



Axio Power Canada Inc./  
SunEdison Canada

Draft Natural Heritage Assessment  
Records Review Report

For

Kingston Gardiner Hwy 2 South  
Solar Energy Project

H335467  
Rev. F  
July 15, 2011

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Project Report

July 15, 2011

**Axio Power Canada Inc./SunEdison Canada  
Kingston Gardiner Hwy 2 South Solar Energy  
Project**

**Draft Natural Heritage Assessment Records Review Report**

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## 1. Introduction

### 1.1 Project Description

Axio Power Canada Inc./SunEdison Canada ("Axio") is proposing to develop a 10 megawatt (MW) solar photovoltaic project titled Kingston Gardiner Hwy 2 South Solar Energy Project (hereinafter referred to as the "Project"). The Project Location<sup>1</sup> is situated on privately owned land within a 34 hectare (ha) parcel of land on Part of Lot 40, Concession 3, Loyalist Township (lower tier municipality), County of Lennox and Addington (upper tier municipality) and within the Madoc Ecodistrict 6E-9 (Figure 1.1).

### 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) made under the *Environmental Protection Act* identifies the Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario. As per Part II, 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 require an REA.

Section 25 of the REA Regulation requires proponents of Class 3 solar projects to conduct a records review to identify whether the Project Location is:

- within 120 meters (m) of a provincial park or conservation reserve
- in a natural feature or within 120 m of a natural feature that is not an earth science Area of Natural and Scientific Interest (ANSI)
- within 50 m of earth science ANSI.

Natural features are defined in Part I, subsection 1 (1) of the REA Regulation to be all or part of the following:

- a) **ANSI (earth science)** – An area that has earth science values related to protection, scientific study or education.
- b) **ANSI (life science)** – An area that has life science values related to protection, scientific study or education.
- c) **Coastal wetland** – A wetland that is located on Lake Ontario, Lake Erie, Lake Huron, Lake Superior, Lake St. Clair, St. Mary's River, St. Clair River, Detroit River, Niagara River or St. Lawrence River; or on a tributary to any of these waterbodies and, wither in whole or in part, downstream of a line located two km upstream of the 1:100 year floodline (includes wave run-up) of the waterbody.

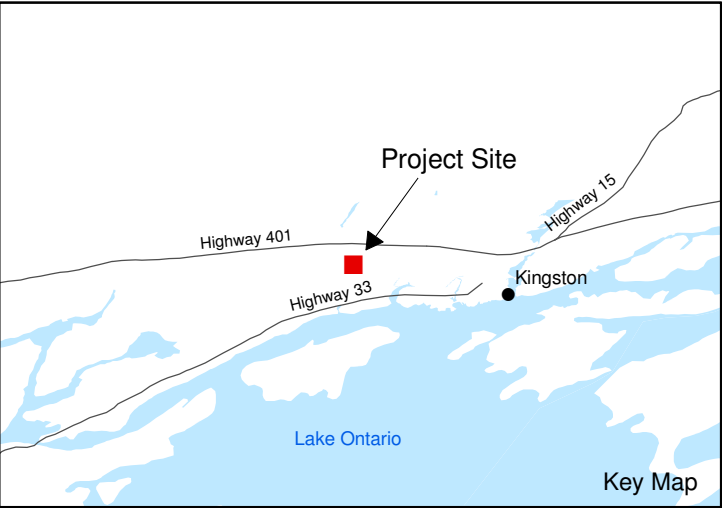
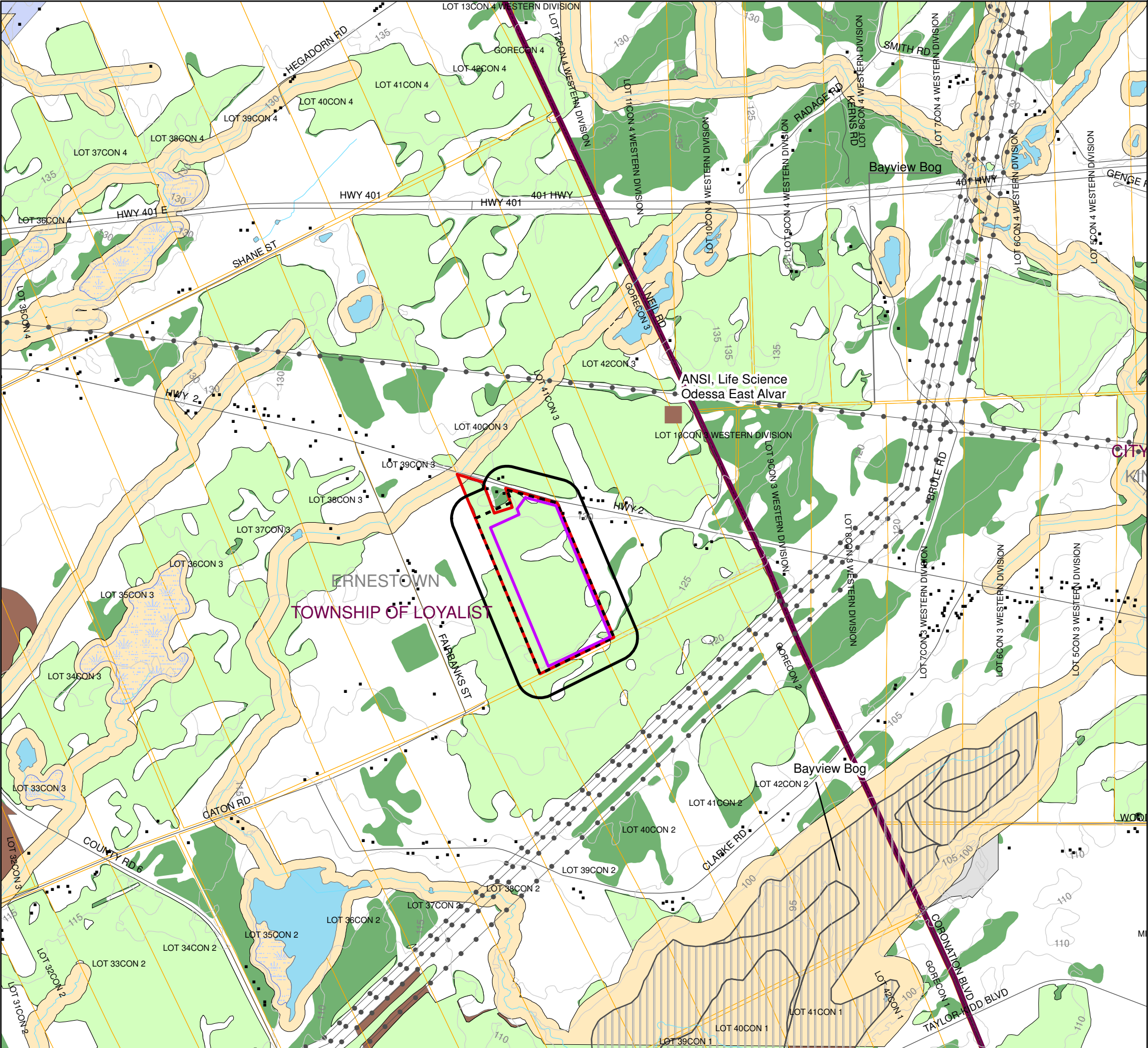
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<sup>1</sup> "Project Location means, when used in relation to a renewable energy project, a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space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

- d) **Northern wetland** – A wetland located north of the northern limit of Ecoregions 5E, 6E and 7E as shown in Figure 1 in the Provincial Policy Statement issued under section 3 of the *Planning Act* and approved by the Lieutenant Governor in Council by Order in Council No. 140/2005.
- e) **Southern wetland** – A wetland located south of the northern limit of Ecoregions 5E, 6E and 7E as shown in Figure 1 in the Provincial Policy Statement issued under section 3 of the *Planning Act* and approved by the Lieutenant Governor in Council by Order in Council No. 140/2005.
- f) **Valleyland** – A natural area that is south and east of the Canadian Shield as shown in Figure 1 in the Provincial Policy Statement issued under section 3 of the *Planning Act* and approved by the Lieutenant Governor in Council by Order in Council No. 140/2005; and that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year.
- g) **Wildlife habitat** – An area where plants, animals and other organisms live or have the potential to live and find adequate amounts of food, water, shelter and space to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species.
- h) **Woodland** – Land that is south and east of the Canadian Shield as shown in Figure 1 in the Provincial Policy Statement issued under section 3 of the *Planning Act* and approved by the Lieutenant Governor in Council by Order in Council No. 140/2005; and that has per hectare (ha) at least 1, 000 trees of any size or 750 trees that are > 5 centimetres (cm) in diameter, 500 trees that are > 12 cm in diameter, 250 trees that are > 20 cm in diameter that have been measured from 1.37 m from the ground.

Subsection 25 (3) 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 *Natural Heritage Assessment Records Review Report* has been prepared to meet these requirements.





LEGEND

- Building
- Railway
- Road
- Topographic Contour (5 m interval)
- Transmission Line
- Watercourse
- ANSI, Life Science
- Fence Line
- Municipality
- Parcel
- Project Location
- 120 m from Project Location
- Project Site
- Provincially Significant Wetland
- Water Body
- Unevaluated Wetland (OBM Mapping)
- Woodland

Cataraqui Region Conservation Authority Data

- 100 Year Floodplain
- CRCA Section 28 Regulations Screening Areas
- Significant Woodlands

Notes:  
1. OBM and NRVIS data downloaded from LIO, with permission.  
2. Spatial Referencing UTM NAD 83, August 2010.  
3. Cataraqui Region Conservation Authority data provided by CRCA, Sept. 7, 2010.

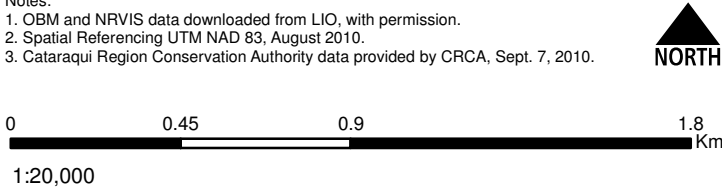


Figure 1.1  
Axio Power Canada Inc.  
Kingston Gardiner Hwy 2 South  
Natural Heritage Features **HATCH**



## 2. Methodology and Results

A search of published records from government and non-government information sources was completed to determine if the Project Location is located on or within 120 m of a natural feature (as defined in the REA Regulation), provincial park or conservation reserve, Niagara Escarpment Commission Plan Area or Oak Ridges Moraine Conservation Plan Area. Records related to these features and which are maintained by the following information sources, were reviewed in accordance with Subsection 25 (1) of the REA Regulation and are discussed in the subsequent sections: Ministry of Natural Resources (MNR), Federal Government, Conservation Authority, Municipal Planning Authority or Local Planning Board, Local and Upper-tier Municipalities, Local Roads Board, Local Services Board, Niagara Escarpment Commission and Oak Ridges Moraine Conservation Plan.

The following information sources will not be discussed in further detail as they are not found within the jurisdiction or within 120 m of the Project Location: Municipal Planning Authorities, Local Planning Boards, Local Roads Boards, Local Services Boards, Niagara Escarpment Commission Plan Area and Oak Ridges Moraine Conservation Plan Area.

Information on species of conservation concern (i.e. global, national, provincial and regionally rare species) that have been recorded or have the potential to occur within the vicinity of the Project Location was also reviewed. Species of conservation concern include:

- **Globally rare species** – These species are assessed by NatureServe and assigned a global conservation status rank (G-rank) of G1 to G3.
- **Nationally rare species** – These species are designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Endangered or Threatened and are not protected in regulation under the *Ontario Endangered Species at Risk Act* (ESA).
- **Provincially rare species** – These species are designated by the MNR and assessed under two categories: species listed as Special Concern on the Species at Risk in Ontario (SARO) list; and species that are assigned a provincial (i.e. sub-national) conservation status rank of S1 to S3 and are not on the SARO list. It is possible for species to be found in both categories.
- **Regionally rare species** – These species are not assigned a formal designation. However, they have been recognized as declining within a planning jurisdiction by government and/or non-government authorities.
- **Conservation priority species** – These include priority species that are recognized in government and/or non-government conservation plans and assigned a conservation objective.

Species that require greater protection and that are designated by the COSEWIC and/or the Committee on the Status of Species at Risk in Ontario (COSSARO) may become listed as species at risk under the Federal *Species at Risk Act* (SARA) and/or the ESA. Species that are identified in this Natural Heritage Assessment Records Review report as Endangered and Threatened under the ESA on the SARO list will be discussed in further detail in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.

The reporting format follows the requirements outlined in subsection 25 (3) of the REA Regulation. The wildlife and plant species discussed in the following sections are identified by common name only. The common names of species are written according to the standard rule of lower-case letters for all species, excluding birds and proper nouns, in which case it is capitalized (e.g. woodland vole, Blanding's turtle, Black Tern and Red-headed Woodpecker). Scientific names follow the binomial nomenclature system, which is a standard method used to formulate the scientific name of an organism (e.g. *genus* name + *species* name). Where discrepancies in nomenclature occur for the same species (e.g. common stinkpot vs. eastern musk turtle), the common and scientific names adopted by the MNR (particularly species on the SARO list) are used.

## 2.1 Ministry of Natural Resources Records

The following information sources from the MNR were reviewed for records related to natural features within 1 km of the Project Location:

- **Land Information Ontario Mapping** – *Land Information Ontario* (LIO) data is maintained by the MNR and provides key provincial geospatial data about Ontario to subscribers. The shapefiles obtained from the LIO datasets were used to prepare a map showing the natural features on and within 120 m of the Project Location (MNR, 2010a).
- **Natural Heritage Information Center Biodiversity Explorer** – The *Natural Heritage Information Center* (NHIC) collects and maintains data on known records of species, vegetation communities, and other natural features within the province. This information is available through the Element Occurrence and Natural Areas database which can be accessed using the web-based NHIC Biodiversity Explorer Tool (NHIC, 2010). The special boundary layer was used to search within the 1 km map squares (18UP18-70, 71, 72, 80, 81, 82, 90, 91, 92; 18UP28-00, 01, 02) that overlap the Project Location.
- **Ontario Crown Land Use Policy Atlas** – The *Ontario Crown Land Use Policy Atlas* is an interactive web browser that shows the boundaries of crown land use areas and associated land use policies. This interactive map was used to determine the presence of crown land within 1 km of the Project Location (MNR, 2010b).
- **Ontario Herpetofaunal Summary Atlas** – The *Ontario Herpetofaunal Summary Atlas* (Oldham and Weller, 2000) is a database that provides information on the distribution of amphibians and reptiles in Ontario. This database is maintained by the NHIC and includes a compilation of current and historic records gathered from museum and university collections in Ontario and published and non-published literature. The distribution maps of amphibians and reptiles found in Ontario were reviewed to determine those species with ranges that overlap with the Project Location.

### 2.1.1 LIO Mapping

The following information related to natural features was obtained from the MNR LIO data (MNR, 2010a). The MNR LIO data does not provide information on species of conservation concern. A map showing the natural features within a broad area surrounding the Project Location is provided (Figure 1.1).

**ANSI** – A review of the ANSI data layer did not identify any earth science or life science ANSI's on or within 120 m of the Project Location. The Odessa East Alvar is the closest life science ANSI and is located 860 m northeast of the Project Location.

**Valleylands** – The LIO datasets do not provide a data layer specific to valleylands. However, the *Natural Heritage Assessment Guide for Renewable Energy Projects* (MNR, 2010c) recommends using the contour, water polygon segment and water line segment data layers (which includes virtual flow data) to assist in identifying potential valleylands on and within 120 m of the Project Location. There are no water polygon segments and water line segments on and within 120 m of the Project Location. The contour data layer provides elevation information at 5 m intervals and shows the majority of the Project Location and surrounding lands between 120 metres above sea level (msl) and 130 msl. The elevation variation is not representative of valleylands. The topography is flat with a slight decrease in elevation from the north to the south

**Wetlands** – The MNR LIO mapping did not identify any wetlands on or within 120 m of the Project Location. The nearest wetland is the Bayview Bog Provincially Significant Wetland located approximately 1.5 km south of the Project Location. There is also an unevaluated wetland located approximately 1.6 km west of the Project Location.

**Wildlife Habitat** – The MNR LIO mapping did not identify any wildlife habitat types on or within 120 m of the Project Location.

**Woodlands** – A review of the wooded area data layer identified woodlands on and within 120 m of the Project Location. This data layer does not provide information on the significance of these woodlands. The presence and characteristics of these woodlands will be confirmed during the site investigation.

**Provincial Parks and Conservation Reserves** – A review of the regulated Provincial Park and conservation reserve data layers did not identify any provincial parks or conservation reserves on or within 120 m of the Project Location.

**Other Information** – The MNR LIO mapping shows eight buildings within 120 m of the Project Location (Figure 1.1). The LIO building layer data set obtained for the Project Location does not provide a description or include information on the building type (e.g. residence, commercial building, shed, barn, highway weigh scale, electric power station). Therefore, not all buildings shown on the LIO mapping represent residential dwellings and may include other structures.

### 2.1.2 NHIC Database

The NHIC Biodiversity Explorer Tool was accessed on August 25, 2010 and a geographic search of the Element Occurrence and Natural Areas database was completed for a 1 km radius surrounding the Project Location (NHIC, 2010). The map squares used for the search were 18UQ-60 - 51, 52, 53, 54, 61, 62, 63, 64, 71, 72, 73, 81 and 82. The Biodiversity Explorer Tool (Element Occurrence Database and Natural Area Database) provides information on the following natural features: ANSI, wetlands, wildlife habitat and species of conservation concern. The NHIC Biodiversity Explorer Tool provided the following information:

**ANSI** – The results of the query of the Natural Area Database identified the Odessa East Alvar as a Life Science ANSI (Area ID = 8528). The Odessa East Alvar is located 860 m northeast of the Project Location (Figure 1.1).

**Valleylands** – The NHIC Element Occurrence and Natural Areas database does not provide information on valleylands.

**Wetlands** – The results of the query of the Natural Area Database did not identify any records regarding wetlands within the 1 km map squares that overlap the Project Location.

**Wildlife Habitat** – The *Significant Wildlife Technical Guide* (MNR, 2000) identifies four main types of significant wildlife habitat: habitats of seasonal concentrations of animals, rare vegetation communities or specialized habitats for wildlife, habitats of species of conservation concern and animal movement corridors. The Element Occurrence Database provided the following information on wildlife habitat:

- **Habitat of Seasonal Concentrations of Animals** – The wildlife concentration data layer provides information on the following information for habitat of seasonal concentration of animals:
  - ♦ **Colonial Waterbird Nesting Area** – The results of the query did not identify any records of colonial waterbird nesting areas within the 1 km map squares that overlap the Project Location.
  - ♦ **Freshwater Mussel Concentration Area** – The results of the query did not identify any records of freshwater mussel concentration areas within the 1 km map squares that overlap the Project Location.
  - ♦ **Mixed Wader Nesting Colony** – The results of the query did not identify any records of mixed wader nesting colonies within the 1 km map squares that overlap the Project Location.
  - ♦ **Raptor Winter Concentration Area** – The results of the query did not identify any records of raptor winter concentration areas within the 1 km map squares that overlap the Project Location.
  - ♦ **Shorebird Migratory Concentration Area** – The results of the query did not identify any records of shorebird migratory concentration areas within the 1 km map squares that overlap the Project Location.
  - ♦ **Waterfowl Concentration Area** – The results of the query did not identify any records of waterfowl concentration areas within the 1 km map squares that overlap the Project Location.
- **Rare Vegetation Communities or Specialized Habitat for Wildlife** – The plant community data layer provides information on globally (G-rank: G1 to G3) and provincially (S-rank: S1 to S3) rare plant communities. The results of the query of the Element Occurrence Database did not identify any records of rare plant communities within the 1 km map squares that overlap the Project Location.
- **Habitat of Species of Conservation Concern** – The species data layer was used to identify species of conservation concern that have been recorded within the 1 km map squares that

overlap with the Project Location. The following species of conservation concern were identified and will be considered during the site investigation.

- ♦ **Endangered and Threatened Species on the SARO List** – Species that are designated as Endangered or Threatened on the SARO list are protected under the provisions of the ESA 2007 and will be discussed in further detail in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.
- ♦ **Global, National and Provincial Rare Species** – The Element Occurrence database did not identify any species designated as Special Concern by COSEWIC or on the SARO list, within the 1 km map squares that overlap the Project Location. However, the following species are globally and provincially rare according to a global rank of G1 to G3 and a provincial conservation status rank of S1 to S3:

Plants

- A moss (*Grimmia olneyi*) – G3G5, S2 – Seen in 1868
- ♦ **Regionally Rare Species** – The species data layer did not identify any species that have been recognised as declining within the planning jurisdiction by government and/or non-government authorities.
- **Animal Movement Corridors** – The NHIC Element Occurrence and Natural Areas database did not provide information on animal movement corridors.

**Woodlands** – The NHIC databases do not provide a data layer specific to woodlands. However, the data layers provided in the Natural Areas Database (e.g., wetland, forest reserves, wilderness areas, national and provincial parks) may be useful in determining the presence of woodlands. The results of the query of the Natural Areas Database did not provide records of natural areas within the 1 km map squares that overlap the Project Location.

**Provincial Parks and Conservation Reserves** – The Natural Areas database provides information on provincial parks and conservation reserves. A geographic query of natural areas was completed and there were no provincial parks or conservation reserves identified within the 1 km map squares that overlap the Project Location.

**Other Natural Areas** – The natural areas database also provides information on national parks, crown game preserves, first nation reserves, forest reserves, migratory bird sanctuaries, national wildlife areas, non-government conservation easements, natural heritage properties, nature reserves and trust lands, provincial wildlife areas, Ramsar sites<sup>2</sup>, resource management areas, wilderness areas and important bird areas. The results of the query did not identify any records of these natural areas within the 1 km map squares that overlap the Project Location.

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<sup>2</sup> A Ramsar site is a wetland of international importance as defined by the Ramsar Convention for the conservation and sustainable utilization of wetlands, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific, and recreational value.

### 2.1.3 Ontario Crown Land Use Atlas Mapping

The *Crown Land Use Policy Atlas* interactive map (MNR, 2010b) was accessed on August 25, 2010, and reviewed to determine if there is crown land on or within 120 m of the Project Location. The map did not identify any crown land within 1 km of the Project Location.

### 2.1.4 Ontario Herpetofaunal Summary Atlas

A review of the *Ontario Herpetofaunal Summary Atlas* (Oldham and Weller, 2000) was completed to determine if there are species of conservation concern that have the potential to occur on or within 120 m of the Project Location. The *Ontario Herpetofaunal Summary Atlas* (Oldham and Weller, 2000) identified several species of amphibians and reptiles, including species of conservation concern whose ranges overlap with the Project Location. The conservation rank, status and any other designations for these species are provided in Table 2.1.

**Species of Conservation Concern** – The following species of conservation concern have ranges that overlap with the Project Location. These species will be considered during the site investigation.

- **Endangered and Threatened Species on the SARO list** – Species that are designated as Endangered or Threatened on the SARO list are protected under the provisions of the ESA 2007 and will be discussed in further detail in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.
- **National and Provincial Rare Species** – The species listed below fall into one or two of the following categories: 1) designated as Endangered or Threatened by COSEWIC, but are not protected in regulation under the ESA, 2) designated as Special Concern by COSEWIC and on the SARO list, or 3) have a provincial conservation status rank of S1 to S3:

#### Frogs

- ♦ Western chorus frog (*Pseudacris triseriata*) G5TNR, S3 – Great Lakes / St. Lawrence Canadian Shield Population – Listed as Threatened by COSEWIC but not at risk on the SARO list

#### Salamanders

- ♦ Jefferson x blue-spotted salamander (*Ambystoma jeffersonianum* x *laterale* "complex") (Jefferson dominated genome) G4, S2 – Provincially rare based on a conservation rank of S2

#### Snakes

- ♦ Milksnake (*Lampropeltis triangulum*) G5, S3 – Listed as Special Concern by COSEWIC and on the SARO list

#### Turtles

- ♦ Northern map turtle (*Graptemys geographica*) G4, S2 – Listed as Special Concern by COSEWIC and on the SARO list
- ♦ Snapping turtle (*Chelydra serpentina*) G5, S3 – Listed as Special Concern by COSEWIC and on the SARO list
- **Global and Regionally Rare Species** – The *Ontario Herpetofaunal Summary Atlas* (Oldham and Weller, 2000) did not identify any globally (G1 to G3) or regionally rare species whose ranges overlap with the Project Location.



**Table 2.1 Amphibians and Reptiles Potentially Occurring at the Kingston Gardiner Hwy 2 South Solar Energy Project Location and their Conservation Status<sup>1</sup>**

Species		Conservation Rank <sup>2</sup>		At Risk Status		
Common Name	Scientific Name	Global GRANK	Ontario SRANK <sup>3</sup>	COSEWIC	SARA	SARO/ESA
<b>Frogs and Toads</b>						
American bullfrog	<i>Rana castebiana</i>	G5	S4	-	-	-
American toad	<i>Bufo americanus</i>	G5	S5	-	-	-
Gray treefrog	<i>Hyla versicolor</i>	G5	S5	-	-	-
Green frog	<i>Rana clamitans</i>	G5	S5	-	-	-
Mink frog	<i>Rana septentrionalis</i>	G5	S5	-	-	-
Northern leopard frog	<i>Rana pipiens</i>	G5	S5	NAR	-	NAR
Pickerel frog	<i>Rana palustris</i>	G5	S4	NAR	-	NAR
Spring peeper	<i>Pseudacris crucifer</i>	G5	S5	-	-	-
Western chorus frog	<i>Pseudacris triseriata</i>	G5TNR	S3	THR	THR (Schedule 1, Great Lakes / St. Lawrence Canadian Shield Population)	NAR
Wood frog	<i>Rana sylvatica</i>	G5	S5	-	-	-
<b>Lizards</b>						
Five-lined skink (Southern Shield Population)	<i>Plestiodon fasciatus</i>	G5T4	S3	SC	SC (Schedule 3, Southern Shield Population)	SC
<b>Salamanders</b>						
Common mudpuppy	<i>Necturus maculosus</i>	G5	S4	NAR	NAR	NAR
Eastern red-backed salamander	<i>Plethodon cinereus</i>	G5	S5	-	-	-
Four-toed salamander	<i>Hemidactylium scutatum</i>	G5	S4	NAR	NAR	NAR
Jefferson x blue-spotted salamander (Jefferson dominated genome)	<i>Ambystoma jeffersonianum</i> x <i>laterale</i> "complex"	G4	S2	-	-	-
Red-spotted newt	<i>Notophthalmus viridescens</i>	G5	S5	-	-	-

Species		Conservation Rank <sup>2</sup>		At Risk Status		
Common Name	Scientific Name	Global GRANK	Ontario SRANK <sup>3</sup>	COSEWIC	SARA	SARO/ESA
Spotted salamander	<i>Ambystoma maculatum</i>	G5	S4	-	-	-
<b>Snakes</b>						
Common water snake	<i>Nerodia sipedon sipedon</i>	G5T5	S5	NAR	-	NAR
Dekay's brownsnake	<i>Storeria dekari</i>	G5	S5	NAR	-	NAR
Eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>	G5T5	S5	-	-	-
Milksnake	<i>Lampropeltis triangulum</i>	G55	S3	SC	SC (Schedule 1)	SC
Northern redbelly snake	<i>Storeria occipitomaculata</i>	G5T5	S5	-	-	-
Northern ringneck snake	<i>Diadophis punctatus edwardsi</i>	G5	S4	-	-	-
Smooth green snake	<i>Liochlorophis vernalis</i>	G5	S4	-	-	-
<b>Turtles</b>						
Midland painted turtle	<i>Chrysemys picta marginata</i>	G5T5	S5	-	-	-
Northern map turtle	<i>Graptemys geographica</i>	G5	S3	SC	SC (Schedule 1)	SC
Snapping turtle	<i>Chelydra serpentina</i>	G5	S3	SC	-	SC

<sup>1</sup> As determined from potential climatic domain maps in McKenney *et al.* (2007) and range maps provided in Oldham and Weller (2000).

<sup>2</sup> Accessed from NHIC, 2010.

<sup>3</sup> Nature Conservancy Ranking (NHIC, 2010); 1 = Critically Imperilled, 2 = Imperilled, 3 = Vulnerable, 4 = Apparently Secure, 5 = Secure, E = Exotic, G = Global Level, H = Historical Occurrence, N = National Level, NAR = Not At Risk, S = Sub-national Rank (Ontario), SNA = Species Not Applicable (A conservation status rank is not applicable because the species is not a suitable target for conservation activities), R = Local Status not available, U = Unknown, X = Extinct, ? = Rank Uncertain.

### 2.1.5 **Renewable Energy Atlas**

The *Renewable Energy Atlas* (MNR, 2010d) was reviewed for information related to natural features, provincial parks, conservation reserves and other land use information within 120 m of the Project Location. The following information was provided:

**ANSI** – The land use layer provides information on ANSI's. This layer did not identify any earth science or life science ANSI's on or within 120 m of the Project Location.

**Valleylands** – Information on valleylands is not included in the layers provided in the *Renewable Energy Atlas*.

**Wetlands** – The base data layer provides information on coastal wetlands only. This layer did not identify any coastal wetland on or within 120 m of the Project Location.

**Wildlife Habitat** – The wildlife layer provides information on known bat hibernacula. This layer did not identify any bat hibernacula within 10 km of the Project Location.

**Woodlands** – Information on woodlands is not included in the layers provided in the *Renewable Energy Atlas* (MNR, 2010d).

**Provincial Parks and Conservation Reserves** – The land use layer provides information on provincial parks and conservation reserves. This layer did not identify any provincial parks or conservation reserves on or within 120 m of the Project Location.

## 2.2 **Federal Government Records**

The following online information sources from the Federal government were reviewed for records related to natural features within 1 km of the Project Location:

- **Environment Canada** – The Environment Canada website was searched for information on natural features within a minimum distance of 1 km from the Project Location. The information sources reviewed were from the Canadian Wildlife Service branch of Environment Canada and are discussed further in Section 2.2.1.
- **Natural Resources Canada** – The Natural Resources Canada website was searched for information on natural features within a minimum distance of 1 km from the Project Location, including species of conservation concern. The information sources reviewed from Natural Resources Canada included the *Amphibian and Reptile of Ontario Climate Domain Maps* (McKenney *et al.*, 2007). This online resource provides the spatial distribution and habitat requirements of amphibians and reptiles found within Ontario. The maps show the bioclimatic domain of each species at a 1 km resolution across the entire province. Those species with distribution ranges that overlap with the Project Location were reviewed and, and the results are discussed in Section 2.2.2.

### 2.2.1 **Canadian Wildlife Service and Environment Canada**

Resources available on the Canadian Wildlife Service website, a branch of Environment Canada, included publications related to the protection of bird species at the national and provincial level. The Canadian Wildlife Service has prepared a series of conservation initiative plans that provide

coordination to improve effectiveness of conservation measures of bird species. The publications reviewed include the *Canadian Shorebird Conservation Plan* (Donaldson et al., 2000), *Ontario Shorebird Conservation Plan* (Ross et al., 2003), and *Wings Over Water: Canada's Waterbird Conservation Plan* (Milko et al., 2003). These documents provided information on shorebird and waterbird population sizes and trends, as well as the evaluation and identification of habitat needs, significant sites and conservation priorities. Each of these publications are discussed below.

#### *Canadian Shorebird Conservation Plan*

The *Canadian Shorebird Conservation Plan* (Donaldson et al., 2000) provides population sizes and abundance status estimates for 47 species of shorebirds breeding and occurring in Canada. Of these species, there are 29 that regularly occur in Ontario (Ross et al., 2003) and only six<sup>3</sup> that have been recorded within the 10 km map square (i.e. 18UQ60) that overlaps the Project Location (Bird Studies Canada et al., 2006). The conservation priorities for these species have been assessed based on population trends throughout Canada and do not necessarily reflect province-wide trends. Nonetheless, the conservation priorities for the shorebirds recorded within the vicinity of the Project Location included:

- American Woodcock (*Scolopax minor*) G5, S4B – Conservation priority of High Concern
- Killdeer (*Charadrius vociferus*) G5, S5B, S5N – Conservation priority of Moderate Concern
- Spotted Sandpiper (*Actitis macularia*) G5, S5 – Conservation priority of Moderate Concern
- Upland Sandpiper (*Bartramia longicauda*) G5, S4B – Conservation priority of Low Concern
- Wilson's Phalarope (*Phalaropus tricolor*) G5, S3B – Conservation priority of High Concern and Provincially rare based on a conservation rank of S3B
- Wilson's Snipe (*Gallinago delicata*) G5, S5B – Conservation priority of Moderate Concern

#### *Ontario Shorebird Conservation Plan Moderate Concern*

The *Ontario Shorebird Conservation Plan* (Ross et al., 2003) provides information on Protected Areas Important to Shorebirds, existing and proposed Areas for Special Designation, and Significant Areas in southern Ontario. There are no Protected Areas Important to Shorebirds, Areas for Special Designation or Significant Areas within 120 m of the Project Location. The closest Areas for Special Designation is the Amherst Island, located approximately 8 km south of the Project Location. The Amherst Island is also considered a Protected Areas Important to Shorebirds because of the presence of important private and/or public lands.

The Project is located within the Bird Conservation Region (BCR) 13. The *Ontario Shorebird Conservation Plan* (Ross et al., 2003) identified six shorebirds that have confirmed or suspected population declines in southern Ontario. The conservation priority for these shorebirds has been assessed and includes:

- American Woodcock (*Scolopax minor*) G5, S4B – Conservation priority of Medium Priority
- Killdeer (*Charadrius vociferus*) G5, S5B, S5N – Conservation priority of Low Priority

<sup>3</sup> Based on available data from information sources reviewed in this report.

- Spotted Sandpiper (*Actitis macularia*) G5, S5 – Conservation priority of Low Priority
- Upland Sandpiper (*Bartramia longicauda*) G5, S4B – Conservation priority of Medium Priority
- Wilson's Phalarope (*Phalaropus tricolor*) G5, S3B – Conservation priority of Low Priority and Provincially rare based on a conservation rank of S3B
- Wilson's Snipe (*Gallinago delicata*) G5, S5B – Conservation priority of Low Priority

*Wings Over Water: Canada's Waterbird Conservation Plan*

*The Wings Over Water: Canada's Waterbird Conservation Plan* (Milko et al., 2003) addresses seabirds that are found in marine and coastal areas, inland colonial waterbirds or wetland related bird species. This publication provides population statistics, conservation status and conservation priorities for waterbirds. A total of 13 species of conservation concern have ranges that overlap with the Project Location:

- **Endangered and Threatened Species on the SARO list** – Species that are designated as Endangered or Threatened on the SARO list are protected under the provisions of the ESA 2007 and will be discussed in further detail in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.
- **National and Provincial Species at Risk** – The species listed below fall into one or two of the following categories: 1) designated as Endangered or Threatened by COSEWIC, but are not protected in regulation under the ESA, 2) designated as Special Concern by COSEWIC and on the SARO list, or 3) have a provincial conservation status rank of S1 to S3:
  - ♦ Black-crowned Night-Heron (*Nycticorax nycticorax*) G5, S3B, S3N – Provincially rare based on a conservation rank of S3B, S3N and assessed as Moderate Concern
  - ♦ Black Tern (*Chlidonias niger*) G4, S3B – Listed as Special Concern on the SARO list and assessed as High Concern
  - ♦ Caspian Tern (*Hydroprogne caspia*) G5, S3B – Provincially rare based on a conservation rank of S3B and assessed as Low Concern
  - ♦ Forster's Tern (*Sterna forsteri*) G5, S3B – Provincially rare based on a conservation rank of S3B and assessed as Moderate Concern
- **Global and Regionally Rare Species** – The *Wings Over Water: Canada's Waterbird Conservation Plan* (Milko et al., 2003) did not identify any globally (G1 to G3) or regionally rare species whose ranges overlap with the Project Location.
- **Other Designations** – The following species have been identified as a priority species and given a conservation objective in the *Wings Over Water: Canada's Waterbird Conservation Plan* (Milko et al., 2003)
  - ♦ American Bittern (*Botaurus lentiginosus*) G4, S4B – Listed as a priority species and assessed as Moderate Concern

- ♦ Common Loon (*Gavia immer*) G5, S5B – Listed as a priority species and assessed as Moderate Concern
- ♦ Common Moorhen (*Gallinula chloropus*) G5, S5B – Listed as a priority species and assessed as Moderate Concern
- ♦ Common Tern (*Sterna hirundo*) G5, S4B – Listed as a priority species and assessed as Moderate Concern
- ♦ Green Heron (*Butorides virescens*) G5, S4B – Listed as a priority species and assessed as Low Concern
- ♦ Herring Gull (*Larus argentatus*) G5, S5B, S5N – Listed as a priority species and assessed as Moderate Concern

### 2.2.2 **Natural Resources Canada's Amphibians and Reptiles of Ontario Climate Domain Maps**

A review of the Natural Resources Canada *Amphibians and Reptiles of Ontario Climate Domain Maps* (McKenney et al., 2007) was completed to determine if there are any species of conservation concern that have the potential to occur on or within 120 m of the Project Location.

**Species of Conservation Concern** – The following species of conservation concern have ranges that overlap the Project Location according to the *Amphibians and Reptiles of Ontario Climate Domain Maps* (McKenney et al., 2007). The conservation rank, status and any other designations for these species are provided in Table 2.1. These species of conservation concern will be considered during the site investigation.

- **Endangered and Threatened Species on the SARO list** – Species that are designated as Endangered or Threatened on the SARO list are protected under the provisions of the ESA 2007 and will be discussed in further detail in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.
- **National and Provincial Rare Species** – The species listed below fall into one or two of the following categories: 1) designated as Endangered or Threatened by COSEWIC, but are not protected in regulation under the ESA, 2) designated as Special Concern by COSEWIC and on the SARO list, or 3) have a provincial conservation status rank of S1 to S3:

#### Frogs

- ♦ Western chorus frog (*Pseudacris triseriata*) G5TNR, S3 – Great Lakes / St. Lawrence Canadian Shield Population – Listed as Threatened by COSEWIC but not at risk on the SARO list

#### Lizards

- ♦ Five-lined skink (*Plestiodon fasciatus*) G5T4, S3 – Southern Shield Population – Listed as Special Concern by COSEWIC and on the SARO list

#### Snakes

- ♦ Milksnake (*Lampropeltis triangulum*) G5, S3 – Listed as Special Concern by COSEWIC and on the SARO list



Turtles

- ♦ Northern map turtle (*Graptemys geographica*) G5, S3 – Listed as Special Concern by COSEWIC and on the SARO list
- ♦ Snapping turtle (*Chelydra serpentina*) G5, S3 – Listed as Special Concern by COSEWIC and on the SARO list

**Global and Regionally Rare Species** – The *Amphibians and Reptiles of Ontario Climate Domain Maps* (McKenney et al., 2007) did not identify any globally (G1 to G3) or regionally rare species whose ranges overlap with the Project Location.

## 2.3 Conservation Authority Records

The Project Location is situated within the jurisdiction of the Cataraqui Region Conservation Authority (CRCA). Information related to natural features within the vicinity of the Project Location was provided by the CRCA in a letter dated August 23, 2010 (Appendix B). Also, the *Central Cataraqui Region Natural Heritage Study* (CCRNHS, 2006) was reviewed. The CCRNHS (CRCA, 2006) was completed by the CRCA in cooperation with the City of Kingston and Loyalist Township for the purpose of identifying natural features and areas to be incorporated into the Official Plans for each municipality. The information from the CCRNHS (CRCA, 2006) and comments provided by the CRCA (CRCA, 2010 - Appendix B) are discussed below with respect to the natural features identified in subsection 1 (1) of the REA Regulation.

**ANSI** – Figure 3a: Landscape Features of the CCRNHS (CRCA, 2006) do not show any ANSI's on and within 120 m of the Project Location. The CRCA mentioned in their letter (CRCA, 2010 – Appendix B) that an ANSI is located more than 500 m northeast of the Project Location. The CRCA Planning Policy discourages new development and site alteration inside the boundary of an ANSI and an adjacent buffer of 50 m.

**Valleylands** – The CRCA did not provide comments on the presence and/or absence of valleylands on or within 120 m of the Project Location in their letter (Appendix B). Figure 3a: Landscape Features of the CCRNHS (CRCA, 2006) confirmed that there are no valleylands on or within 120 m of the Project Location. The closest valleyland is located approximately 1.5 km south of the Project Location.

**Wetlands** – The CRCA letter (CRCA, 2010 - Appendix B) did not reveal comments on the presence and/or absence of wetlands on or within 120 m of the Project Location. Figure 3a: Landscape Features of the CCRNHS (CRCA, 2006) confirmed that there are no wetlands on or within 120 m of the Project Location. The closest wetland is a provincially significant wetland located approximately 1.5 km south of the Project Location. There is also an unevaluated wetland located approximately 1.6 km west of the Project Location.

**Wildlife Habitat** – The CRCA mentioned that the area north of Highway 2 is likely to support one or more species listed on the SARO list and suggested that the applicant contact MNR (CRCA, 2010 - Appendix B). No element occurrences of sensitive species were identified on and within 120 m of the Project Location according to Figure 2a: Floral and Faunal Features of the CCRNHS (CRCA, 2006). Figure 9a: Corridors and Linkages of the CCRNHS (CRCA, 2006) identifies the woodland on and within the 120 m of the Project Location as contributing and intermediate core habitat value.

**Woodlands** – The CRCA identified the woodlands on and within 120 m of the Project Location as significant according to Figure 4a: Significant Woodland of the CCRNHS (CRCA, 2006) and the Geographical Information System data layer provided by the CRCA (CRCA, 2010 - Appendix B) (Figure 1.1). The wooded area was identified as significant based on its area (CRCA, 2010 – Appendix B). The CRCA recommended that an environmental impact assessment and a tree preservation plan be prepared should development be proposed in significant woodlands (CRCA, 2010 - Appendix B). Policy 2.1.4 of the Provincial Policy Statement (2005) does not permit development and site alteration in significant woodlands unless negative impacts can be mitigated (cited in CRCA, 2010 – Appendix B).

**Provincial Parks and Conservation Reserves** – The CRCA letter (Appendix B) as well as the CCRNHS (CRCA, 2006) did not provide information on the presence or absence of provincial parks or conservation reserves on or within 120 m of the Project Location.

## 2.4 Municipal Records

The Project Location is situated within the Loyalist Township (lower tier municipality) in the County of Lennox and Addington (upper tier municipality). The *Loyalist Township Official Plan* (2010) was reviewed for information related to natural features within the vicinity of the Project Location.

An Environmental Protection designation is shown on Schedules A (Land Use Plan) and described in Part 4 – Land Use Policies of the *Loyalist Township Official Plan* (2010). By definition lands within the Environmental Protection designation include:

- provincially and regionally significant ANSI
- provincially significant wetlands and all other wetlands that have been evaluated by the MNR
- significant habitat of endangered or threatened species or fish habitat
- lands having inherent environmental hazards, such as poor drainage and organic soils
- steep slopes, dynamic beaches, or lands that are subject to flooding and/or erosion
- lands within 30 m of the high water mark of a waterbody for which there is no floodplain mapping or fill line mapping
- conservation lands owned by Loyalist Township, Conservation Authorities and The Rideau Land Trust.

Also, Schedule B (Environmental and Resource Constraint Areas) shows an Environmentally Sensitive Area, which is defined in Part 4 – Land Use Policies of the *Loyalist Township Official Plan* (2010) as lands where development and site alteration shall not be permitted unless it has been demonstrated that there will be no negative impacts on the natural features or on their ecological function. These areas should be conserved in the long term and include:

- lands within 50 m of a provincially and regionally significant ANSI
- significant valleylands or lands within 50 m of a significant valleyland

- unevaluated wetlands, lands within 30 m of a locally significant wetland, or lands within 120 m of a provincially significant wetland
- lands within 30 m of a fish habitat
- lands within 50 m of a groundwater recharge / discharge area
- lands within 50 m of a significant wildlife habitat and significant habitat of endangered or threatened species
- linkages and corridors
- significant woodlands.

The following information regarding the Project Location was obtained from the *Loyalist Township Official Plan* (2010):

**ANSI** – The *Loyalist Township Official Plan* (2010) Schedule A (Land Use Plan) does not show any Environmental Protection Areas, which as previously mentioned, include ANSI's on or within 120 m of the Project Location. However, Schedule B (Environmental and Resource Constraint Areas) shows an Environmentally Sensitive Area overlying the Project Location and its 120 m setback, which could be interpreted, according to Part 4 (Land Use Policies), as being within 50 m of a provincially or regionally significant ANSI. This information was compared to other sources from this report and a conclusion is provided in Section 3 – Summary of Records Review.

**Valleylands** – The *Loyalist Township Official Plan* (2010) Schedule A (Land Use Plan) does not show any Environmental Protection Areas, which as previously mentioned include valleylands on or within 120 m of the Project Location. However, Schedule B (Environmental and Resource Constraint Areas) shows an Environmentally Sensitive Area overlying the Project Location and its 120 m setback, which could be interpreted, according to Part 4 (Land Use Policies), as being within 50 m of a significant valleyland. This information was compared to other sources from this report and a conclusion is provided in Section 3 – Summary of Records Review.

**Wetlands** – The *Loyalist Township Official Plan* (2010) Schedule A (Land Use Plan) does not show any Environmental Protection Areas which, as previously mentioned, include wetlands on or within 120 m of the Project Location. However, Schedule B (Environmental and Resource Constraint Areas) shows an Environmentally Sensitive Area overlying the Project Location and its 120 m setback which could be interpreted, according to Part 4 (Land Use Policies), as being within an unevaluated wetland, within 30 m of a locally significant wetland, or within 120 m of a provincially significant wetland. This information was compared to other sources from this report, and a conclusion is provided in Section 3 – Summary of Records Review.

**Wildlife Habitat** – Schedule A (Land Use Plan) of the *Loyalist Township Official Plan* (2010) shows Environmental Protection Areas. No such areas are present on or within 120 m of the Project Location. However, Schedule B (Environmental and Resource Constraint Areas) shows an Environmentally Sensitive Area overlying the Project Location and its 120 m setback which could be interpreted, according to Part 4 (Land Use Policies), as possible presence of a significant wildlife habitat or significant habitat of Endangered or Threatened species within 50 m. Schedule B also

shows a corridor crossing the Project Location from north to south. The presence and type of wildlife habitat will be confirmed during the site investigation.

**Woodlands** – Schedule B (Environmental and Resource Constraint Areas) shows an Environmentally Sensitive Area overlying the Project Location and its 120 m setback which could be interpreted as possible presence of significant woodlands. The presence and characteristics of these woodlands will be confirmed during the site investigation. Policy 5.4.7.1 (f) of the *Loyalist Township Official Plan* (2010) requires that “development be carried out in a manner that encourages the protection and management of woodlands,” and that development applications affecting significant woodlands be “accompanied by a strategy maximizing the woodland areas to be protected.”

**Provincial Parks and Conservation Reserves** – The *Loyalist Township Official Plan* (2010) does not provide information on provincial parks and conservation reserves.

**Other Areas** – According to Schedule A (Land Use Plan) of the *Loyalist Township Official Plan* (2010) the land on and within 120 m of the Project Location is designated as rural. There is no agricultural land or aggregate on or within 120 m of the Project Location.

No additional or different information regarding specific natural features as provided in the *Loyalist Township Official Plan* (2010) was found on the County of Lennox and Addington’s website (County of Lennox and Addington, 2010).

## 2.5 Non-Government Records

In addition to the sources identified previously, the following records were also reviewed:

### 2.5.1 *Atlas of the Mammals of Ontario*

A review of the *Atlas of the Mammals of Ontario* (Dobbyn, 1994) was completed to determine those mammal species that have the potential to occur on or within 120 m of the Project Location and are considered as species of conservation. Thirty four species with ranges that overlap with the Project Location were identified, including species of conservation concern. The conservation rank, status and any other designations for these species are provided in Table 2.2.

**Species of Conservation Concern** – The following species of conservation concern have ranges that overlap with the Project Location. These species will be considered during the site investigation.

- **Endangered and Threatened Species on the SARO list** – Species that are designated as Endangered or Threatened on the SARO list are protected under the provisions of the ESA 2007 and will be discussed in further detail in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.
- **National and Provincial Rare Species** – The *Atlas of the Mammals of Ontario* (Dobbyn, 1994) did not identify any nationally rare species. However, the following species are provincially rare based on a conservation rank of S3?:
  - ♦ Northern long-eared bat (*Myotis septentrionalis*) – G4, S3?

- **Global and Regionally Rare Species** – The *Atlas of the Mammals of Ontario* (Dobbyn, 1994) does not identify any globally (G1 to G3) or regionally rare species whose ranges overlap with the Project Location.

**Table 2.2 Mammal Species Potentially Occurring at the Kingston Gardiner Hwy 2 South Solar Energy Project Location<sup>1</sup>**

Species		Conservation Rank <sup>2</sup>		At Risk Status		
Common Name	Scientific Name	Global GRANK	Ontario SRANK <sup>3</sup>	COSEWIC	SARA	SARO/ESA
<b>Bats</b>						
Big brown bat	<i>Epstesicus fuscus</i>	G5	S5	-	-	-
Eastern red bat	<i>Lasiurus borealis</i>	G5	S4	-	-	-
Hoary bat	<i>Lasiurus cinereus</i>	G5	S4	-	-	-
Little brown bat	<i>Myotis lucifuga</i>	G5	S5	-	-	-
Northern long-eared bat	<i>Myotis septentrionalis</i>	G4	S3?	-	-	-
Silver-haired bat	<i>Lasionycteris noctivagans</i>	G5	S4	-	-	-
<b>Carnivores</b>						
Coyote	<i>Canis latrans</i>	G5	S5	-	-	-
Grey wolf	<i>Canis lupus</i>	G4TNR	S4	NAR	-	NAR
Mink	<i>Mustela vison</i>	G5	S4	-	-	-
Raccoon	<i>Procyon lotor</i>	G5	S5	-	-	-
Red Fox	<i>Canis latrans</i>	G5	S5	-	-	-
River otter	<i>Lontra canadensis</i>	G5	S5	-	-	-
Striped skunk	<i>Mephitis mephitis</i>	G5	S5	-	-	-
<b>Rabbits and Hares</b>						
Eastern cottontail	<i>Sylvilagus floridanus</i>	G5	S5	-	-	-
European hare	<i>Lepus europaeus</i>	G5	SE/SNA	-	-	-
Snowshoe hare	<i>Lepus americanus</i>	G5	S5	-	-	-
<b>Rodents</b>						
Beaver	<i>Castor canadensis</i>	G5	S5	-	-	-
Deer mouse	<i>Peromyscus maniculatus</i>	G5	S5	-	-	-
Eastern chipmunk	<i>Tamias striatus</i>	G5	S5	-	-	-
Eastern gray squirrel	<i>Sciurus carolinensis</i>	G5	S5	-	-	-
House mouse	<i>Mus musculus</i>	G5	SNA	-	-	-
Meadow jumping mouse	<i>Zapus hudsonius</i>	G5	S5	-	-	-
Meadow vole	<i>Microtus pennsylvanicus</i>	G5	S5	-	-	-
Muskrat	<i>Ondatra zibethicus</i>	G5	S5	-	-	-
Norway rat	<i>Rattus norvegicus</i>	G5	SNA	-	-	-
Porcupine	<i>Erethizon dorsatum</i>	G5	S5	-	-	-
Red squirrel	<i>Tamiasciurus hudsonicus</i>	G5	S5	-	-	-
Southern flying squirrel	<i>Glaucomys volans</i>	G5	S4	-	-	-

Species		Conservation Rank <sup>2</sup>		At Risk Status		
Common Name	Scientific Name	Global GRANK	Ontario SRANK <sup>3</sup>	COSEWIC	SARA	SARO/ESA
White-footed mouse	<i>Peromyscus leucopus</i>	G5	S5	-	-	-
Woodchuck	<i>Marmota monax</i>	G5	S5	-	-	-
Woodland jumping mouse	<i>Napaeozapus insignis</i>	G5	S5	-	-	-
<b>Shrews and Moles</b>						
Northern short-tailed shrew	<i>Blarina brevicauda</i>	G5	S5	-	-	-
Star-nosed mole	<i>Condylura cristata</i>	G5	S5	-	-	-
<b>Ungulates</b>						
White-tailed deer	<i>Odocoileus virginianus</i>	G5	S5	-	-	-

<sup>1</sup> Based on Range Maps provided in Dobbyn, 1994.

<sup>2</sup> Accessed from NHIC, 2010

<sup>3</sup> Nature Conservancy Ranking (NHIC, 2010); 1 = Critically Imperiled, 2 = Imperiled, 3 = Vulnerable, 4 = Apparently Secure, 5 = Secure, E = Exotic, G = Global Level, H = Historical Occurrence, N = National Level, NAR = Not At Risk, S = Sub-national Rank (Ontario), SNA = Species Not Applicable (A conservation status rank is not applicable because the species is not a suitable target for conservation activities), R = Local Status not available, U = Unknown, X = Extinct, ? = Rank Uncertain.



## 2.5.2 **Great Lakes Conservation Blueprint for Terrestrial Biodiversity**

The *Great Lakes Conservation Blueprint for Terrestrial Biodiversity, Volume 2: Ecodistrict Summaries* (Henson and Brodribb, 2005), identifies several species of conservation concern and vegetation communities that are rare, or considered important, to conservation within the Madoc Ecodistrict 6E-9.

**Wildlife Habitat** – The following rare vegetation communities and species of conservation concern have been recorded within the Madoc Ecodistrict 6E-9.

- **Rare Vegetation Communities** – The vegetation community types that are identified as globally or provincially rare or rare within the planning area for the Project (i.e. Madoc Ecodistrict 6E-9) will be considered during the site investigation.
  - ♦ **Global, Provincial and Regionally Rare Vegetation Communities**
    - Common Juniper – Fragrant Sumac – Hairy Beardtongue Alvar Shrubland – Globally and provincially rare based on conservation ranks of G2?, S2
    - Dry – fresh White Pine Coniferous Forest Type – Globally rare based on a conservation rank of G3G4
    - Dry Bur Oak – Shagbark Hickory Tallgrass Woodland Type – Globally and provincially rare based on conservation ranks of G?, S1
    - Moist – Fresh Sugar Maple – Black Maple Deciduous Forest Type – Globally and provincially rare based on conservation ranks of G?, S3?
    - Philadelphia Panic Grass – False Pennyroyal Alvar Pavement Type – Globally and provincially rare based on conservation ranks of G1Q, S1
    - Red Cedar – Early Buttercup Treed Alvar Grassland Type – Globally and provincially rare based on conservation ranks of G2?, S2
    - Tufted Hairgrass – Canada Bluegrass – Philadelphia Panic Grass Alvar Grassland Type – Globally and provincially rare based on conservation ranks of G2G3, S2S3
    - White Cedar – Jack Pine – Shrubby Cinquefoil Treed Alvar Pavement – Globally and provincially rare based on conservation ranks of G1G2, S1
    - White Cedar – White Spruce – Philadelphia Panic Grass Treed Alvar Grassland Type – Globally and provincially rare based on conservation ranks of G3?, S3
    - Winterberry Organic Thicket Swamp Type – Globally and provincially rare based on conservation ranks of G3G4Q, S3S4
  - ♦ **Other Designations** – There are eight vegetation communities within Madoc Ecodistrict 6E-9 that are not rare, but considered high-quality and important to conservation (Henson and Brodribb, 2005). These include:
    - Dry – Fresh Sugar Maple – Ironwood deciduous Forest Type (G?, S5)
    - Dry – Fresh Sugar Maple – Oak Deciduous Forest Type (G?, S5)

- Dry – Fresh White Pine – Sugar Maple Mixed Forest Type (G?, S5)
- Fresh-Sugar Maple – Beech Deciduous Forest Type (G5?, S5)
- Moist – Fresh White Cedar – Birch – Aspen Mixed Forest Type (G5Q, S5)
- Narrow-leaved Sedge Organic Shallow Marsh Type (G4?, S5)
- Slender Sedge Graminoid Fen Type (G4G5, S5)
- Tamarack Treed Fen Type (G4?, S5).

**Species of Conservation Concern** – Species of conservation concern have been identified in the *Great Lakes Conservation Blueprint for Terrestrial Biodiversity, Volume 2: Ecodistrict Summaries* (Henson and Brodribb, 2005). The following species of conservation concern will be considered during the site investigation:

- **Endangered and Threatened Species on the SARO list** – Species that are designated as Endangered or Threatened on the SARO list are protected under the provisions of the ESA 2007 and will be discussed in further detail in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.
- **National and Provincial Rare Species** – The species listed below fall into one or two of the following categories: 1) designated as Endangered or Threatened by COSEWIC, but are not protected in regulation under the ESA, 2) designated as Special Concern by COSEWIC and on the SARO list, or 3) have a provincial conservation status rank of S1 to S3:

#### Moss

- ♦ A moss (*Bryum gemmiparum*) G3G5, S1 – Provincially rare based on a conservation rank of S1

#### Plants

- ♦ Drooping bluegrass (*Poa languida*) G3G4Q, S3 – Provincially rare based on a conservation rank of S3
- ♦ Smooth woodsia (*Woodsia glabella*) G5, S3 – Provincially rare based on a conservation rank of S3

#### Birds

- ♦ Black Tern (*Chlidonias niger*) G4, S3B – Listed as Special Concern on the SARO list
- ♦ Louisiana Waterthrush (*Seiurus motacilla*) G5, S3B – Listed as Threatened by COSEWIC and Special Concern on the SARO list
- ♦ Red-headed Woodpecker (*Melanerpes erythrocephalus*) G5, S4B – Listed as Threatened by COSEWIC and Special Concern on the SARO list
- ♦ Yellow Rail (*Coturnicops noveboracensis*) G4, S4B – Listed as Special Concern by COSEWIC and on the SARO list

Lizards

- ♦ Five-lined skink (*Plestiodon fasciatus*) G5T4, S3 – Southern Shield Population – Listed as Special Concern by COSEWIC and on the SARO list
- **Global and Regionally Rare Species** – The moss (*Bryum gemmiparum*) (G3G5) and drooping bluegrass (*Poa languida*) (G3G4Q) are also consider globally rare based on a global rank of G3.

**2.5.3 Important Bird Areas of Canada**

Important Bird Areas (Bird Studies Canada, 2010) are discrete sites that support specific groups of birds: threatened birds, large groups of birds, and birds restricted by range or by habitat. According to the website review, the Project Location is within the Napanee Limestone Plain Important Bird Area (ON152) (Appendix C).

**2.5.4 Ontario Breeding Bird Atlas**

The *Ontario Breeding Bird Atlas* (OBBA) (Bird Studies Canada et al., 2006) provides a list of bird species that have been observed within 10 x 10 km<sup>2</sup> areas ( map squares) during the 1981 to 1985 and 2001 to 2005 surveys. Map square 18UQ60 of the OBBA overlaps the Project Location (Appendix A). Several species, including species of conservation concern, were identified within the 10 x 10 km<sup>2</sup> map squares as having the potential to occur on or within 120 m of the Project Location.

**Species of Conservation Concern** – The following species of conservation concern were recorded within 10 km<sup>2</sup> of the Project Location. These species will be considered during the site investigation.

- **Endangered and Threatened Species on the SARO list** – Species that are designated as Endangered or Threatened on the SARO list are protected under the provisions of the ESA 2007 and will be discussed in further detail in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.
- **National and Provincial Rare Species** – The species listed below fall into one or two of the following categories: 1) designated as Endangered or Threatened by COSEWIC, but are not protected in regulation under the ESA, 2) designated as Special Concern by COSEWIC and on the SARO list, or 3) have a provincial conservation status rank of S1 to S3:
  - ♦ Bald Eagle (*Haliaeetus leucocephalus*) G5, S2B – Listed as Not at Risk by COSEWIC and Special Concern on the SARO list
  - ♦ Black-crowned Night-Heron (*Nycticorax nycticorax*) G5, S3B, S3N – Provincially rare based on a conservation rank of S3B, S3N
  - ♦ Black Tern (*Chlidonias niger*) G4, S3B – Listed as Special Concern on the SARO list
  - ♦ Canada Warbler (*Wilsonia canadensis*) G5, S4B – Listed as Threatened by COSEWIC and Special Concern on the SARO list.
  - ♦ Caspian Tern (*Hydroprogne caspia*) G5, S3B – Provincially rare based on a conservation rank of S3B

- ♦ Common Nighthawk (*Chordeiles minor*) G5, S4B – Listed as Threatened by COSEWIC and Special Concern on the SARO list
- ♦ Forster's Tern (*Sterna forsteri*) G5, S3B – Provincially rare based on a conservation rank of S3B
- ♦ Golden-winged Warbler (*Vermivora chrysoptera*) G4, S4B – Listed as Threatened by COSEWIC and Special Concern on the SARO list
- ♦ Great Black-backed Gull (*Larus marinus*) G5, S2B – Provincially rare based on a conservation rank of S2B
- ♦ Louisiana Waterthrush (*Seiurus motacilla*) G5, S3B – Listed as Threatened by COSEWIC and Special Concern on the SARO list
- ♦ Olive-sided Flycatcher (*Contopus cooperi*) G4, S4B – Listed as Threatened by COSEWIC and Special Concern on the SARO list
- ♦ Prairie Warbler (*Dendroica discolor*) G5, S3B – Provincially rare based on a conservation rank of S3B
- ♦ Redhead (*Aythya americana*) G5, S2B, S4N – Provincially rare based on a conservation rank of S2B, S4N
- ♦ Red-headed Woodpecker (*Melanerpes erythrocephalus*) G5, S4B – Listed as Threatened by COSEWIC and Special Concern on the SARO list
- ♦ Short-eared Owl (*Asio flammeus*) G5, S2N, S4B – Listed as Special Concern by COSEWIC and on the SARO list
- ♦ Wilson's Phalarope (*Phalaropus tricolor*) G5, S3B – Provincially rare based on a conservation rank of S3B
- ♦ Yellow-breasted Chat (*Icteria virens*) G5, S2B – Listed as Special by COSEWIC and on the SARO list
- **Global and Regionally Rare Species** – The OBBA (Bird Studies Canada et al., 2006) does not identify any globally (G1 to G3) or regionally rare species whose ranges overlap with the Project Location.

### 2.5.5 Ontario Landbird Conservation Plan

The *Ontario Landbird Conservation Plan: Lower Great Lakes / St. Lawrence Plain, North American Bird Conservation Region* (Ontario Partners in Flight, 2008) provides a list of priority species and conservation objectives. This list also identifies species that are of regional concern.

Within Map Square 18UQ60 which overlaps the Project Location, several landbird species are of regional concern and have conservation objectives (Bird Studies Canada et al., 2006). These species will be considered during the site investigation.

- **Endangered and Threatened Species on the SARO list** – Species that are designated as Endangered or Threatened on the SARO list are protected under the provisions of the ESA 2007

and will be discussed in further detail in the *Approval and Permitting Requirements Document for Renewable Energy Projects*.

- **National and Provincial Rare Species** – The species listed below fall into one or two of the following categories: 1) designated as Endangered or Threatened by COSEWIC, but are not protected in regulation under the ESA, 2) designated as Special Concern by COSEWIC and on the SARO list, or 3) have a provincial conservation status rank of S1 to S3:
  - ♦ Bald Eagle (*Haliaeetus leucocephalus*) G5, S2B – Listed as Special Concern on the SARO list. The Bald Eagle has a conservation objectives of “Recovery”, according to the Ontario Partners in Flight (2008).
  - ♦ Canada Warbler (*Wilsonia canadensis*) G5, S4B – Listed as Threatened by COSEWIC and Special Concern on the SARO list. The Canada Warbler is also considered regionally rare and has a conservation objective of “Reverse Decline”, according to the Ontario Partners in Flight (2008).
  - ♦ Golden-winged Warbler (*Vermivora chrysoptera*) G4, S4B – Listed as Threatened by COSEWIC and Special Concern on the SARO list. The Golden-winged Warbler is also considered regionally rare and has a conservation objective of “Maintain Current”, according to the Ontario Partners in Flight (2008).
  - ♦ Louisiana Waterthrush (*Seiurus motacilla*) G5, S3B – Listed as Special Concern by COSEWIC and on the SARO list. The Louisiana Waterthrush has a conservation objective of “Assess Status”, according to the Ontario Partners in Flight (2008).
  - ♦ Prairie Warbler (*Dendroica discolor*) G5, S3B – Provincially rare based on a conservation rank of S3B. The Prairie Warbler has a conservation objective of “Assess Status”, according to the Ontario Partners in Flight (2008).
  - ♦ Red-headed Woodpecker (*Melanerpes erythrocephalus*) G5, S4B – Listed as Threatened by COSEWIC and Special Concern on the SARO list. The Red-headed Woodpecker is also considered regionally rare and has a conservation objective of “Reverse Decline”, according to the Ontario Partners in Flight (2008).
  - ♦ Short-eared Owl (*Asio flammeus*) G5, S2N. S4B – Listed as Special Concern by COSEWIC and on the SARO list. The Short-eared owl is also considered regionally rare and has a conservation objective of “Assess Status”, according to the Ontario Partners in Flight (2008).
  - ♦ Yellow-breasted Chat (*Icteria virens*) G5, S2B – Listed as Special by COSEWIC and on the SARO list. The Yellow breasted Chat has a conservation objective of “Assess Status”, according to the Ontario Partners in Flight (2008).
- **Global and Regionally Rare Species** – The *Ontario Landbird Conservation Plan: Lower Great Lakes / St. Lawrence Plain, North American Bird Conservation Region* (Ontario Partners in Flight, 2008) does not identify any globally (G1 to G3) rare species but identifies the following species as regionally rare:
  - ♦ American Kestrel (*Falco sparverius*) G5, S4 – Regionally rare and has a conservation objectives of “Halt Decline”.

- ♦ Baltimore Oriole (*Icterus galbula*) G5, S4B – Regionally rare and has a conservation objective of “Reverse Decline”.
- ♦ Belted Kingfisher (*Ceryle alcyon*) G5, S4B – Regionally rare and has a conservation objective of “Reverse Decline”.
- ♦ Black-billed Cuckoo (*Coccyzus erythrophthalmus*) – Regionally rare and has a conservation objective of “Halt Decline”.
- ♦ Brown Thrasher (*Toxostoma rufum*) G5, S4B – Regionally rare and has a conservation objective of “Halt Decline”.
- ♦ Eastern Kingbird (*Tyrannus tyrannus*) G5, S4B – Regionally rare and has a conservation objective of “Halt Decline”.
- ♦ Eastern Meadowlark (*Sturnella magna*) G5, S4B – Regionally rare and has a conservation objective of “Halt Decline”.
- ♦ Eastern Towhee (*Pipilo erythrophthalmus*) – Regionally rare and has a conservation objective of “Halt Decline”.
- ♦ Eastern Wood-pewee (*Contopus virens*) G5, S4B – Regionally rare and has a conservation objective of “Reverse Decline”.
- ♦ Field Sparrow (*Spizella pusilla*) G5, S4B – Regionally rare and has a conservation objective of “Halt Decline”.
- ♦ Northern Flicker (*Colaptes auratus*) G5, S4B – Regionally rare and has a conservation objective of “Reverse Decline”.
- ♦ Northern Harrier (*Circus cyaneus*) G5, S4B – Regionally rare and has a conservation objective of “Maintain Current”.
- ♦ Savannah Sparrow (*Passerculus sandwichensis*) G5, S4B – Regionally rare and has a conservation objective of “Halt Decline”.
- ♦ Wood Thrush (*Hylocichla mustelina*) G5, S4B – Regionally rare and has a conservation objective of “Maintain Current”.
- **Conservation Priority Species** – Some species are not Globally, Nationally, Provincially or Regionally Rare but have been assigned a conservation objective and are identified as a priority species by the *Ontario Partners in Flight* (2008):
  - ♦ Grasshopper Sparrow (*Ammodramus savannarum*) G5, S4B – The Grasshopper Sparrow has a conservation objective of “Halt Decline”.
  - ♦ Vesper Sparrow (*Pooecetes gramineus*) G5, S4B – Has a conservation objective of “Halt Decline”.
  - ♦ Rose-breasted Grosbeak (*Pheucticus ludovicianus*) – Has a conservation objective of “Maintain Current”.



### 3. Summary of Records Review

The results and determinations made during this records review are summarized in the following sections (Section 3.1 and 3.2). The natural features identified on and within 120 m of the Project Location are shown on Figure 1.1 and will be confirmed during the site investigation.

#### 3.1 Natural Features

The presence and/or absence of natural features on and within 120 m of the Project Location are summarized below and have been determined based on records obtained from the information sources identified in this report.

- **ANSI** – There are no earth science or life science ANSI's on or within 120 m of the Project Location. The Odessa East Alvar is the closest ANSI. This life Science ANSI is located 860 m northeast of the Project Location.
- **Valleylands** – According to the CRCA, there are no valleylands on or within 120 m of the Project Location. The closest valleyland is located approximately 1.5 km south of the Project Location. The absence of valleylands will be confirmed during the site investigation.
- **Wetlands** – There are no wetlands on or within 120 m of the Project Location. The nearest wetland is Bayview Bog Provincially Significant Wetland located approximately 1.5 km south of the Project Location. There is also an unevaluated wetland located 1.6 km west of the Project Location. The absence of wetlands on and within 120 m of the Project Location will be confirmed during the site investigation.
- **Wildlife Habitat** – The *Significant Wildlife Technical Guide* (MNR, 2000) identifies four main types of significant wildlife habitat: habitats of seasonal concentrations of animals, rare vegetation communities or specialized habitats for wildlife, habitats of species of conservation concern and animal movement corridors.
  - ♦ **Habitats of Seasonal Concentrations of Animals** – There is no confirmed habitat of seasonal concentration of animals on or within 120 m of the Project Location. However, this does not preclude them from occurring on and within 120 m of the Project Location and they will be considered during the site investigation.
  - ♦ **Rare Vegetation Communities or Specialized Habitats for Wildlife** – The following rare vegetation communities have been recorded within the Madoc Ecodistrict 6E-9 and could potentially occur on or within 120 m of the Project Location:
    - Common Juniper – Fragrant Sumac – Hairy Beardtongue Alvar Shrubland – Globally and provincially rare based on conservation ranks of G2?, S2
    - Dry – fresh White Pine Coniferous Forest Type – Globally rare based on a conservation rank of G3G4
    - Dry Bur Oak – Shagbark Hickory Tallgrass Woodland Type – Globally and provincially rare based on conservation ranks of G?, S1

- Moist – Fresh Sugar Maple – Black Maple Deciduous Forest Type – Globally and provincially rare based on conservation ranks of G?, S3?
- Philadelphia Panic Grass – False Pennyroyal Alvar Pavement Type – Globally and provincially rare based on conservation ranks of G1Q, S1
- Red Cedar – Early Buttercup Treed Alvar Grassland Type – Globally and provincially rare based on conservation ranks of G2?, S2
- Tufted Hairgrass – Canada Bluegrass – Philadelphia Panic Grass Alvar Grassland Type – Globally and provincially rare based on conservation ranks of G2G3, S2S3
- White Cedar – Jack Pine – Shrubby Cinquefoil Treed Alvar Pavement – Globally and provincially rare based on conservation ranks of G1G2, S1
- White Cedar – White Spruce – Philadelphia Panic Grass Treed Alvar Grassland Type – Globally and provincially rare based on conservation ranks of G3?, S3
- Winterberry Organic Thicket Swamp Type – Globally and provincially rare based on conservation ranks of G3G4Q, S3S4

The rare vegetation communities recorded within the Madoc Ecodistrict 6E-9 will be considered during the site investigation. There are no confirmed specialized habitats for wildlife on or within 120 m of the Project Location. However, this does not preclude them from occurring on or within 120 m of the Project Location and, therefore, they will be considered during the site investigation.

- ♦ **Habitat of Species of Conservation Concern** – The information sources reviewed in this report identified several species of conservation concern (excluding species that are designated as Endangered or Threatened on the SARO list) whose distribution ranges overlap with the Project Location. A list of these species including habitat preferences is provided in the following table (Table 3.1) and will be considered during the site investigation.
- ♦ **Animal Movement Corridors** – The *Loyalist Township Official Plan* (2010) as well as the CCRNHS (CRCA, 2006) identified a linkage corridor of contributing and intermediate core habitat value on and within 120 m of the Project Location. The characteristic of this linkage corridor will be determined during the site investigation.
- **Woodlands** – There are significant woodlands, according to the CRCA, located on and within 120 m of the Project Location. The presence, characteristics and functions of these woodlands will be assessed during the site investigation.

**Table 3.1 Summary of Species of Conservation Concern with Ranges that Overlap the Kingston Gardiner Hwy 2 South Solar Energy Project Location**

Species of Conservation Concern	Habitat Guild				
	Woodland	Grassland	Shrub / Successional	Wetland	Other
<b>Plants</b>					
A Moss ( <i>Bryum gemmiparum</i> )					✓
A Moss ( <i>Grimmia olneyi</i> )					✓
Drooping Bluegrass ( <i>Poa languida</i> )		✓			
Smooth Woodsia ( <i>Woodsia glabella</i> )					✓
<b>Amphibians</b>					
Jefferson x Blue-spotted Salamander ( <i>Ambystoma jeffersonianum</i> x <i>laterale</i> "complex") (Jefferson dominated genome polyploid)	✓			✓	
Western Chorus Frog ( <i>Pseudacris triseriata</i> ) Great Lakes / St. Lawrence Canadian Shield Population				✓	
<b>Reptiles</b>					
Five-lined Skink ( <i>Plestiodon fasciatus</i> ) Southern Shield Population	✓				
Milksnake ( <i>Lampropeltis triangulum</i> )					✓
Northern Map Turtle ( <i>Graptemys geographica</i> )				✓	
Snapping Turtle ( <i>Chelydra serpentina</i> )				✓	

Species of Conservation Concern	Habitat Guild				
	Woodland	Grassland	Shrub / Successional	Wetland	Other
Birds					
American Bittern ( <i>Botaurus lentiginosus</i> ) §				✓	
American Kestrel ( <i>Falco sparverius</i> )		✓			
American Woodcock ( <i>Scolopax minor</i> )			✓		
Bald Eagle ( <i>Haliaeetus leucocephalus</i> ) §				✓	
Baltimore Oriole ( <i>Icterus galbula</i> )	✓				
Belted Kingfisher ( <i>Ceryle alcyon</i> )				✓	
Black-billed Cuckoo ( <i>Coccyzus erythrophthalmus</i> )			✓		
Black-crowned Night Heron ( <i>Nycticorax nycticorax</i> )				✓	
Black Tern ( <i>Chlidonias niger</i> ) §				✓	
Brown Thrasher ( <i>Toxostoma rufum</i> )			✓		
Canada Warbler § ( <i>Wilsonia canadensis</i> )	✓				
Caspian Tern ( <i>Hydroprogne caspia</i> )					✓
Common Loon ( <i>Gavia immer</i> ) §				✓	
Common Moorhen ( <i>Gallinula chloropus</i> )				✓	
Common Tern ( <i>Sterna hirundo</i> )				✓	
Common Nighthawk ( <i>Chordeiles minor</i> )	✓				
Eastern Kingbird ( <i>Tyrannus tyrannus</i> )		✓			
Eastern Meadowlark ( <i>Sturnella magna</i> ) §		✓			
Eastern Towhee ( <i>Pipilo erythrophthalmus</i> )			✓		
Eastern Wood-pewee ( <i>Contopus virens</i> )	✓				
Field Sparrow ( <i>Spizella pusilla</i> )			✓		
Forster's Tern ( <i>Sterna forsteri</i> )				✓	
Green Heron ( <i>Butorides virescens</i> )				✓	
Golden-winged Warbler ( <i>Vermivora chrysoptera</i> )			✓		
Grasshopper Sparrow ( <i>Ammodramus savannarum</i> ) §		✓			
Great Black-backed Gull ( <i>Larus marinus</i> )					✓
Herring Gull ( <i>Larus argentatus</i> )					✓

Species of Conservation Concern	Habitat Guild				
	Woodland	Grassland	Shrub / Successional	Wetland	Other
Killdeer ( <i>Charadrius vociferus</i> )		✓			
Louisiana Waterthrush (( <i>Seiurus motacilla</i> ) §	✓				
Northern Flicker ( <i>Colaptes auratus</i> )	✓				
Northern Harrier ( <i>Circus cyaneus</i> ) §		✓			
Olive-sided Flycatcher ( <i>Contopus cooperi</i> )	✓				
Prairie Warbler ( <i>Dendroica discolor</i> )			✓		
Redhead ( <i>Aythya americana</i> ) §				✓	
Red-headed Woodpecker ( <i>Melanerpes erythrocephalus</i> )	✓				
Rose-breasted Grosbeak ( <i>Pheucticus ludovicianus</i> )	✓				
Savannah Sparrow ( <i>Passerculus sandwichensis</i> ) §		✓			
Short-eared Owl ( <i>Asio flammeus</i> ) §		✓			
Spotted Sandpiper ( <i>Actitis macularius</i> )					✓
Upland Sandpiper ( <i>Bartramia longicauda</i> ) §		✓			
Vesper Sparrow ( <i>Pooecetes gramineus</i> )		✓			
Wilson's Phalarope ( <i>Phalaropus tricolor</i> )				✓	
Wilson's Snipe ( <i>Callinago delicata</i> )				✓	
Wood Thrush ( <i>Hylocichla mustelina</i> )	✓				
Yellow-breasted Chat ( <i>Icteria virens</i> )			✓		
Yellow Rail ( <i>Coturnicops noveboracensis</i> )				✓	
Mammals					
Northern Long-eared Bat ( <i>Myotis septentrionalis</i> )	✓				
NOTE: § Area-sensitive species for Ecoregion 6E-9 (MNR, 2000) and/or within BCR-13 (Ontario Partners in Flight, 2008).					

### 3.2 Other Features

- **Provincial Parks and Conservation Reserves** – There are no provincial parks or conservation reserves on or within 120 m of the Project Location.
- **Important Bird Area** – The Project Location is located within the Napanee Limestone Plain Important Bird Area (Appendix C).

### 3.3 Records Review Determinations

In accordance with subsection 25 (3) of the REA Regulation, the following table (Table 3.2) provides a summary of the determinations made with respect to the presence/absence of a provincial park, conservation reserve and/or natural feature on and within 120 m of the Project Location. The natural features identified within 120 m of the Project Location are shown on Figure 1.1 and will be verified during the site investigation.

**Table 3.2 Summary of Records Review Determinations for the Kingston Gardiner Hwy 2 South Solar Energy Project**

Determination to be Made	Yes/No	Description
Is the Project Location in or within 120 m of a provincial park or conservation reserve?	No	There are no provincial parks or conservation reserves within 120 m of the Project Location.
Is the Project Location in a natural feature?	Yes	There are significant woodlands according to the CRCA located on the Project Location.  There are potential candidate significant wildlife habitats on the Project Location.
Is the Project Location within 50 m of an ANSI (earth science)?	No	The nearest earth science ANSI is located several kilometres from the Project Location.
Is the Project Location within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	There are significant woodlands according to the CRCA located within 120 m of the Project Location.  There are potential candidate significant wildlife habitats within 120 m of the Project Location.



## 4. Next Steps

A site investigation, as required in Section 26 of the REA Regulation will be completed to:

- i. confirm the features identified during this records review
- ii. identify if any corrections to the information presented herein are required
- iii. determine whether any additional natural features exist on or adjacent to the Project Location
- iv. confirm the boundaries of the natural features within 120 m of the Project Location, and
- v. determine the distance from the Project to the natural feature boundary.

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# Appendix A

## Ontario Breeding Bird Atlas Data



## Square Summary (18UQ60)

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done		
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd	
5	40	67	112	38	32	49	119	37	63	32	7	

## Region summary (#21: Kingston)

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
75	75	75	194	193	2753	1875

**Target number of point counts in this square:** 20 road side, 5 off road (3 in deciduous forest, 2 in mixed forest). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat.

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Canada Goose	FY	FY	52	97	Pied-billed Grebe	T	S	61	78	Spotted Sandpiper	DD	P	90	78
Mute Swan ‡			0	8	Double-crest Cormorant §			14	21	Upland Sandpiper	FY	T	73	58
Trumpeter Swan †			0	9	American Bittern	T	P	92	88	Common Snipe	DD	A	98	98
Tundra Swan †			0	0	Least Bittern †	T	S	46	37	American Woodcock	DD	FY	97	81
Wood Duck	P	P	92	94	Great Blue Heron §	NE	H	97	89	Wilson's Phalarope †			6	4
Gadwall		P	24	21	Green Heron §	FY	P	97	86	Ring-billed Gull §			17	18
American Wigeon			16	14	Black-crown N.-Heron † §		X	13	4	Herring Gull §			26	32
American Black Duck	P	H	81	29	Turkey Vulture	H	H	84	94	Great Black-backed Gull †			2	5
Mallard	FY	FY	100	98	Osprey		H	52	77	Caspian Tern †			10	5
Blue-winged Teal	FY	H	98	66	Bald Eagle †			5	12	Black Tern † §	NE	P	54	45
<u>Northern Shoveler</u>	P		18	16	Northern Harrier	P	P	89	76	Common Tern §			18	17
Northern Pintail	P	H	24	17	Sharp-shinned Hawk		H	52	58	Forster's Tern † §			0	2
Green-winged Teal		P	0	37	Cooper's Hawk	H	H	29	49	Mourning Dove	NE	P	100	98
Canvasback †			0	0	Northern Goshawk			18	18	Budgerigar ‡			0	0
Redhead †			8	1	<u>Red-should Hawk</u> †			42	54	Yellow-billed Cuckoo	P	D	62	49
Ring-necked Duck	P	H	22	30	Broad-winged Hawk			50	49	Black/Yell-billed Cuckoo			0	41
Lesser Scaup ‡			2	1	Red-tailed Hawk	NE	H	100	93	Black-billed Cuckoo	CF	T	98	89
Common Goldeneye ‡			0	1	American Kestrel	CF	AE	98	84	Barn Owl †			1	0
<u>Hooded Merganser</u>			40	62	Merlin			2	34	Eastern Screech-Owl	T	P	74	76
Common Merganser			18	33	Peregrine Falcon †			1	0	Great Horned Owl	T	FY	96	76
Red-breast Merganser			12	8	King Rail †			1	2	<u>Barred Owl</u>	H		40	65
Ruddy Duck †			1	5	Virginia Rail	DD	P	86	89	<u>Long-eared Owl</u>	T		41	16
Gray Partridge			20	1	Sora	DD	P	81	76	Short-eared Owl †			22	8
Ring-necked Pheasant		H	34	28	Common Moorhen	FY	P	80	56	<u>North Saw-whet Owl</u>	T		61	10
Ruffed Grouse	DD	FY	92	88	<u>American Coot</u>	P		26	12	Common Nighthawk	P	NY	86	54
Sharp-tailed Grouse †			0	1	Coot/Moorhen			0	8	Chuck-will's-widow †			1	0
Wild Turkey		FY	4	80	Sandhill Crane ‡		P	0	4	Whip-poor-will	T	T	89	69
Northern Bobwhite †			1	0	Killdeer	FY	H	98	97	Chimney Swift	P	S	76	50
Common Loon	P	D	84	85	Rock Dove	FY	V	96	93	Ruby-thr Hummingbird	P	P	92	96

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## Ontario Breeding Bird Atlas - Summary Sheet for Square 18UQ60 (page 2 of 3)

SPECIES	Code		%	
	1st	2nd	1st	2nd
Belted Kingfisher	FY	NU	97	97
Red-headed Woodpecker †	FY		54	8
Red-bell Woodpecker ‡			0	20
Yellow-bellied Sapsucker			68	72
Downy Woodpecker	FY	P	96	98
Hairy Woodpecker	CF	FY	97	98
Three-toed Woodpecker ‡			1	0
Black-backed Woodpecker ‡			1	0
Northern Flicker	AE	S	100	98
Pileated Woodpecker		H	86	93
Olive-sided Flycatcher ‡			2	4
Eastern Wood-Pewee	FY	CF	98	98
Yellow-bellied Flycatcher			8	4
Alder Flycatcher	P	P	74	88
Willow Flycatcher	T	CF	73	80
Least Flycatcher	P	CF	97	97
Eastern Phoebe	NE	FY	98	98
Gr Crested Flycatcher	P	S	98	98
Eastern Kingbird	FY	P	100	98
Loggerhead Shrike †	NE	NY	34	18
Yellow-throated Vireo			64	61
Blue-headed Vireo			5	28
Warbling Vireo	FY	CF	98	98
Philadelphia Vireo			9	9
Red-eyed Vireo	FY	FY	98	98
Blue Jay	CF	CF	97	98
American Crow	FY	H	98	98
Common Raven		AE	22	77
Horned Lark	FY	H	85	65

SPECIES	Code		%	
	1st	2nd	1st	2nd
Purple Martin	NE	H	84	73
Tree Swallow	AE	AE	100	98
North Rgh-wing Swallow	P		92	78
Bank Swallow §	NE	AE	88	68
Cliff Swallow §	NE	H	62	60
Barn Swallow	AE	AE	100	98
Black-capped Chickadee	FY	P	98	98
Tufted Titmouse †			0	2
Red-breast Nuthatch	P	S	58	74
White-breast Nuthatch	FY		97	97
Brown Creeper			61	58
Carolina Wren ‡			2	10
House Wren	FY	AE	98	97
Winter Wren			42	57
Sedge Wren			34	24
Marsh Wren	P	NU	74	81
Golden-crown Kinglet			5	14
Ruby-crown Kinglet ‡			1	0
Blue-gr Gnatcatcher			22	21
Eastern Bluebird	FY	FY	62	85
Veery		FY	93	94
Swainson's Thrush			5	4
Hermit Thrush			36	53
Wood Thrush	T	FY	97	98
American Robin	NE	NE	100	98
Gray Catbird	CF	S	98	98
Northern Mockingbird		H	22	29
Brown Thrasher	CF	P	100	94
European Starling	AE	CF	100	98

SPECIES	Code		%	
	1st	2nd	1st	2nd
Cedar Waxwing	P	NY	98	98
Blue-winged Warbler			9	18
Golden-winged Warbler			46	60
Blue/Gold-wing Warbler			0	29
Lawrence's Warbler †			1	1
Brewster's Warbler †			1	9
Tennessee Warbler			4	2
Nashville Warbler	T	CF	77	82
Northern Parula ‡			1	8
Yellow Warbler	FY	P	100	98
Chestn-sided Warbler		S	80	96
Magnolia Warbler			24	60
Black-thr Blue Warbler			20	44
Yellow-rumped Warbler		S	53	85
Black-thr Green Warbler		H	48	76
Blackburnian Warbler		S	46	54
Pine Warbler			58	80
Prairie Warbler †			12	10
Cerulean Warbler †			25	26
Black-white Warbler	CF	CF	86	89
American Redstart	P	CF	96	98
Ovenbird	T	CF	90	94
North Waterthrush	P	FY	82	88
Louis Waterthrush †			6	6
Mourning Warbler		S	25	25
Common Yellowthroat	DD	A	98	98
Hooded Warbler †			0	0
Wilson's Warbler ‡			1	0
Canada Warbler	H		36	21

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## Ontario Breeding Bird Atlas - Summary Sheet for Square 18UQ60 (page 3 of 3)

SPECIES	Code		%	
	1st	2nd	1st	2nd
Yellow-breast Chat †			4	0
Eastern Towhee	FY	FY	97	90
Chipping Sparrow	FY	CF	100	98
Clay-colored Sparrow	T	NE	9	33
Field Sparrow	FY	CF	96	94
Vesper Sparrow	FY	S	93	74
Savannah Sparrow	FY	S	98	97
Grasshopper Sparrow	S	FY	50	58
Henslow's Sparrow †			17	1
Song Sparrow	DD	AE	100	98
Lincoln's Sparrow			5	4
Swamp Sparrow	CF	A	97	97
White-throat Sparrow	DD	S	92	85
Dark-eyed Junco			12	16
Scarlet Tanager	P	S	90	92
Northern Cardinal	T	FY	61	88
Rose-breast Grosbeak	P	S	98	98
Indigo Bunting	DD	S	97	94
Bobolink	FY	S	98	96
Red-wing Blackbird	FY	NE	100	98
Eastern Meadowlark	CF	FY	97	94
Common Grackle	FY	CF	100	98
Brown-head Cowbird	FY	P	100	97
Orchard Oriole ‡		NY	1	12
Baltimore Oriole	FY	NU	100	98
Pine Grosbeak ‡			0	0
Purple Finch	P	NY	68	84
House Finch		S	22	72
Red Crossbill			18	4

SPECIES	Code		%	
	1st	2nd	1st	2nd
White-winged Crossbill			5	2
Pine Siskin	A		54	14
American Goldfinch	FY	P	100	98
Evening Grosbeak			17	10
House Sparrow	CF	AE	98	92

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #21 (Kingston). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 18UQ60 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #21). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 26/08/2010. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=18UQ60>

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## **Appendix B**

# **Cataraqui Region Conservation Authority Information**



**CATARAQUI REGION CONSERVATION AUTHORITY**

1641 Perth Road, P.O. Box 160 Glenburnie, Ontario K0H 1S0

Phone: (613) 546-4228 Fax: (613) 547-6474

E-mail: [crca@cataraquiregion.on.ca](mailto:crca@cataraquiregion.on.ca) Website: [www.cataraquiregion.on.ca](http://www.cataraquiregion.on.ca)

August 23, 2010

Files: GC-LOY  
OPS 3-7-3-19

**Sent by Mail and Email (PHolmes@hatch.ca)**

Paul D. Holmes, P. Eng.  
Environmental Coordinator  
Hatch Ltd.  
1235 North Service Road West  
Oakville, Ontario, L6M 2W2

Dear Mr. Holmes:

**Re: Property Inquiry (Proposed Solar Power Project)  
Kingston Gardiner Highway 2 South  
Part of Lot 40, Concession 3  
Loyalist Township**

Cataraqui Region Conservation Authority (CRCA) staff are writing regarding your request for information for the above-noted site located south of Highway 2 in Loyalist Township and for the area within 1 km of the site. The site was not visited.

The site is bound by Highway 2 to the north and an unopened road allowance to the south. The site encompasses approximately 36 hectares. Aerial photography of the area indicates that the site is vacant. An unnamed watercourse crosses the northwestern corner of the site. The watercourse flows to the southwest. Significant woodlands identified in the Central Cataraqui Region Natural Heritage Study (CCRNHS) (CRCA, 2006) cover a major portion of the property (see attached map).

The subject lands are currently designated and zoned 'Rural' in the Loyalist Township Official Plan the Zoning By-law. The land adjacent to the watercourse is designated 'Environmental Protection' in the Official Plan. The significant woodlands have an 'Environmentally Sensitive' overlay in the Official Plan.

**Discussion**

The CRCA, in accordance with Section 2.2 of the Provincial Policy Statement and under Ontario Regulation 148/06: *Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses*, regulates alteration to and development near or across a watercourse. The purpose of Ontario Regulation 148/06 is to ensure that proposed changes (e.g. development and site alteration) to a property are not affected by natural hazards, such as flooding and erosion, and that the changes do not put other properties at greater risk from these hazards. By virtue of

Member of



this regulation, the CRCA regulates all development and site alteration activities (including filling) within 15 metres of a flood plain or erosion hazard, within 120 metres of Provincially Significant Wetland (PSW) boundaries and 30 metres of all other wetlands. Within a regulated area, written permission must be obtained from the CRCA prior to development taking place.

Mapping protocols that are used under the regulation indicate that the regulated area extends to a distance of 30 metres from the top of bank on both sides of watercourse. These regulated areas are shown as the shaded areas on the attached map.

### **Unnamed Watercourse**

The CRCA does not have engineered 1:100 year floodplain mapping for the watercourse. The CRCA requires that future development be located a minimum distance of 30 m from the average high water mark or top of bank of a waterbody when the elevation of the regulatory floodplain is unknown. Similarly, Section 5.4.6 (d) of the Loyalist Township Official Plan and Section 4.11 (c) of the Zoning By-law require new buildings or structures to be set back 30 m from the high water mark where a floodplain has not been defined.

### **Water Quality**

Section 5.4.6 (g) of the Official Plan of Loyalist Township indicates that a natural vegetative buffer strip of 15 m should be maintained adjacent to the edge of a watercourse to filter pollutants. The Official Plan does not permit clear cutting of trees within this buffer area. The CRCA Planning Policy also requires a minimum 30 m setback from the annual high water line of a waterbody for development adjacent to all waterbodies in order to preserve their hydrological and biological functions.

### **Significant Woodlands**

The Central Cataraqui Region Natural Heritage Study (CCRNHS) (CRCA, 2006) identifies areas of 'Significant Woodlands' present on the subject property. The wooded area was identified as significant based on its area.

Policy 2.1.4 of the Provincial Policy Statement (2005) does not permit development and site alteration in significant woodlands unless negative impacts can be mitigated. Policy 5.4.7.1 (f) of the Official Plan for Loyalist Township requires that "development be carried out in a manner that encourages the protection and management of woodlands," and that development applications affecting significant woodlands be "accompanied by a strategy maximizing the woodland areas to be protected." The CRCA requests that every effort be taken to protect the Significant Woodlands. The CRCA recommends that an environmental impact assessment and a tree preservation plan be prepared should development be proposed in Significant Woodlands.

### **Area within 1 km of the Site**

The attached map shows the regulated areas within 1 km of the subject site. These include the areas within 30 m of ponds located north of Highway 2.



An area of natural and scientific interest (ANSI) is located north of Highway 2, northeast of the subject site. The CRCA Planning Policy discourages new development and site alteration inside the boundary of an ANSI and an adjacent buffer of 50 m. The subject site is located more than 500 m from the ANSI.

### **Endangered and Threatened Species**

Mapping provided to the CRCA by the Ministry of Natural Resources (MNR) suggests that the area north Highway 2 is likely to support one or more species listed on the MNR's Species at Risk in Ontario (SARO) List. These species are protected under Ontario Regulation 242-08 made pursuant to the Endangered Species Act (2007). Staff recommend that the applicant contact the Ministry of Natural Resources to determine the need for a permit and for more information about species protection and recovery. A preliminary ecological site assessment may be required. Please contact the Species at Risk Biologist at (613) 258-8204 at MNR's Kemptville district office.

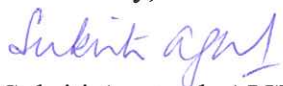
### **Summary**

The property is subject to Ontario Regulation 148/06: *Development, Interference with Wetlands, and Alterations to Shoreline and Watercourses*. Permits will be required for any proposed development and site alterations within 30 m of the average high water mark or top of bank of the watercourse on the subject property and for any in-water works. CRCA staff will review the application in light of Ontario Regulation 148/06 and CRCA policies before deciding to issue or refuse the permit. It is recommended that CRCA staff review any development or site alteration planned within 50 metres on either side of an identified watercourse. Permits will also be required for any proposed development and site alteration adjacent to any unmapped waterbodies/wetlands found at the time of a site inspection when a formal application is made.

We trust that the above has addressed your inquiry. Please note that these comments reflect our understanding, at the time of writing, of the best available data, applicable policies and regulations. Changes in one or more of these factors may influence our comments. You are therefore encouraged to contact the CRCA prior to making a formal application, particularly if more than twelve months have passed since the date of this correspondence. As noted previously, the site was not visited.

If you have any questions please contact the undersigned at (613) 546-4228 extension 258 or by e-mail at [sagarwal@cataraquieregion.on.ca](mailto:sagarwal@cataraquieregion.on.ca).

Yours truly,



Sukriti Agarwal, AICP  
Environmental Planner

cc: Murray Beckel, Director of Planning and Development Services, Loyalist Township, via email

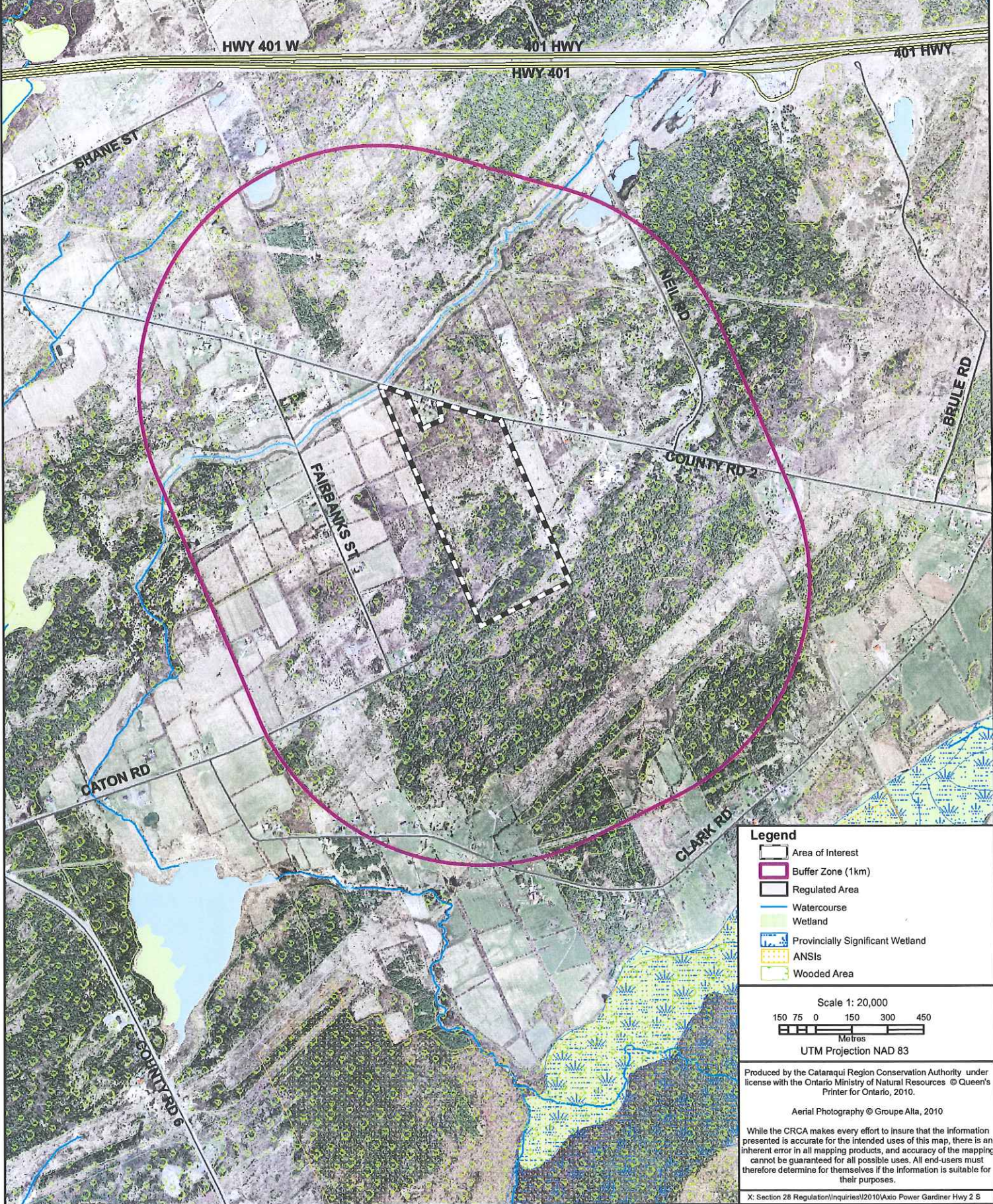
Attachment (s): Map showing regulated areas on the subject site and within 1 km of the site





CATARAQUI REGION  
CONSERVATION AUTHORITY

# Property Inquiry Axio Power - Gardiner Hwy 2 South Loyalist Township



- Legend**
- Area of Interest
  - Buffer Zone (1km)
  - Regulated Area
  - Watercourse
  - Wetland
  - Provincially Significant Wetland
  - ANSIs
  - Wooded Area

Scale 1: 20,000  
150 75 0 150 300 450  
Metres  
UTM Projection NAD 83

Produced by the Cataraqui Region Conservation Authority under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2010.

Aerial Photography © Groupe Alta, 2010

While the CRCA makes every effort to insure that the information presented is accurate for the intended uses of this map, there is an inherent error in all mapping products, and accuracy of the mapping cannot be guaranteed for all possible uses. All end-users must therefore determine for themselves if the information is suitable for their purposes.



# **Appendix C**

## **Napanee Limestone Bird Area**

Canadian Important Bird Area  
Napanee Limestone Plain (ON152)





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