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Records Review Natural Heritage Features
Proposed Groundmount Solar Facility LP7
9274 Union Drive
Strathroy, ON

Project Number
WSL-00002250-00

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1 Introduction

Exp Services Inc. (**exp**) was retained by Mr. Sam Qin of Future Solar Developments Inc. to conduct a records review of natural heritage features located on and or in the surrounding areas of the proposed ground-mounted solar facility set for plot LP 7 located at 9274 Union Dr, Strathroy-Caradoc, Ontario. For the purpose of this report the entire Site including the 120 metre buffer from the solar panel will be identified as "subject property", those areas including the panel and construction limits will be identified as "Site". The project involves the design and construction of one (1) 100 kW solar farm. It is understood final development plans outlining number of panels, anticipated loads, location within block, etc. have not been established.

The purpose of this investigation was to identify natural heritage features located in close proximity of the proposed solar farm and to resolve any potential effect(s) that the construction activities will have on the natural environment.

1.1 Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, made under the *Environmental Protection Act* (herein referred to as the 'REA Regulation') identifies the Renewable Energy Approval (REA) requirements for green energy projects in Ontario. In accordance with Section 4 of the REA Regulation, ground mounted solar facilities with a name plate capacity greater than 12 kilowatts (kW) are classified as a Class 3 solar facility and therefore, require a REA.

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

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

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

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

Therefore, according to Subsection 3 of 25 the proponent (Future Solar Developments Inc.) shall prepare a report setting out a summary of the records searched and the results of the analysis conducted under subsection (1). O. Reg. 359/09, s. 25 (3).

1.2 Scope of Work

The following scope of work was undertaken as part of the records review for the Site and subject property. These records were sourced in order to identify whether the Site location was located within or adjacent to natural features listed in section 1.1 of this report. The following records were sourced as part of this review:

- Ontario Regulation 359/09 made under the Environmental Protection Act, 2009
- Provincial Policy Statement 2005
- Natural Heritage Information Centre (NHIC) Mapping and Databases
  - Various databases and mapping were used to identify species locations relative to the Site.
- Aerial Imagery
  - Aerial imagery was used to identify natural features relative to the Site location.
- Natural Heritage Information Centre Biodiversity Explorer
  - The explorer was used to search species, wildlife concentration areas, plant communities, invasive occurrences, and natural areas.
- Middlesex County Planning Department
  - The Planning Department was consulted to determine total percent forest coverage of the municipality of Strathroy-Caradoc to further identify significant woodland areas.
- St. Clair Region Conservation Authority
  - The conservation authority was contacted to delineate any known significant and non-significant natural features on the property.
- Ontario Ministry of Natural Resources Aylmer District Office (OMNR)
  - The Ministry of Natural Resources Office was contacted to obtain restricted data from the explorer search and to further identify natural and significant natural heritage features on-Site and adjacent lands.
- Township of Stathroy-Caradoc Official Plan (S-COP).
  - The Official plan was used to identify any natural heritage features located on-Site and on adjacent lands.

2 Record Results

Mapping and results obtained from the NHIC biodiversity explorer, LIO, Aerial Imagery, OMNR Aylmer District Office, the Middlesex County Planning Department, St. Clair Region Conservation Authority, and Township of Strathroy-Caradoc Official Plan were used in order to assess if natural heritage features exist on-Site and on the subject property. The following section provides the results from the records reviewed as outlined in Section 1.2 of this report.

2.1.1 Provincial Parks & Conservation Reserve

In accordance with OMNR Records Review, Komoka Provincial Park is 8 kilometres away. Therefore OMNR verified that no such natural feature is present in or within the subject property. OMNR has also verified that no Conservation Reserves exist on or within the subject property.

2.1.2 Surface Water Bodies, Wetlands and Fish Habitat

Wetlands are those areas that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface (Lee *et al.*, 1998). A significant wetland is an area identified as provincially significant by the OMNR using evaluation procedures established by the province, as amended from time to time (Lee *et al.,* 1998).

Fish habitats are identified as spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly and or indirectly in order to carry out their life processes (Lee *et al.,* 1998). Fish can be identified as fish, shellfish, crustaceans, and marine animals, at all stages of their life cycle

(PPS, 2005). Lakes, rivers, streams, ponds and wetlands are known fish habitats (Lee *et al.*, 1998). Fish habitats commonly occur in many other natural heritage areas such as wetlands, valleylands, woodlands and ANSIs.

Results:

The NHIC database indicated that there are no provincially significant wetlands located on the Site or within the subject property. The search did reveal a locally significant wetland as a natural area within one (1) to two (2) km^2 east of the Site, as presented in **Table 2-1**.

Table 2-1: Natural Areas within surrounding of Site Location

Area Name	Type	Significance Level	Location
Gold Creek Wetland	Wetland	Local	South east

Aerial imagery indicated that no surface waterbodies or wetlands are located on-Site or within the subject property boundaries.

According to the Records Review conducted by the OMNR, no wetlands are located within the subject property. However, the review does indicate that communities associated with Gold Creek, locally significant wetland complex, are located approximately 300 metres from the Site; one adjacent the rear of the Site within the woodland, and the other across the roadway.

2.1.3 Significant Woodlands

Woodlands are treed areas that provide environmental or economic benefits such as erosion prevention, water retention, recreation and the sustainable harvest of woodland products. Woodlands include treed areas, woodlots or forested areas, and vary in their level of significance (PPS, 2005). Woodland significance is typically determined by evaluating key criteria which relate to woodland size, ecological function, uncommon woodland species, and economic and social value.

Larger woodlands are more likely to contain a greater diversity of plant and animal species and communities than smaller woodlands. They are also better buffered against edge effects or agricultural and urban activities.

Results:

The NHIC database and S-COP indicated that there are no significant woodlots located at the Site or within the subject property. Based upon aerial imagery there are two (2) woodlands; one north and one west, however both are outside the Site and subject property limits.

According to the Records Review conducted by the OMNR, no woodlands are located within the subject property. However, the review does indicate that there are three woodlands located between 200 to 400 metres away from the Site.

2.1.4 Significant Valleyland

The PPS (2005) identifies significant valleylands as a “natural area that occurs in a valley or landform depression that has water flowing through or standing for some period of the year”.

Results:

No valleylands were documented in the S-COP, or indicated by the NHIC database.

The OMNR has not yet evaluated the presence of valleylands at this Site, and is therefore unable to provide information about this natural feature in their Records Review. The OMNR has also indicated that a site investigation is required to gather more information about this feature.

2.1.5 Areas of Natural and Scientific Interest (ANSIs)

Significant ANSIs are defined as areas of land and water containing natural landscapes or features. Such features concern life science or earth science values related to protection, scientific study or education.

An area is identified as provincially significant by the OMNR using evaluation procedures established by the province, as amended from time to time (PPS, 2005). The ANSIs are divided into two (2) types: life science ANSI and earth science ANSI. Specifically, a life science ANSI can contain specific types of forests, valleys, prairies and wetlands of ecological importance. That is, they represent examples that are relatively undisturbed in terms of vegetation community and/or landforms associated with that vegetation. Those listed as provincially significant life science ANSIs are the best examples of that particular natural heritage feature in the province. In contrast, earth science ANSIs includes representative examples of bedrock, fossil, and landforms in Ontario, in addition to on-going geological processes.

Results:

The NHIC database, S-COP and OMNR District office indicated that there are no provincially or regionally identified ANSIs located at the Site or on the subject property. Komoka Lake Maumee ES-ANSI is located 2.6 kilometres away, and Komoka Park Reserve LS-ANSI is located 8 kilometres away.

2.1.6 Significant Wildlife Habitat

Wildlife habitats are defined as areas where plants, animals and other organisms live and are able to find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a point in their annual life cycle, and those areas which are important to migratory and non-migratory species.

A wildlife habitat is referred to as significant if it is deemed ecologically important in terms of feature, function, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System (PPS, 2005).

A significant wildlife habitat is described under four (4) categories:

- Seasonal concentrations of animals;
- Rare vegetation communities or specialized habitats for wildlife;
- Animal movement corridors; and,
- Habitats of species of conservation concern.

2.1.6.1 Seasonal Concentration Areas

Areas of seasonal concentrations of animals are defined as “areas where animals occur in relatively high densities at specific periods in their life cycle and/or during particular seasons” (Lee *et al.*, 1998; PPS, 2005). Areas of seasonal concentrations are typically small in comparison to larger habitat areas that the species uses at other times of the year.

An assessment of the potential for the Site as a wildlife concentration area was carried out. Resources outlined in both the OMNR Significant Wildlife Habitat Technical Guide (2000) and the Significant Wildlife Habitat Ecoregion 7E Criterion Schedule were utilized to evaluate the potential for species concentration occurrence.

2.1.6.1.1 Deer Winter Congregation Areas

Deer and moose often inhabit forested regions and may venture onto disturbed areas. Deer winter congregation areas are defined by woodlots that are greater than 100 hectares in size or larger, or if those areas are in rare woodlots that are greater than 50 hectares in size. Deer movements in this ecoregion (7E) are not constrained by snow depth.

Results:

The OMNR has not yet identified deer winter congregation areas at this Site, and is therefore unable to provide information about this feature in their Records Review. They have advised that these areas will be identified by OMNR.

2.1.6.1.2 Waterfowl Stopover and Staging Areas (Terrestrial & Aquatic)

Terrestrial waterfowl stopover and staging areas are usually comprised of fields that contain flooding and/or sheet water during spring snowmelt and run-off. These habitats often contain important invertebrate foraging opportunities for migrating waterfowl such as American Wigeon (*Anas americana*) and American Black Duck (*Anas rubripes*). Aquatic stopover and staging areas contain ponds, marshes, lakes, bays, coastal inlets and watercourses that may be used during their migration. Reservoirs managed as a large wetland or pond/lake are also included.

Results:

The OMNR has not yet evaluated the presence of terrestrial waterfowl stopover and staging areas on the Site, and is therefore unable to provide information about this feature in the Records Review. The OMNR has also indicated that site investigation is required to gather more information about this feature.

In terms of aquatic waterfowl stopover and staging areas, the management biologist has verified that this natural feature is not present on or within the subject property.

2.1.6.1.3 Shorebird Migratory Stopover Area

These habitats include shorelines of lakes, rivers, and wetlands, including beach areas, bars, and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a significant wildlife habitat.

Results:

According to the Records Review conducted by the OMNR, the management biologist verified that there are no shorebird migratory stopover areas on or within the subject property.

2.1.6.1.4 Raptor Wintering Area

Raptor wintering areas can be described as a combination of fields and woodlands that provide roosting, foraging and resting for wintering raptors. These areas need to greater than 20 hectares with a combination of forest and upland. These habitats are often least disturbed sites, idle/fallow or lightly grazed fields and/or meadows.

Results:

According to Records Review conducted by the OMNR, the management biologist verified that there is no raptor wintering areas on or within the subject property.

2.1.6.1.5 Bat Hibernacula, Materinity and Migratory Stopover Areas

Bat hibernacula are often not well known, but may be found in caves, mine shafts, underground foundation and karsts.

Bat maternity colonies are normally found in tree cavities and in buildings, however, habitats found in buildings are not considered significant wildlife habitat. Maternity roosts are not found in caves or mines in Ontario. Maternity colonies are located in mature deciduous or mixed forest stands that are greater than 10 hectares in diameter with tree snags that are greater than 25 centimetres diameter-at-breast-height (dbh). Female bats tend to prefer tree snags in the early stages of decay. Northern myotis (*Myotis septentrionalis*) prefer contiguous tracts of older forest cover for foraging and roosting in snags and trees.

Silver-haired bats (*Lasionycteris noctivagans*) tend to prefer mature forest stands comprised of deciduous or mixed deciduous species, and those older areas that have approximately 21 snags per hectare.

Migratory bats that travel long distances typically migrate during the late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. During migration in the fall, bats tend to congregate at unknown areas at stopover habitats.

Results:

According to Records Review conducted by the OMNR, there are no bat maternity colonies on or within the subject property, as no woodlands exist within 120 metres. The OMNR has not yet identified any bat hibernacula on the Site, and is therefore unable to provide information about this feature in the Records Review. The OMNR has also indicated that a site investigation is required to gather more information about this feature.

Additionally, according to the Records Review conducted by the OMNR, bat migratory stopover areas only apply to the Long Point region, and is therefore, not relevant to this Site.

2.1.6.1.6 Turtle Wintering Areas

Turtle wintering areas are normally the same area as their regular habitat. The water at these sites need to be deep enough not to freeze during the winter months and must contain soft mud substrates. Over winter sites are those that typically contain permanent waterbodies, large wetlands, bogs and fens that contain adequate amounts of dissolved oxygen.

Results:

According to Records Review conducted by the OMNR, there are also no turtle wintering areas on or within the subject property.

2.1.6.1.7 Snake Hibernaculum

Snake hibernaculum is usually found in burrows, rock crevices and other natural locations below the frost line. Key areas are those that contain broken or fissured rock, which can provide access to subterranean sites below the frost line. Wetlands are also important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.

Results:

The OMNR has not yet identified any snake hibernacula on the Site, and is therefore unable to provide information about this feature in the Records Review. The OMNR has also indicated that a site investigation is required to gather more information about this feature.

Information provided by aerial imagery and the client indicate that this Site is actively farmed, and therefore it is unlikely these habitats exist on-Site or within the subject property.

2.1.6.1.8 Colonial Nesting Bird Breeding Habitat (Bank and Cliff)

Colonial nesting bird breeding habitat near banks and cliffs consist of areas with exposed soil banks, are undisturbed or naturally eroding, and those which are not a licensed/permitted aggregate area. This does not include man-made structures such as bridges or buildings, or recently disturbed soil areas such as berms, embankments, soil and/or aggregate stockpiles.

Results:

According to Records Review conducted by the OMNR using OMNR contour maps, there are no colonial nesting bird breeding habitats on banks or cliffs on or within the subject property.

2.1.6.1.9 Colonial Nesting Bird Breeding Habitat (Trees/Shrubs)

Tree and shrub habitat for colonial nests can be found in live or dead standing trees in wetlands, lakes, island and peninsulas. Shrubs and occasionally emergent vegetation may also be used. Most nests in trees are 11 to 15 metres from the ground near the top of the tree.

Results:

According to Records Review conducted by the OMNR, there are no colonial nesting bird breeding habitats in trees or shrubs on or within the subject property.

2.1.6.1.10 Colonial Nesting Bird Breeding Habitat (Ground)

Colonial ground nesting birds, such as gulls and terns are typically located on islands or peninsulas associated with open water or in marshy areas.

Results:

The OMNR has not yet identified any ground colonial nesting bird breeding habitat on the Site, and is therefore unable to provide information about this feature in the Records Review. The OMNR has also indicated that a site investigation is required to gather more information about this feature.

2.1.6.1.11 Migratory Butterfly Stopover Areas

Migratory butterfly stopover areas are typically at a minimum of 10 hectares in size with a combination of field and forest habitat present, and located within 5 kilometres of Lake Ontario and Lake Erie. This habitat typically provides an area for stopover during migration. They cannot be disturbed areas, and must contain fields or meadows with an abundance of nectar plants.

Results:

According to Records Review conducted by the OMNR and aerial imagery, migratory butterfly stopover areas are not relevant to this Site because it is not within 5 kilometres of Lake Erie.

2.1.6.1.12 Landbird Migratory Stopover Areas

Landbird migratory stopover areas are those that contain woodlots of 5 hectares in size or greater and within 5 kilometres of Lake Ontario. Woodlands that are less than 2 kilometres from Lake Erie or Lake Ontario are more significant. These sites can contain a wide variety of habitats that consist of forests, grasslands, and wetland areas.

Results:

According to Records Review conducted by the OMNR and aerial imagery, landbird (songbird) migratory stopover areas are not relevant to this Site because it is not within 5 kilometres of Lake Erie.

2.1.7 Rare Vegetation Communities or Specialized Habitat

Rare or specialized habitats include rare vegetation communities or concentrations of rare plants. These specialized areas may also provide habitat to rare animal species. According to the Significant Wildlife Habitat Technical Guide (2000), the following definition of each was provided:

Rare vegetation communities include:

- Areas that contain a provincially rare vegetation communities or one that is rare within a planning area.

Specialized Habitats include:

- Areas that support wildlife species that have highly specific habitat requirements;
- Areas with high species and community diversity; and,
- Areas that provide habitat that greatly enhance species survival.

A summary of rare vegetation communities and specialized habitats as they pertain to the Site and subject property are presented in **Table 2-2** and **Table 2-3**.

Table 2-2: Rare Vegetation Communities

Habitat	Records Observation (Data & Imagery)	OMNR Records Review
Cliff & Talus Slope	Habitat not present on-Site or within subject property.	Habitat not present on-Site or within subject property according to OMNR contour maps.
Sand Barren	Habitat not present on-Site or within subject property.	Habitat not present on-Site or within subject property according to NRVIS soil survey complex clay soils.
Alvar	Habitat not present on-Site or within subject property.	Habitat not present on-Site or within subject property according to NRVIS soil survey complex clay soils.
Old Growth Forest	Habitat not present on-Site or within subject property.	Habitat not present on-Site or within subject property, as no woodlands occur within 120 metres.
Savannah	Habitat not present on-Site or within subject property.	OMNR verified this natural feature is not present in or within subject property.
Tall Grass Prairie	Habitat not present on-Site or within subject property.	OMNR verified this natural feature is not present in or within subject property.
Other Rare Vegetation Communities	Aerial imagery indicates Site is located in an agricultural field; however rare vegetation communities unknown. Site investigation required.	No data from OMNR. Site investigation required.

Table 2-3: Specialized Habitats

Habitat	Observation	MNR Records Review
Waterfowl Nesting Area	Data and aerial imagery indicate this habitat is not present on Site.	MNR verified this natural feature is not present on or within subject property.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Unknown. Site investigation required.	No data from MNR. Site investigation required.
Woodland Raptor Nesting Habitat	No woodlands exist on-Site or within subject property.	MNR verified this natural feature is not present on or within subject property.
Turtle Nesting Areas	Data and aerial imagery indicate this habitat is not present on Site.	MNR verified this natural feature is not present on or within subject property.
Seep and Springs	Unknown. Site investigation required.	No data from MNR. Site investigation required.
Amphibian Breeding Habitat (Woodland)	No woodlands exist on-Site or within subject property.	MNR verified this natural feature is not present on or within subject property.
Amphibian Breeding Habitat (Wetland)	Data and aerial imagery indicate this habitat is not present on Site.	MNR verified this natural feature is not present on or within subject property.

2.1.8 Animal Movement Corridor

Animal movement corridors listed for this Site as per OMNR Records Review, and Significant Wildlife Habitat Ecoregion 7E Criterion Schedule include amphibian movement corridors. According to the Records Review conducted by the OMNR, this natural feature is not present in or within the subject property.

2.1.9 Species of Conservation Concern

Habitats for species of conservation concern include those species that are identified as special concern or rare. These habitats do not include those that pertain to threatened or endangered species that are

protected by the Endangered Species Act, 2007. A summary of species of conservation concern habitats that may potentially exist on-Site or within the subject property is presented in **Table 2-4**.

Table 2-4: Species of Conservation Concern

Habitat	Records Observation (Data & Imagery)	OMNR Records Review
Marsh Bird Breeding Habitat	Data and aerial imagery indicate this habitat is not present on Site.	MNR verified this natural feature is not present on or within subject property.
Woodland Area – Sensitive Bird Breeding Habitat	Data and aerial imagery indicate this habitat is not present on Site.	MNR verified this natural feature is not present on or within subject property.
Open Country Breeding Bird Habitat	Unknown. Site investigation required.	No data from MNR. Site investigation required.
Shrub/Early Successional Bird Breeding Habitat	Unknown. Site investigation required.	No data from MNR. Site investigation required.
Special Concern Species	Unknown. Site investigation required.	No data from MNR. Site investigation required.
S1-S3, SH Species and Communities	Unknown. Site investigation required.	No data from MNR. Site investigation required.
Terrestrial Crayfish	Unknown. Site investigation required.	No data from MNR. Site investigation required.

A geographical search for significant or endangered species presence and associated habitat was conducted using the NHIC database. A search was conducted on the one (1) km^2 to two (2) km^2 area surrounding and including the subject lands. It is understood that the NHIC information is based on public regional reports, and habitat boundaries that may be variable.

The NHIC database search revealed records of Henslow's sparrow (*Ammodramus henslowii*), small-footed bat (*Myotis leibii*), hackberry emperor (*Asterocampa celtis*), tawny emperor (*Asterocampa clyton*), green dragon (*Arisaema dracontium*), carey's sedge (*carex careyana*), hairy-fruited sedge (*Carex trichocarpa*), colicroot (*Aletris farinose*), yellow ladies'- tresses (*Spiranthes ochroleuca*), hoary tick-trefoil (*Desmodium canescens*), Illinois tick trefoil (*Desmodium illonense*), Carolina whitlow grass (*Draba reptans*), blue ash (*Fraxinus quadrangulata*), sundial lupine (*Lupinus perennis*), spotted beebalm (*Monarda punctata*), erect knotweed (*Polygonum erectum*), woodland pinedrops (*Pterospora andromedea*), long-stlyed Canadian sanicle (*Sanicle Canadensis var. grandis*), heart-leaved alexanders (*Zizia aptera*) and lowland brittle fern (*Cytopteris protrusa*) are present within the surrounding area (**Table 2-5**).

In addition to the information populated by the search, there was also restricted information concerning other species known to the area. The restricted information was requested from the local MNR (Alymer) office, which indicated that the presence of barn swallow (*Hirundo rustica*) and bobolink (*Dolichonyx oryzivorus*) may occur on-Site. Both of these species are listed as threatened, making both the species and their habitats protected under the *Endangered Species Act, 2007*. The MNR also indicated the potential for blanding's turtle (*Emydoidea blandingii*), spiny softshell (*Apalone spinifera spinifera*) and eastern hog-nosed snake *(Heterodon platirhinos*) to occur within the wetland area as well.

Table 2-5: Rare, Endangered, Threatened and/or Special Concern Biological Species in vicinity of the Site

Type of Organism	Scientific Name	Common Name	Global/Ontario Provisional Ranking	COSEWIC & SARO Ranking	Canada & Ontario General Status	Most Recent Years Observed	Relative Location
Birds	*Ammodramus henslowii*	Henslow's Sparrow	G4 SHB	END	At Risk	1975	Within one (1) km
	Hirundo rustica	Barn Swallow	G5 S4B	THR	Secure	N/A	MNR reported a potential for this Species at Risk to exist on-Site even though no known occurrences documented
	Dolichonyx oryzivorus	Bobolink	G5 S4B	THR	Secure	N/A	
Mammals	*Myotis leibii*	Small-footed Bat	G3 S2S3		May be at risk	1929	Within one (1) km
Butterflies and Skippers	*Asterocampa celtis*	Hackberry Emperor	G5 S2			1977	Within one (1) km
	Asterocampa clyton	Tawny Emperor	G5 S2S3			1977	Within two (2) km
Moncotyledons	*Arisaema dracontium*	Green Dragon	G5 S3	SC	Sensitive	1973	Within one (1) km
	Carex careyana	Carey's Sedge	G4G5 S2		May be at risk	1934	Within one (1) km
	Carex trichocarpa	Hairy-fruited Sedge	G4 S3		Sensitive	1988	Within one (1) km
	Aletris farinosa	Colicroot	G5 S2	THR	At risk	1891	Within one (1) km
	Spiranthes ochroleuca	Yellow Ladies'-tresses	G4 S2		Sensitive / May be at risk	1928	Within one (1) km
Dicotyledons	*Desmodium canescens*	Hoary Tick-trefoil	G5 S2		May be at risk	1888	Within one (1) km
	Desmodium illinoense	Illinois Tick-trefoil	G5 SX	EXP	EXP	1888	Within one (1) km
Dicotyledons	*Draba reptans*	Carolina Whitlow-grass	G5 S3		May be at risk	1986	Within one (1) km

Type of Organism	Scientific Name	Common Name	Global/Ontario Provisional Ranking	COSEWIC & SARO Ranking	Canada & Ontario General Status	Most Recent Years Observed	Relative Location
	Fraxinus quadrangulata	Blue Ash	G5 S3	SC	Sensitive	1983	Within one (1) km
	Lupinus perennis	Sundial Lupine	G5 S3		Sensitive	1936	Within one (1) km
	Monarda punctata	Spotted Beebalm	G5 S1		Sensitive	1984	Within one (1) km
	Polygonum erectum	Erect Knotweed	G5 SH		May be at risk	1934	Within one (1) km
	Pterospora andromedea	Woodland Pinedrops	G5 S2		Sensitive / May be at risk	1888	Within one (1) km
	Sanicula canadensis var. grandis	Long-stlyed Canadian Sanicle	G5T3T5 S2			1935	Within one (1) km
	Zizia aptera	Heart-leaved Alexanders	G5 S1		Secure / May be at risk	1891	Within one (1) km
Ferns and Fern Allies	*Cystopteris protrusa*	Lowland Brittle Fern	G5 S2		May be at risk	1984	Within one (1) km
Reptiles & Turtles	*Emydoidea blandingii*	Blanding's Turtle	G4 S3	THR	Maybe at risk/ At risk	N/A	MNR reported a potential for this Species at Risk to exist on-Site even though no known occurrences documented
	Apalone spinifera spinifera	Spiny Softshell	G5 S3	THR	At risk	N/A	
	Heterodon platirhinos	Eastern Hog-nosed Snake	G5 S3	THR	At risk	N/A	

COSEWIC = Committee on the Status of Endangered Wildlife in Canada; END = Endangered; SC = Special Concern; G1 = extremely rare; G2 = very rare; G3 = Rare to uncommon; G4 = Common; G5 = Very common; GH = historic (no records in past 20 years); GNR = Unranked; NAR = Not At Risk; SARO = Species At Risk in Ontario; SC = Special Concern; S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure; S#S# = range of uncertainty between ranks; SH = Possibly Extirpated; THR = Threatened; N/A = no data available

3 Summary

Based on the current Site location and surrounding areas the following **Table 3-1** summarizes the results as they pertain to the natural heritage features that are known to exist. It is expected that other natural features exist and will be identified during a Site investigation.

Table 3-1: Summary of Natural Features

REA Regulation	Yes/No/Unknown	Description
Is in or within 120 m of a provincial park or conservation reserve?	No	Official plan maps and OMNR Records Review indicate no provincial parks or conservation reserves are located on-Site or within 120 m.
Is the project located in a natural feature?	Unknown	Site investigation required to confirm presence and absence of natural features identified in the records review.
Is the project area located within 50 m of an ANSI (earth science)	No	Official plan, NHIC, and OMNR have indicated the Site and subject property is not located within 50 m of an ANSI.
Is the project area located within 120 m of a natural feature that is not an ANSI	Unknown	Site investigation required to confirm presence and absence of natural features identified in the records review.

As per Section 26 of the REA Regulation, a Site investigation will be required to confirm the absence of these features on the subject property. This Site investigation will confirm and provide any correction to the information presented within this records review, along with identifying additional natural features that exist on-Site or within 120 m. The Site investigation will also help determine the boundaries of the natural features on-Site or within 120 m, and determine their distance from the proposed project location for the ground-mounted solar facility.

4 Legal Notification

This report was prepared by **exp** Services Inc. for the account of Mr. Sam Qin of Future Solar Developments Inc.

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

5 Closure

We trust this preliminary report is satisfactory for your purposes. We would be pleased to provide additional information, to clarify any questions that arise following the review of this report. We look forward to assisting with your technical needs in the future.

Sincerely,

exp Services Inc.

DRAFT

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

DRAFT

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

6 References

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

Natural History Information Centre (NHIC). 2010. Natural Heritage Information Centre Database. Available online. Accessed. January 2012. http://nhic.mnr.gov.on.ca/mnr/nhic.cfm

Ontario Ministry of Natural Resources. 1999. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement. Queens Printer for Ontario.

Ontario Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch, Peterborough Ontario. Queens Printer for Ontario.

Ontario Ministry of Municipal Affairs and Housing. 2005. Provincial Policy Statement. Queens Printer for Ontario.

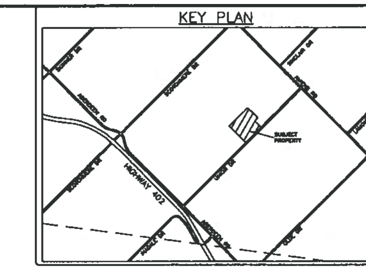
Ontario Ministry of Natural Resources. 2010. Natural Heritage Assessment Guide for Renewable Energy Projects. Queens Printer for Ontario, 2010.

Ontario Ministry of Natural Resources. 2011. Natural Heritage Information Centre Biodiversity Explorer. Available online. Accessed January 2012. https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do.

Species at Risk (SAR). 2012. Species at Risk in Ontario (SAR) List. Ontario Ministry of Natural Resources. Updated January 6, 2012. Available online. Accessed January 2012. http://www.mnr.gov.on.ca/en/Business/Species/index.html

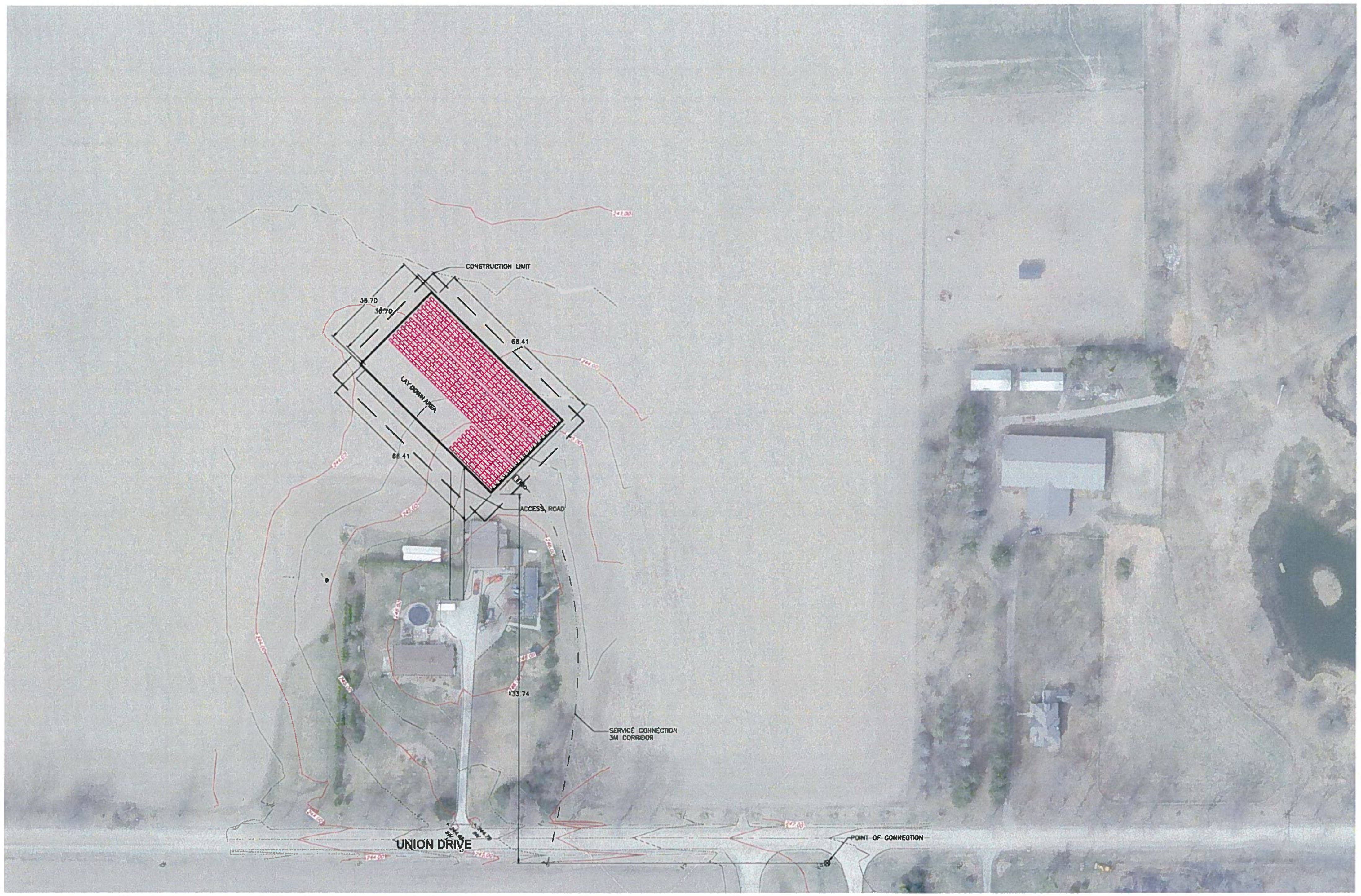
Figures

KEY PLAN



LEGEND

⊗	POINT OF CONNECTION
———	PROPERTY LIMIT



STATISTICS: SOLAR ARRAY

NUMBER OF MODULES: 507
NUMBER OF MODULES PER STRING: 13
NUMBER OF STRINGS: 39
PANEL TYPE: CANADIAN SOLAR CS6P-230
FEEDER NAME: M24
CONNECTION VOLTAGE: 16Kv

CONTRACT IDENTIFICATION # F-001363-SPV-130-505

FIT REFERENCE # FIT-FQ2W7GI

NOTES

THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS ANO OTHER UNDERGROUND AND OVERGROUNO UTILITIES ANO STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT ORAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES ANO STRUCTURES ANO ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

NOT FOR CONSTRUCTION

NO.	REVISION DESCRIPTION	DATE	BY	APPD
1	ISSUED FOR INFORMATION	08/06/12	TB	MHN

SCALE: HORZ 1:750, VERT 1:50 (0, 5m, 10m, 30m)

DESIGNED BY:

REVIEWED BY:

CLIENT: FUTURE SOLAR DEVELOPMENTS INC.
3400 PHARMACY AVE, SCARBOROUGH, ON

exp. — exp Services Inc.
• BUILDINGS • EARTH & ENVIRONMENT • ENERGY • INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

BASEPLAN	K.H.
DESIGN	K.H.
CHECKED	G.B.
CAD	K.H.
PROJ. MAN	G.B.
APPROVED	G.B.

PROJECT: FUTURE SOLAR
9274 UNION DR, STRATHROY, ON

TITLE: SITE PLAN
LP7

PROJ NO.	WSL-2250
SURVEY	FBS
DATE	OCT 7, 2011
DRAWING NO.	SP 4

Appendix A -

OMNR Records Review

REOT

District NHA Records Review Template for Renewable Energy Projects

ECOREGION 7E

This template has been aligned with the draft Ecoregion 7E Criterion Schedule

Wind, Solar, Bioenergy

Ministry of Natural Resources

Renewable Energy Operation Team

April 9, 2012

Data Compiled: June 11, 2012

Project: Ground Mount Solar PV Power Project – L.P #7

NHA Records Review

Project Name:	Ground Mount Solar PV Power Project – L.P #7			
Project Location:	**MNR District** Aylmer	**Municipality** Township of Strathroy-Caradoc	**Geo.Twp, Lot(s) & Con(s)**	9274 Union Dr. Strathroy, ON Lot 23, Con 7 Geographic twp. of Caradoc
Applicant:	**Canadian Solar**	**Phone #:** N/A		
Consultant:	**Exp Services Inc.**	**Phone #:** 905-793-9809 ext 2335		
Generation type:	☐ wind onshore	☐ wind offshore	☒ solar	☐ biomass/biogas
Nameplate Capacity:	0.1 **MW**			
Name of MNR Records Reviewer:	Erin Sanders, A \ Renewable Energy Planning Ecologist			
Date Records Compiled:	June 11, 2012			
What Ecodistrict is the project located in?	7E-2			

Please note the following definitions:
No = MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.
YES = MNR has verified that this natural feature is present in or within 120 m of the proposed site. Site investigation is required to delineate the boundary of the natural feature.
UNKNOWN = MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.

Although this data represents the MNR's best current available information, it is important to note that a lack of occurrence (ie: unknown response) at a site does not mean that natural feature type is not present at the location. The Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2001) and the Draft Significant Wildlife Habitat Ecoregion 7E Criterion Schedule (MNR, 2012) provide guidance with respect to identifying those features requiring Site Investigations. MNR continues to encourage Renewable Energy Approval Applicants to maintain communication and seek technical advice throughout the approval process. Information on Threatened and Endangered species is provided in a separate table.

Feature Type	**Present within 120m of project location** (yes, no, unknown, N/A)	**Present within project location** (yes, no, unknown, N/A)	**MNR Comments** (comments may expand on information provided and/or may include relevant records within the vicinity that were not within project location or 120m of project area)	**Information Source** (NHIC, district staff, etc. Include the data layer name where possible)
Provincial Park	No	No	Komoka Provincial Park is 8km away MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	

Conservation Reserve	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
Earth Science ANSI*	No	No	Komoka Lake Maumee ES-ANSI located 2.6km away MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
Life Science ANSI	No	No	Komoka Park Reserve LS-ANSI located 8km away MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
Wetland	No	No	Gold Creek locally significant wetland complex has one wetland community adjacent the rear of the property within a woodland approximately 300m from the proposed solar panel. One community is also located across the roadway from the property, about 300m from the proposed location of the solar panel. Komoka / South Strathroy Creek Provincially Significant Wetland is located 1.8m away, and Sydenham River Provincially Significant Wetland Complex is located 2.9km away. MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
Woodland	No	No	A woodland is located at the rear of the property about 300m away, a second woodland is located to the west of the property and is about 211m away. A third woodland is located across the roadway about 400m away.	

					MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
Valleyland			unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
Significant Wildlife Habitat	**Habitats of Seasonal Concentrations of Animals**	**Waterfowl stopover and staging areas (terrestrial)**	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		Waterfowl stopover and staging areas (aquatic)	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	Comment from Management Biologist
		Shorebird migratory stopover areas	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	Comment from Management Biologist
		Raptor Wintering Area	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	Comment from Management Biologist
		Bat hibernacula	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		Bat Maternity Colonies	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site	no woodlands present within 120m
		Bat Migratory Stopover Areas	Applies to Long-point only			

		Turtle Wintering Area	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site	
		Snake Hibernaculum	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		Colonial-Nesting bird breeding habitat (bank and cliff swallows)	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	MNR-CONTOUR
		Colonial-Nesting bird breeding habitat (tree/shrub)	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
		Colonial-Nesting bird breeding habitat (ground)	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		Migratory butterfly stopover areas	Only include if within 5km of Lake Erie			
		Landbird (songbird) migratory stopover areas	Only include if within 5km of Lake Erie			
		Deer Winter Congregation Areas	Must be identified by MNR			
	Rare Vegetation Communities or Specialized Habitats for Wildlife	**Cliffs and Talus Slopes**	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	MNR-CONTOUR
		Sand Barren	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	NRVIS – SOIL_SURVEY_COMPLEX Clay Soils
		Alvar	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	NRVIS – SOIL_SURVEY_COMPLEX Clay Soils
		Old Growth Forest	No	No	MNR has verified that there is no such natural feature present in or within 120 m of	no woodlands present within 120m

					the proposed site.	
		Savannah	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
		Tallgrass Prairie	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
		Other Rare Vegetation Communities	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		Waterfowl Nesting Area	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
		Bald Eagle and Osprey Nesting, Foraging and Perching habitat	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		Woodland Raptor Nesting habitat	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	no woodlands present within 120m
		Turtle Nesting Areas	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
		Seeps and Springs	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		Amphibian Breeding Habitat (Woodland)	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	no woodlands present within 120m

		Amphibian Breeding Habitat (Wetlands)	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
	Animal Movement Corridors (list all that apply)	**Amphibians**	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
	Species of Conservation Concern (list all that apply)	**Marsh Bird Breeding Habitat**	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	
		Woodland Area-Sensitive Breeding Bird Habitat	No	No	MNR has verified that there is no such natural feature present in or within 120 m of the proposed site.	no woodlands present within 120m
		Open Country Breeding Bird Habitat	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		Shrub/Early Successional Bird Breeding Habitat	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		Special Concern Species	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	
		S1-S3, SH species and communities	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	

		Terrestrial Crayfish	unknown	unknown	MNR does not have any data to indicate presence/absence of this type of natural feature. Site investigation is required. Where the natural feature is deemed present, the boundary of the feature must be delineated.	

Is any portion of the project located within the Oak Ridges Moraine Plan Area? ☐Yes ☒No

If yes, are any of the following features known to be present on or within 120m of the project location?

☐ Sand Barrens
☐ Savannagh
☐ Tallgrass Prairie
☐ Unknown

Is the project location within the Protected Countryside (Greenbelt)? ☐Yes ☒No

If yes, are any of the following features known to be present on or within 120m of the project location?

☐ Sand Barrens
☐ Savannah
☐ Tallgrass Prairie
☐ Alvar
☐ Unknown

* Earth Science ANSI only needs to be considered if it is located within 50m of the project location