procedures

Melissa Torchia, M.A.Sc, is an ecologist 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 and Arborist; 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.

Chapter 3 –
Evaluation of Significance Results

3 Evaluation of Significance Results

3.1 Woodlands

3.1.1 Description of Natural Feature

Records review and site investigations reveal that a woodland is present east of the project location within the 120 metre buffer zone. The boundaries of this woodland were delineated and the vegetation community was characterized during the site investigation. The woodland was characterized as a Fresh-Moist White Cedar – Hardwood Mixed Forest (FOM7-2) according to guidelines in the Ecological Land Classification for Southern Ontario (Lee *et al.*, 1998). Dominant upper canopy species consist of Eastern white cedar *(Thuja occidentalis)*, Bur oak *(Quercus macrocarpa)* and Sugar maple *(Acer saccharum)*. A more detailed description of this woodland and the vegetation species contained within can be found in Subsection 3.3.1 of the site investigation report (**exp**, 2012b).

3.1.2 Determination of Significance

The criteria for determining woodland significance are contained within Subsection 6.2.2.1 of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011). The criteria and the area thresholds that determine woodland significance are based on the percentage of woodland cover in the lower-tier or single-tier municipality within which the project location is situated. The project location is situated in the Township of Oro-Medonte. In accordance with OMNR Midhurst District office, the Township of Oro-Medonte is composed of 44.8% woodland cover; as indicated by OMNR using SOLRIS mapping tool (LIO, 2012). Therefore, in order to be considered significant, the woodland of interest must meet minimum area thresholds for significance for municipalities with woodland cover of 31 to 60% (OMNR, 2011). A summary of the evaluation criteria as well as the results of the evaluation are presented in **Table 3-1**.

Table 3-1: Significant Woodlands Evaluation Criteria (OMNR, 2011)

Criteria Comments	Threshold for Significance	Woodland Characteristics	Significance
Woodland Size Criterion			
Size refers to the areal extent of the woodland	50 ha	~5 ha	No
Ecological Functions Criteria			
Woodland Interior			
Interior habitat is within the woodland more than 100 m from the edge	8 ha	0 ha	No
Proximity to other Significant Woodlands or Habitats			
Woodland is significant if it is within 30 m from a significant natural feature or fish habitat, and the woodland size meets the area threshold	10 ha	Not within 30 m and area is ~5 ha	No

Linkages			
Woodland is significant if it is between two other significant features, each of which is within 120 m, and the woodland meets the area threshold	10 ha	Not within 120 m and area is 5 ha	No
Water Protection			
Woodlands are significant if they are located within 50 m of a sensitive groundwater discharge, sensitive recharge, sensitive headwater area, watercourse or fish habitat, and the woodland meets the area threshold.	4 ha	Not within 50 m	No
Woodland Diversity Representation (Composition)			
Woodlands are significant if it is dominated by native species as listed in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011), and the woodland meets the area threshold.	10 ha	Native species do occur, but area is 5 ha	No
Uncommon Characteristics Criteria			
Woodlands are significant if they contain an uncommon vegetation community or habitat of an uncommon species as listed in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011). Also woodlands are significant if it is an older woodland, and meets the area threshold.	4 ha	No uncommon communities or habitat of uncommon species. Not an older woodland	No

Therefore, the woodland is not considered significant as no thresholds for significance were met during the evaluation.

3.2 Wildlife Habitat

3.2.1 Amphibian Breeding Habitat (Woodland)

The presence of a wetland, lake or pond within or adjacent (within 120 metres) to a woodland indicates the presence of an amphibian breeding habitat (woodland). Some small wetlands may be important breeding pools for amphibians.

3.2.1.1 Description of Natural Feature

A small swamp area within the woodland to the east of the project location may serve as amphibian breeding habitat, in conjunction with the dugout pond adjacent to the residential dwelling.

3.2.1.2 Determination of Significance

In order to be considered significant, field studies must be completed during the spring to confirm the presence of breeding populations with at least 20 individuals, as identified by the Criterion Schedule for 6E (OMNR, 2012). Site investigations were made to conduct frog surveys in May and June 2012 when amphibians are concentrated around suitable breeding habitat within or near the woodland. Amphibians were heard calling during these frog surveys. However, the number of individuals heard did not amount to 20 individuals (**exp**, 2012b). Therefore, the amphibian breeding habitat (woodland) present within 120 metres of the project location is not considered significant.

3.2.2 Amphibian Movement Corridors

Amphibian movement corridors may be present in all eco-sites that are associated with water. These corridors link breeding and summer habitats, and may be extremely important for local populations

3.2.2.1 Description of Natural Feature

A dugout pond is located adjacent to the property owner's residential dwelling. This pond was filled with water during the amphibian surveys conducted in May and June 2012. The characteristics of this pond in relation to its close proximity to the woodland may indicate an amphibian movement corridor. In addition, a Thicket Swamp was identified just outside the 120 metre buffer zone during the August Site Investigation that experiences flooding after spring snowmelt.

3.2.2.2 Determination of Significance

In order for an amphibian movement corridor to be considered significant, corridors should be at least 200 metres wide with gaps that are less than 20 metres. Riparian areas should have at least 15 metres of vegetation on both sides of the waterway. Shorter corridors between summer and breeding habitat are more significant than longer corridors. Also, corridors are most significant when there is native vegetation, no roads, no gaps in the form of fields, waterways or water bodies, and is undeveloped. Field studies should be completed when amphibians are migrating.

Amphibians can potentially migrate from the dugout pond to Thicket Swamp in the woodland east of the dugout pond. Site investigations in May and June 2012 were completed for the purpose of conducting frog surveys. During the May survey, amphibians were heard calling within the woodland (**exp**, 2012b). However, the corridor that connects the woodland breeding habitat with the dugout pond is less than 200 metres wide. In addition, a residential dwelling and driveway separate the two (2) habitats, along with a limited riparian habitat surrounding the dugout pond due to mowing activities (<15 metres on each side). Therefore, the amphibian movement corridor present within 120 metres of the project location is not considered significant.

Chapter 4 – Summary

4 Summary

Table 4-1 summarizes the results of the Evaluation of Significance for natural features located within 120 metres from the project location.

Table 4-1: Summary of Evaluation of Significance Results

Natural Feature	Present in Project Location	Present within 120 m of Project Location	Evaluation of Significance Required?	Evaluation of Significance Results
ANSI (Earth Science)	No	No	No	N/A
ANSI (Life Science)	No	No	No	N/A
Coastal Wetland	No	No	No	N/A
Northern Wetland	No	No	No	N/A
Southern Wetland	No	No	No	N/A
Woodland	No	Yes	Yes	Not significant – does not meet threshold criteria.
Valleyland	No	No	No	N/A
Wildlife Habitat				
a) Seasonal concentration areas	No	No	No	N/A
b) Rare vegetation communities or specialized habitat	No	Yes – Amphibian Breeding (Woodland)	Yes – Amphibian Breeding (Woodland)	Not significant – number of individuals observed less than 20
c) Animal movement corridors	No	Yes – Amphibian Movement Corridor	Yes – Amphibian Movement Corridor	Not significant – corridor less than 200 m wide; riparian habitat less than 15 m on each side; house and driveway present in between woodland and breeding habitat
d) Habitat of species of conservation concern	No	No	No	N/A

Therefore, no natural features identified on or within 120 metres of the project location were identified as significant, whereby no Environmental Impact Study will be prepared for the project location proposed at 419 Penetanguishene Road, Barrie, Ontario further identified as LP8.

5 Closure

We trust this report is satisfactory for your purposes. Should you have any questions, please do not hesitate to contact this office.

Yours truly,

exp Services Inc.

Melissa Torchia, M.A.Sc. Environmental Scientist Environmental Sciences Division	Dean Fitzgerald, M.Sc., Ph.D. Team Leader – Ecological Services Environmental Sciences Division

6 References

Exp Services Inc. (**exp**). 2012a. Natural Heritage Records Review LP8. Prepared September 2012.

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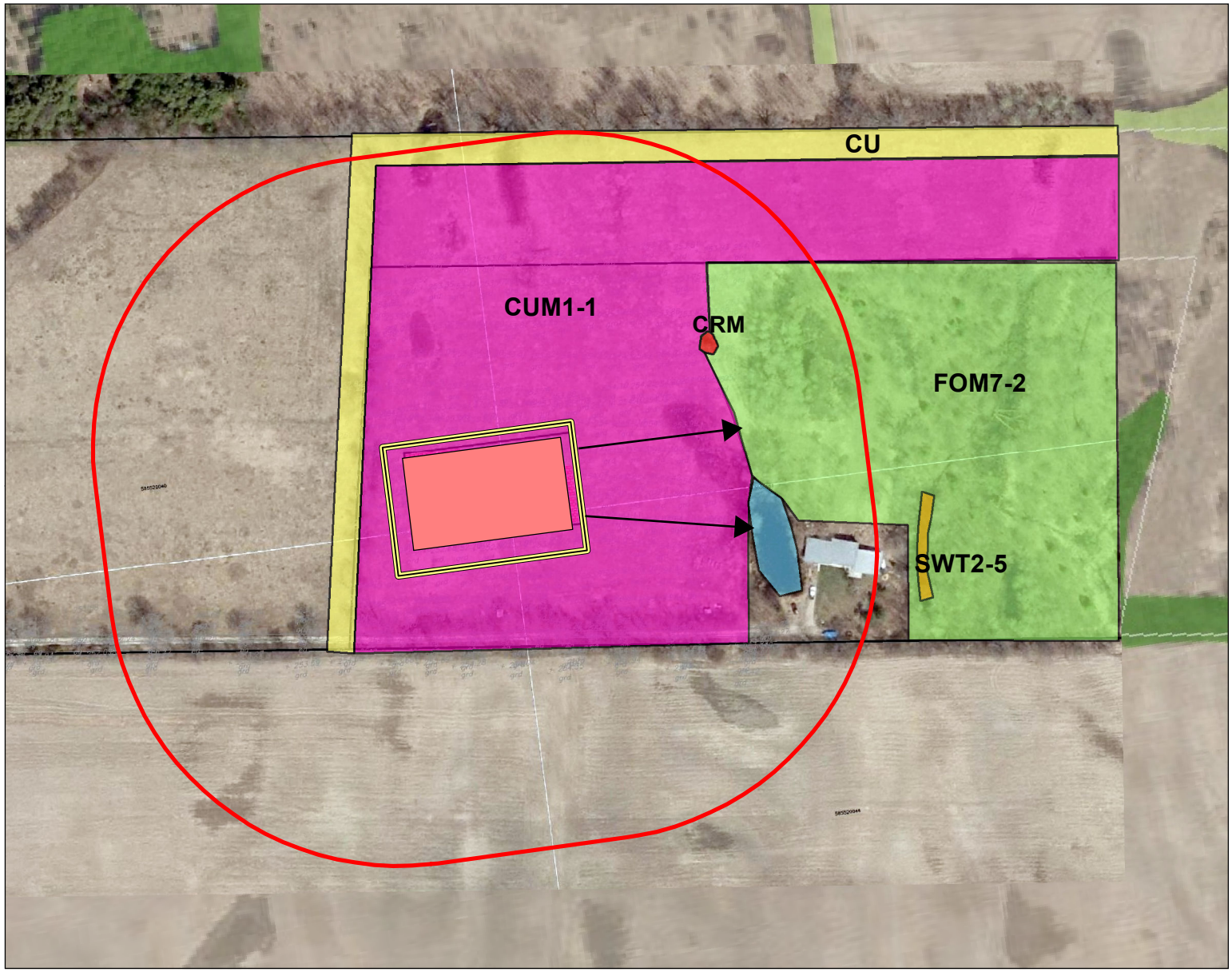
Figures



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Legend

- Proposed Solar Panel
- Construction Limit
- 120 m Buffer
- Red Osier Mineral Thicket Swamp Type
- Common Reed Monoculture
- Dugout Pond
- Cultural (Hedgerow)
- Dry Moist Old Field Meadow Type
- Fresh Moist White Cedar- Hardwood Mixed Forest Type

Source: County of Simcoe GIS Mapping, basd on 2008 Aerial Photography

0 10 20 40 60 80 100 Meters

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PROJECT TITLE:
FUTURE SOLAR DEVELOPMENTS INC. LP8
NATURAL HERITAGE ASSESSMENT
419 PENETANGUISHENE ROAD
BARRIE, ONTARIO

DRAWING TITLE:
Natural Heritage Site Assessment Map

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