KINGSTON SOLAR LP
Sol-Luce Kingston Solar PV Energy Project

NHA Evaluation of Significance Addendum

Prepared by Dillon Consulting Limited

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Appendix

Appendix A: Wetland Evaluations

1. Introduction

Kingston Solar LP proposes to develop a solar facility with a name plate capacity of 100 MW (AC), partially within the City of Kingston boundaries and partially within Loyalist Township (**Figure 1** and **2**). The renewable energy facility will be known as Sol-luce Kingston Solar PV Energy Project and will be rated as a Class 3 solar facility. Kingston Solar LP has received a contract from the Ontario Power Authority (OPA) for the purchase of electricity generated by this renewable energy facility through the Province's Feed-in-Tariff (FIT) program (enabled by the *Green Energy and Green Economy Act)*. The project is seeking approval under *Ontario Regulation 359/09 – Renewable Energy Approval* (*REA* or *Ontario Regulation 359/09*) under Section V.0.1 of the *Ontario Environmental Protection Act.* For clarity, this report fulfils the requirements of *Ontario Regulation 359/09* as it was in force prior to November 1, 2012.

The Renewable Energy Approval (REA) application was originally submitted for this project on September 18, 2012 and received the 'deemed complete' status by the Ministry of the Environment (MOE) on February 12, 2013. The project was undergoing technical review by the MOE when the review was stopped to accommodate an amendment for the project. The need for an amendment was based on consultation with the host municipalities and was in response to their issued guidelines for Class 3 solar facilities (see Project Modifications Document for more details).

In general, the amendment removed some properties originally proposed for development and included other new sites. The nature of this amendment therefore necessitates further natural environment studies and addendum reports to be drafted. This Natural Heritage Assessment (NHA) Evaluation of Significance Addendum Report is to be read in tandem with the original NHA prepared by AMEC (June 2012) and approved by the Ministry of Natural Resources (MNR) by issue of a confirmation letter on June 11, 2012. It is expected that the Ministry of Natural Resources will provide an updated confirmation letter that addresses both the original and

addendum reports for the NHA so the project can ultimately be resubmitted and the MOE's technical review process resumed.

Ontario Regulation 359/09 requires that renewable energy projects conduct a Natural Heritage Assessment (NHA), which includes an evaluation of significance for natural heritage features that fall within the project location or the prescribed setback area (*REA* Section 27). This NHA Evaluation of Significance Addendum Report was completed in partial fulfilment of the regulatory requirements for the *REA* process. Additional details regarding the potential impacts and mitigation measures required to protect significant natural features will be provided in a separate NHA Environmental Impact Study Addendum Report. These reports will be submitted to the Ministry of Natural Resources (MNR) for review and comment, as required in *Ontario Regulation 359/09* and will provide for the protection of natural features within and adjacent to the project location. Discussion of species at risk, fish habitat and other information needs, as outlined in the MNR's Approval and Permitting Requirements Document for Renewable Energy (MNR 2009), are discussed in a separate report, under direction from the MNR and in compliance with the *REA*.

Figure 1: General Location of Sol-luce Kingston Solar PV Energy Project in Ontario

2. The Proponent

In the course of developing renewable energy projects, Kingston Solar LP strives to satisfy various environmental approval requirements and obtains regulatory approvals that vary depending on the jurisdiction, project capacity and site location. In addition, Kingston Solar LP aims to build long-term relationships with the communities that host its projects. Kingston Solar LP is committed to the health and welfare of the residents of the City of Kingston and Loyalist Township, and to ensuring that Sol-luce Kingston Solar PV Energy Project is successful for stakeholders.

Contact information for the Proponent is as follows:

Full Name of Company:	*Kingston Solar LP*
Address:	*55 Standish Court, 9th Floor, Mississauga, Ontario, L5R 4B2*
Telephone:	*(905) 501-5658*
Prime Contact:	*A. José De Armas*
Email:	*Jose.DeArmas@samsung.com*

Dillon Consulting Limited is the prime contractor for the preparation of this *NHA Evaluation of Significance Addendum Report*. The contact at Dillon is:

Full Name of Company:	*Dillon Consulting Limited*
Address:	*235 Yorkland Blvd, Suite 800, Toronto, Ontario, M2J 4Y8*
Telephone:	*(416) 229-4647 ext 2432*
Fax:	*(416) 229-4692*
Prime Contact:	*Jennifer Petruniak, REA Project Manager*
Email:	*jpetruniak@dillon.ca*

3. Project Location

The proposed Class 3 solar facility is located at several addresses along Unity Road and Mud Lake Road near the City of Kingston in Loyalist Township. Overall, the project location is bounded by Quabbin Road to the North, Mud Lake Road/County Road 19 to the west, Highway 401 to the south, and Highway 38 to the east and is located within the municipal boundaries of the City of Kingston and Loyalist Township. **Figure 1** shows the general location of the project. The planned solar facility will occur primarily within lands currently zoned as "rural area" (City of Kingston Official Plan) and "rural" (Loyalist Township Official Plan).

Figure 2 shows the entire project location (as defined in Ontario Regulation 359/09 to be the location encompassing all projects components) and distinguishes between the previously studied lands that were included in the original NHA and the amended project location. All project components, including solar modules and electrical facilities such as inverters, transformers, substations and electrical lines, will be located on private land or municipal rights-of-way. Specifically, a 34.5 kV collector system of underground and/or overhead power lines and fibre optic cabling will transport outgoing power along access roads on PV array sites and the municipal road allowance to the transformer (substation) or the adjacent switch yard. The substation will connect the project to a 230 kV Hydro One transmission line.

This addendum report solely focuses on the new lands added to the project location (see **Figure 2**) as part of the recent revisions made in response to stakeholder consultation (see Project Modification Document for more information). Amendments to the original NHA (AMEC 2012) are outlined in the NHA Modifications Document.

The three properties added to the Sol-luce Kingston Solar PV Energy Project that are the focus of this NHA Addendum Report are: Site 2, 25a, and 25b (**Figure 2**). Collectively, these are referred to as the amended project location. Within the City of Kingston, Site 2 is north of Rock Road and is to the south of the area previously indicated for development; Sites 25a and 25b are located on Unity Road, approximately 2.2 km east of Quabbin Road.

Sol-luce Kingston Solar PV Energy Project

Figure 2
Project Location

Area of Addendum

Site 25b & 25a

Site 2

CITY OF KINGSTON

TOWNSHIP OF LOYALIST

SIMMONS ROAD

FLORIDA ROAD

CHIPMUNK RIDGE ROAD

QUABBIN ROAD

RAYMOND ROAD

VAN ORDER ROAD

HIGHWAY 38

ROCK ROAD

UNITY ROAD

SMITH ROAD

WESTBROOK ROAD

COUNTY ROAD 19

HEGADORN ROAD

HOWES ROAD

BUR BROOK ROAD WEST

RADAGE ROAD

KERNS ROAD

GENGE ROAD

BRULE ROAD

NEILROAD

SHANE STREET

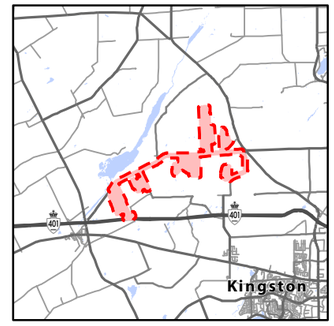
401

Legend

- Freeway
- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Municipal Boundary

Project Components

- Solar Panels
- Inverters
- Access Road
- Fence
- Substation



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4. Summary of Site Investigation

Using the results of the records review, completed in accordance with Section 25 of *Ontario Regulation 359/09*, a site investigation was conducted. A detailed list of the determinations made from site investigation work is outlined in **Table 1.** Natural features occurring within the project location or the surrounding 120 m, as defined in *Ontario Regulation 359/09*, are outlined in the Site Investigation Report. Those wildlife habitats identified as generalized candidate significant wildlife habitat will be treated as significant.

Table 1: Summary of Natural Heritage Assessment Site Investigation Results

Natural Feature ID	Feature in Relation to Project Location		Evaluation of Significance Status		
	Within	Within Prescribed Setback	Requires Evaluation	Previously Evaluated	Evaluation Not Required
PROVINICAL PARKS AND CONSERVATION RESERVES					
Not applicable to project location					
ANSI, LIFE SCIENCE					
Not applicable to project location					
ANSI, EARTH SCIENCE					
Not applicable to project location					
VALLEYLANDS					
Not applicable to project location					
SOUTHERN WETLANDS					
5	✓	---	✓	---	---
8	---	✓	✓	---	---
9		✓	✓	---	---
10	---	✓	✓	---	---
11	✓	---	✓	---	---
WOODLANDS					
A(18*)	✓	✓	✓	✓	---
B	✓	✓	✓	---	---

Natural Feature ID	Feature in Relation to Project Location		Evaluation of Significance Status		
	Within	Within Prescribed Setback	Requires Evaluation	Previously Evaluated	Evaluation Not Required
C (22*)	✓	✓	✓	✓	---
CANDIDATE WILDLIFE HABITAT					
Seasonal Concentration Areas					
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D1)	✓	✓	✓	---	---
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D2)	✓	✓	✓	---	---
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D3)	✓	✓	✓	---	---
Raptor Wintering Area (RWA D1 [WR6*])	✓	✓	✓	✓	---
Bat Maternity Colonies (BMC D1)	✓	✓	✓	---	---
Reptile Hibernaculum (SH D1)	✓	✓	✓	---	---
Reptile Hibernaculum (SH D2)	✓	✓	✓	---	---
Rare Vegetation Communities					
Not applicable to project location					
Specialised Wildlife Habitat					
Waterfowl Nesting Area (WNA D1)	✓	✓	✓	---	---
Waterfowl Nesting Area (WNA D2)	✓	✓	✓	---	---
Woodland Raptor Nesting Habitat (RN1)	✓	✓	✓	✓	---
Amphibian Breeding Habitat (Woodland) (ABF D1)	✓	✓	✓	---	---
Habitat of Species of Conservation Concern					
Marsh Breeding Bird Habitat (MBB D2)	✓	---	✓	---	---
Open Country Breeding Bird Habitat (OCBB D1 [OCBB9*])	✓	✓	✓	✓	---

Natural Feature ID	Feature in Relation to Project Location		Evaluation of Significance Status		
	Within	Within Prescribed Setback	Requires Evaluation	Previously Evaluated	Evaluation Not Required
Shrub/Successional Breeding Bird Habitat (SBB 4*)	✓	✓	✓	✓	---
Habitat for Giant Swallowtail (GS 2*)	✓	✓	✓	✓	---
Habitat for Common Nighthawk (CN D1)	✓	✓	✓	---	---
Animal Movement Corridors					
Not applicable to project location					

* Indicates identifier used in original NHA; Note: where the columns "Requires Evaluation" and "Previously Evaluated" are both checked off, this indicates the natural feature was evaluated in the original NHA (AMEC 2012) and confirmed by the MNR.

5. Evaluation of Significance Purpose

This NHA Evaluation of Significance Addendum Report was completed to evaluate if natural features found within the amended project location and adjacent lands within 120 m are significant/provincially significant or, where necessary, need to be treated as significant. This report is consistent with Section 27 of *Ontario Regulation 359/09*, which states that a person who proposes to engage in a renewable energy project shall evaluate any information available to the person relating to natural features, including all information obtained during the records review, site investigation and in consultation with regulatory agencies, stakeholders and other interested and relevant parties. The aim of the NHA Evaluation of Significance Addendum Report is to evaluate the natural features summarized in **Table 1** above, in accordance with paragraph 3 of subsection 26(3) of *Ontario Regulation 359/09* to determine:

- If a natural feature is significant if it is a woodland, a valleyland or a wildlife habitat; and
- If a natural feature is provincially significant if it is a southern wetland, a northern wetland, a coastal wetland, an area of natural and scientific interest (earth science) or an area of natural and scientific interest (life science).

If a natural feature identified during the site investigation has not been previously evaluated by the MNR, it requires evaluation using criteria and procedures established or accepted by the MNR. Woodlands and valleylands are only assessed for significance if they are south and east of the Canadian Shield as shown in Figure 1 in the *Provincial Policy Statement, 2005*. Where appropriate studies to determine the significance of a wildlife habitat have not been conducted, the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR 2012a) states that a wildlife habitat may be treated as significant. Wildlife habitat treated as significant will be clearly identified in this report and the necessary commitments made in the EIS (MNR 2012a). Where applicable, natural features previously evaluated in the original NHA (AMEC 2012) are carried forward into this Addendum Report.

Species at risk listed under the federal *Species at Risk Act* and provincial *Endangered Species Act*, 2007, with the potential to interact with the project location and/or adjacent lands, are

being considered in consultation with the appropriate agency. Reporting related to the protection of species at risk is being provided to the appropriate agency under separate cover.

6. Evaluation of Significance Methodology

The following sections provide evaluation criteria and procedures used to evaluate the natural features determined to be in the amended project location or within 120 m during the records review and/or site investigation. Criteria and procedures reported are those that are currently accepted by the MNR. Additional evaluation criteria and procedures required to confirm the status of wildlife habitat treated as significance will be provided in the EIS.

6.1 Wetlands

The evaluation of southern wetlands in or within 120 m of the project location was completed using the Wetland Characteristics and Ecological Functions Assessment for Renewable Energy Projects (MNR 2012a). This process identifies individual wetlands and wetland complexes and measures wetland functions and values, providing a framework for evaluating the relative importance of individual wetlands. The criteria and procedures found within are based on sections of the Ontario Wetland Evaluation System (OWES) guidelines (MNR 2013), reflective of their southern designation, and were applied by a qualified professional, who has received MNR training in the use of the Province of Ontario's wetland evaluation system. The evaluation uses information collected during the records review and site investigation stages of the NHA.

6.2 Woodlands

As outlined in the MNR's Natural Heritage Assessment Guide for Renewable Energy Projects (MNR 2012), and the Natural Heritage Reference Manual (MNR 2010), for a woodland to be significant it must first meet minimum standards for tree crown cover. If these minimum standards are met, it is then evaluated based on size criterion, ecological function criteria and uncommon characteristics criteria. Many of the criteria have minimum size thresholds that are based on the percentage of woodland cover in the municipality where the project has been proposed. Woodlands that meet the minimum standard for any one of the criteria are considered significant.

In the area of the project location, the local planning authority and/or the MNR has undertaken a significant woodland evaluation for the City of Kingston. They have assessed the total

woodland coverage in the municipality to be 34% of the total land area (CRCA, 2006). Based on guidelines from the MNR, woodlands are considered significant based on size along in this municipality if they encompass a minimum of 50 ha in the City of Kingston (MNR 2012a).

6.3 Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (MNR 2000), supported by the Significant Wildlife Habitat Ecoregion 6E Criterion Schedule (MNR 2012b), is the authoritative source for the identification and evaluation of significant wildlife habitat. Information collected to evaluate wildlife habitat as significant often requires specific studies targeted to the species, the habitat, or both. In some instances, when evaluating candidate wildlife habitat, consideration was given to the size of the individual habitat relative to the amount of habitat in the region (i.e., percentage of regional composition for a given habitat community within 10 km of the project location) and occurrence of unique characteristics. Methodologies used to investigate the candidate wildlife habitat identified during the site investigation (see **Table 1**) are further outlined in **Sections 6.3.1 to 6.3.3.**

Where appropriate studies to determine the significance of a wildlife habitat have not been conducted, wildlife habitat will be treated as significant and studies will be completed prior to construction. The methods to be implemented in order to confirm the status of wildlife habitat treated as significant will be outlined in the EIS.

6.3.1 Seasonal Concentration Areas

Studies related to the evaluation of candidate Raptor Wintering Area and candidate Reptile Hibernaculum were completed as part of the original NHA (AMEC 2012). For details on methodology, please refer to Section 4.4.1.1 of that report for Raptor Wintering Area and Section 4.4.1.2 for Reptile (Snake) Overwintering Habitat. For consistency, the candidate Reptile Hibernaculum identified in association with the project location on Sites 2 (SH D2) and 25 a/b (SH D1) will be evaluated using the same methodology as previously approved by the MNR. This will include basking surveys, the use of cover boards, and visual searches near potential reptile hibernaculum. The surveys and searches will occur within the candidate habitats at observed potential hibernaculum (see **Figure 5** for two observed in each habitat;

field investigators observed numerous within the two habitats). Three surveys will occur at each habitat during April and May (surveys will be evenly spaced out). The only change to the survey methodology will be pre-construction surveys will be done during the period of egress in the spring rather than ingress in the fall.

Studies related to the evaluation of other candidate seasonal concentration areas are listed below in sections 6.3.1.1 to 6.3.1.2. For the purposes of this report, these habitats have been treated as significant until those studies are complete.

6.3.1.1 Waterfowl Stopover and Staging Areas (Terrestrial/Aquatic)

For evaluation methodology related to Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D1-D3), breeding bird surveys which follow methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman et al 2007) will be completed within the habitat, on accessible lands, between from late May to early July 2014 (three surveys will occur evenly spaced over this time span). To supplement the survey, area searches of the habitat will be completed using binoculars to observe species presence and breeding activity. Specifically, breeding bird surveys consist of ten minute point counts that are used to establish quantitative estimates of bird abundance in major habitat types of the study area. Area searches involve noting all individual bird species and their corresponding breeding evidence while transversing the habitat on foot.

6.3.1.2 Bat Maternity Colonies

For evaluation methodology related to Bat Maternity Colonies (BMC D1), exit surveys will be conducted during the month of June (see *MNR Bats and Bat Habitats: Guidelines for Wind Power Projects*, 2011). These surveys will occur at a minimum of 10 snags/cavity trees as the habitat within the project location is less than 10 ha and site access restrictions limit surveys in the rest of the woodland. Should access to the entire woodland be granted, 30 snags/cavity trees will be surveyed. Survey points based on site investigation observations are included in an appendix of the *Environmental Impact Study Addendum Report* and will be surveyed with other snags/cavity trees found during pre-construction surveys. The best candidate snag/cavity trees will be selected following criteria in the guidelines; including, tallest snag/cavity trees; cavities and crevices likely originating as cracks, scars, knot holes or woodpecker crevices; trees with

large diameter breast height; trees in areas of high density of snag/cavity trees; trees with large amounts of loose, peeling bark; trees with snag/cavity over 10 m up the tree; tree species (e.g., white pine, maple, aspen, and ash), open canopy; and, evidence of tree decay (decay Class 1-3 will be used) (MNR 2011). Specifically, during the month of June observers will monitor the opening or crevice for 30 minutes before dusk until 60 minutes after dusk for evidence of bats exiting (surveys will not be conducted in the rain). Observers will choose a viewing station with a clear aspect of the cavity opening or crevice. A bat detector (i.e., acoustic monitor that uses broadband bat detectors) will also be used. Only one survey is required at each candidate tree. If a maternity roost is found, then the entire ELC community is significant.

6.3.2 Specialised Wildlife Habitat

Studies related to the evaluation of candidate Woodland Raptor Nesting Habitat and candidate Amphibian Breeding Habitat (Woodland and Wetland) were completed as part of the original NHA (AMEC 2012). For details on methodology, please refer to Section 4.4.1.7 of that report for a description of the Woodland Raptor Nesting Habitat methodology previously confirmed as appropriate by the MNR. For candidate woodland and wetland Amphibian Breeding Habitat, the original NHA outlines the methodology used to evaluate one unit of candidate Amphibian Breeding Habitat (woodland) in Section 4.4.1.5. For those candidate Amphibian Breeding Habitat areas identified in the NHA Addendum, methodology to be used is outlined and studies are proposed for 2014 (i.e., prior to construction). For the purposes of this report, these habitats have been treated as significant until those studies are complete.

Studies related to the evaluation of candidate Waterfowl Nesting Area and Amphibian Breeding Habitat have been provided below in sections 6.3.2.1 and 6.3.2.2. For the purposes of this report, these habitats have been treated as significant until those studies are complete.

6.3.2.1 Waterfowl Nesting Area

For evaluation methodology related to Waterfowl Nesting Area (WNA D1 and D2) breeding bird surveys following methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman et al 2007) will be completed within the habitat, on accessible land, from late May to early July 2014 (three surveys will occur evenly spaced over this time span). To supplement the

survey, area searches of the habitat will be completed using binoculars to observe species presence and breeding activity. Specifically, breeding bird surveys consist of ten minute point counts that are used to establish quantitative estimates of bird abundance in major habitat types of the study area. Area searches involve noting all individual bird species and their corresponding breeding evidence while transversing the habitat on foot.

6.3.2.2 Amphibian Breeding Habitat (Woodland)

Amphibian monitoring will follow the Marsh Monitoring Program protocol (Bird Studies Canada, 2009). Three different surveys will be conducted between April 1 and June 30, with at least two weeks between each survey. Surveys will begin at least one half hour after sunset during evenings with a minimum night temperature of 5°C, 10°C and 17°C for each of the three respective surveys. Survey points will align with wetland features observed within the habitat (survey points are included in an appendix of the *Environmental Impact Study Addendum Report*)).

Each amphibian survey will generally involve standing at a predetermined station for 3 minutes and listening for frog calls. The calling activity of individuals estimated to be within 100 m of the observation point will be documented. All individuals beyond 100 m will be recorded as outside of the count circle and calling activity not recorded. Calling activity will then be ranked using one of the following three abundance code categories:

Code 1:	Calls not simultaneous, number of individuals can be accurately counted;
Code 2:	Some calls simultaneous, number of individuals can reliably be estimated;
Code 3:	Calls continuous and overlapping, number of individuals cannot be estimated.

In areas where appropriate habitat exists, vernal pools will also be visually examined for egg masses and amphibian larvae.

6.3.3 Habitat of Species of Conservation Concern

Studies related to evaluating the Habitat of Species of Conservation Concern were included in the original NHA (AMEC 2012) for the majority of the candidate habitat units identified in association with the amended project location. For the evaluation methodology related to the candidate Open Country Breeding Bird Habitat (OCBB D1), this habitat unit corresponds with OCBB9 in the original NHA (Section 4.4.1.4, AMEC 2012).

For evaluation methodology related to the candidate Shrub/Successional Breeding Bird Habitat (SBB4), this identifier was carried through to this addendum report from the original NHA (Section 4.4.3.1, AMEC 2012). Due to the change in the habitat boundaries, points BB100 and BB102 were used (see AMEC 2012, Appendix A, Figure 4-4f).

For evaluation methodology related to Habitat for Giant Swallowtail, the previously identified habitat unit (GS2) in the original NHA (AMEC 2012) will be carried forward for evaluation. Methodology used to evaluate this candidate habitat is outlined in Section 4.4.3.2 of the original NHA (AMEC 2012).

For those candidate habitats that were not evaluated as part of the original NHA (AMEC 2012), they will be treated as significant for the purposes of the NHA Addendum and studies completed prior to construction. Methodologies for these studies have been presented below in Section 6.3.3.1-6.3.3.2.

6.3.3.1 Marsh Breeding Bird Habitat

For evaluation methodology related to Marsh Breeding Bird Habitat (MBB D2) breeding bird surveys which follow methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman et al 2007) will be completed within the habitat, on accessible lands, from late May to July 2014 (three surveys will occur evenly spaced over this time span). To supplement the survey, area searches of the habitat will be completed using binoculars to observe species presence and breeding activity. Specifically, breeding bird surveys consist of ten minute point counts that are used to establish quantitative estimates of bird abundance in major habitat types of the study area. Area searches involve noting all individual bird species and their corresponding breeding evidence while transversing the habitat on foot.

6.3.3.2 Habitat for Common Nighthawk

For evaluation methodology related to Habitat for Common Nighthawk (CN D1), pre-construction crepuscular (nocturnal) bird surveys will be undertaken over two visits from May to early July during periods with at least 50% lunar illumination and low cloud cover. These surveys will follow the *Nightjar Monitoring Protocol* provided by the MNR (2011) and generally consist of point counts where suitable habitats for target species occur and are accessible.

6.4 Access to Adjacent Lands

As outlined in Ontario Regulation 359/09, all lands within 120 m of a project component must be assessed for natural features and resources. In the case of the Sol-luce Kingston Solar PV Energy Project Facility, access was not available to some lands located within 120 metres of the amended project location. Natural features located on adjacent lands were assessed from property lines and road right-of-way, where applicable. This alternative site investigation was conducted in accordance with *Ontario Regulation 359/09*.

7. Name and Qualifications of Site Investigators

The names and qualifications of all site investigators are outlined in **Table 2** below. All site investigators identified in **Table 2** became involved with the Sol-luce Kingston Solar PV Energy Project at the time when the MOE Technical review was put on hold and these addendum studies were initiated for the new Sites included in the project location. All those listed below have been involved in numerous renewable energy projects that have been approved under *Ontario Regulation 359/09*.

Table 2: Names and Qualifications of Site Investigators

Name	Degrees and Professional Designations	Years of Experience	Project Role	Certifications
Baxter, Richard	- B.Sc. (Resource Management- Fish and Wildlife), University of Northern British Columbia (2007) - Fish and Wildlife Technician Diploma, Sir Sandford Fleming College (2001) - ISA Certified Arborist (member-Ontario Chapter) - Affiliated with Ontario Field Ornithologists, Ontario Field Botanists, and Ontario Nature	6 (over 30 renewable energy projects)	-ELC -Wildlife Habitat -Wetland Delineation -Incidental Wildlife	- Ecological Land Classification for Southern Ontario (2009) - Ontario Wetland Evaluation System Certification (2011) - MNR Bat Maternity Colony Training (2012) - MNR Renewable Energy Approvals Natural Heritage Process Workshop (2011) - MNR Wind Energy and Bats Seminar (2010)
Harris, Jonathan	- Fish and Wildlife Technician Diploma, Sir Sandford Fleming College (2008) - Adv. Diploma, Fish and Wildlife Technology, Sir Sandford Fleming College (2009)	5 (over 20 renewable energy projects)	-ELC -Wildlife Habitat Surveys -Wetland Delineation -Incidental Wildlife	- Ecological Land Classification for Southern Ontario (2011) - Ontario Wetland Evaluation System Certification (2012)
Wolosinecky, Mike	- B.E.S. (Environment and Resource Studies), University of Waterloo (2010) - Graduate Certification (Ecosystem Restoration), Niagara College, 2012)	3 (5 renewable energy projects)	-ELC -Wildlife Habitat Assessment -Incidental Wildlife	- Ecological Land Classification for Southern Ontario (2012)

Name	Degrees and Professional Designations	Years of Experience	Project Role	Certifications
Hasler, Caleb	- B.Sc. (Biology/GIS), Queen's University (2005) - M.Sc. (Biology), Queen's University (2007) - Ph.D. (Biology), Carleton University (2011) - -Affiliated with the American Fisheries Society - Contract Instructor, Carleton University, Institute of Environmental Science	8 (over 10 renewable energy projects)	-NHA Author and Lead Evaluator for application of evaluation criteria for woodlands and wildlife habitat	- Class 2 Electrofishing Certification Course (2012)
Petruniak, Jennifer	- B.Sc. (Biology), University of Waterloo (2002) - M.Sc. (Biology), York University (2009) - Affiliated with the Society of Canadian Limnologists, the American Fisheries Society, and the Canadian Aquatic Invasive Species Network	9 (over 20 renewable energy projects)	- Water Assessment - REA Project Manager - NHA Addendum Reviewer	- Ontario Benthos Biomonitoring Network Certification (2009) - Class 2 Electrofishing Crew Leader Certification Course (2010) - LEED AP (2009) - Qualified as an Expert Witness at ERT (2013)

The evaluation of significance was completed in two stages: the first involved a review of applicable resources and records for the project location and site investigation work; the second involved summarizing the determinations and results of the work completed to evaluate each natural feature for significance. Where possible, data used in the original NHA report was used to determine significance. Where a previous evaluation was not undertaken, the habitat was treated as significant and will be evaluated prior to construction. Overall, data

collected from the field took place from October 1 to November 29, 2013 (see **Table 3**) and was primarily targeted at obtaining data to evaluate wetland and woodland areas.

Table 3: Site Evaluation Dates, Times, Duration and Weather Conditions

Type of Natural Feature(s) Evaluated	Staff Responsible for Application of Evaluation Criteria	Beginning Date of Evaluation	End Date of Evaluation
-Wetlands	Richard Baxter	October 1	December 9
-Woodlands -Wildlife Habitat	Caleb Hasler Jennifer Petruniak	October 1	December 9
			Total Days of Evaluation = 70

8. Evaluation of Significance

The following sections summarize the results of the evaluation using criteria and procedures accepted by the MNR to make determinations of the significance of natural features within the project location and surrounding 120 m. All field notes kept by site investigators listed in **Table 2** are provided in Appendix A of the Site Investigation Addendum Report. Representative photographs of the natural features within the project location and surrounding 120 metres are provided in Appendix C of the Site Investigation Addendum Report and a complete list of species identified during all field studies is provided in Appendix D of the Site Investigation Addendum Report.

8.1 Wetlands

Southern wetlands that met the minimum size criteria (i.e., ≥ 2 ha) for evaluation, or met the criteria for wetland complexing, were assumed to be provincially significant. Of the five distinct wetland areas that occur within 120 m of the amended areas of the project location, two (i.e., Wetlands 8 and 10) are greater than two ha and one (i.e., Wetland 9) was over 0.5 ha and within 750 m of another assumed significant wetland (Wetland 10). Wetlands 5 and 11 have been excluded on the basis of size (i.e., less than 2 ha). In addition, they do not meet the criteria for being assumed significance based on the wetland complex rule (i.e., both wetlands are smaller than 0.5 ha and have no significant features that warrant inclusion in the complex. **Figure 3** identifies those wetlands assumed to be provincially significant. A summary for each wetland documented during the records review and site investigation is provided below. Further details are provided in **Table 4**. Documents supporting the wetland evaluations are provided in **Appendix A**.

<u>Wetland 8</u>

Wetland 8 is 9.79 ha consisting of Reed Canary Grass Bedrock Meadow Marsh, Poplar Conifer Mineral Mixed Swam, and Poplar Mineral Deciduous Swamp. The portion of wetland that overlaps with the property boundary for Sites 25 a/b was directly assessed.

Wetland 9

Wetland 9 is 1.39 ha but was not accessible at the time of the site investigation. The wetland is 64 m from Wetland 10 and has therefore been complexed with Wetland 10.

Wetland 10

Wetland 10 is a 34.72 ha wetland consisting of Black Ash Mineral Deciduous Swamp, Green Ash Mineral Deciduous Swamp, and an Open Bog. The portion of wetland that overlaps the property boundary for Site 25a was directly assessed.

Sol-luce Kingston Solar PV Energy Project

Figure 3
Significant Wetlands and Woodlands

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

8

10

A
(WDL18*)

5

11

9

Site
25b & 25a

B

Site
2

C

ROCK ROAD

Glenvale Creek

UNITY ROAD

SMITH ROAD

WESTBROOK ROAD

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- 1 Assumed Provincially Significant Wetland
- 5 Dillon Delineated Wetland (Non-provincially Significant)
- A Significant Woodland
- Delineated Non-significant Woodland
- Unevaluated Woodland
- Dug Farm Pond

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

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Table 4: Evaluation of Southern Wetlands within 120 m of the Amended Project Location

Wetland ID	Field Visit	Actual Wetland Size (hectares)	Wetland Type	Site Type	Vegetation Communities	Proximity to Other Wetlands	Interspersion	Open Water Types	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitats	Fish Habitat	Project Components within 120m	Nearest Distance from project location
										Details	Details	Details	Details	Details	Details		
8	Yes	9.79	Palustrine	Swamp, Marsh	• 0.16 ha of Reed Canary Grass Bedrock Meadow Marsh (MAM1-1) • 3.23 ha of Poplar Conifer Mineral Mixed Swamp (SWM3-2) • 0.06 ha Poplar Mineral Deciduous Swamp (SWD4-5)	183 m to Wetland 5 (Note: wetland 5 not complexed due to size of <0.5 ha)	Wetland unit provides moderate contribution to overall interspersion/ biodiversity	None	Wetland unit provides moderate flood attenuation function with respect to entire upland catchment area	Catchment area determined to be >50% forested or other natural vegetation, water quality function will be unaltered	Wetland entirely Palustrine, no shoreline is present	Wetland entirely Palustrine; Wetland unit recharge potential will be unaltered	Western Chorus Frog was heard calling in this wetland unit. This species has no status under Ontario ESA but is Federally listed as Threatened	Habitat surrounding wetland potentially suitable for waterfowl nesting	None	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	54 m
9	No	1.39	Palustrine	Swamp	• No access granted; aerial imagery suggests Mixed Swamp with Marsh or Meadow Marsh communities.	64 m to Wetland 10	Wetland unit provides moderate contribution to overall interspersion/ biodiversity	None	Wetland unit provides moderate flood attenuation function with respect to entire upland catchment area	Catchment area determined to be >50% forested or other natural vegetation, water quality function will be unaltered	Wetland entirely Palustrine, no shoreline is present	Wetland entirely Palustrine; Wetland unit recharge potential will be unaltered	No access	Habitat surrounding wetland potentially suitable for waterfowl nesting	Dominant vegetation forms not determined	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	33 m

Wetland ID	Field Visit	Actual Wetland Size (hectares)	Wetland Type	Site Type	Vegetation Communities	Proximity to Other Wetlands	Interspersion	Open Water Types	Flood Attenuation	Water Quality Improvement	Shoreline Erosion Control	Groundwater Recharge	Species Rarity	Significant Features and Habitats	Fish Habitat	Project Components within 120m	Nearest Distance from project location
										Details	Details	Details	Details	Details	Details		
10	Yes	32.3	Palustrine	Swamp, Marsh	• 0.35 ha Black Ash Mineral Deciduous Swamp (SWD2-1) • 2.81 ha of Green Ash Mineral Deciduous Swamp Type (SWD2-2) • 7.92 ha Open Bog (BOO1)	64 m to Wetland 9	Wetland unit provides major contribution to overall interspersion/ Biodiversity	Type 2	Wetland unit provides major flood attenuation function with respect to entire upland catchment area	Catchment area determined to be >50% forested or other natural vegetation, water quality function will be unaltered	Wetland entirely Palustrine, no shoreline is present	Wetland entirely Palustrine; Wetland unit recharge potential will be unaltered	No rare species observed in this wetland unit	Habitat potentially suitable for waterfowl nesting Colonial bird nesting known to occur, heron colony present	Low and high marsh present but dominant vegetation forms not determined	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	33 m

8.2 Woodlands

For this evaluation of significance, the definition of woodlands is as defined in the January 1, 2011 amendments to *Ontario Regulation 359/09*. The focus of this NHA Addendum is on the amended project location in the City of Kingston. As such, the estimate of woodland cover within the City of Kingston is 34% (CRCA, 2006). In order to be evaluated for significance, each woodland first met the minimum standards for tree cover. Based on guidelines from the MNR as approved in the original NHA (AMEC 2012), woodlands are considered significant in this municipality if they encompass a minimum of 50 ha in the City of Kingston. Once this condition was met, woodlands were considered significant if they first met the minimum size criterion and the listed attributes of one of the criterion listed in Table 8 of the MNR's Natural Heritage Assessment Guide for Renewable Energy Projects (2012a). Significant woodlands are identified by ID numbers as per **Figure 3**. As outlined in **Table 5,** there is one significant woodland.

Table 5: Evaluation of Woodlands within 120 m of the Amended Project Location

Woodland ID	Size Criterion	Ecological Functions Criteria					Woodland Uncommon Characteristics	Project Components within 120 m	Evaluation of Significance	
	Woodland Size (hectares)	Woodland Interior	Proximity to Other Significant Woodland or Habitats	Linkages	Water Protection	Woodland Diversity Representation			Significant	Not-Significant
	Size Threshold for Significance (hectares)									
	50	8	10	10	4	10	4			
A(18*)	175.57	32.08	Contains Generalized Candidate Significant Wildlife. Contains Candidate Significant Wildlife Habitat (Snake Hibernaculum, Amphibian Breeding Habitat (Woodland), Bat Maternal Colony, Waterfowl Stopover and Staging Area, Waterfowl Nesting Area)	May provide linkage function to Odessa Lake in the west and a large woodland to the east.	Contains Wetlands	This feature is a mixture of woodland (mixed and coniferous) ecosites with mixed swamp. The coniferous woodland is consistent with a FOC2-2 forest type. Eastern White Cedar shares dominance with White Spruce in the canopy, while Eastern White Cedar dominates the sub-canopy and understory with White Spruce as an associate. The mixed forest is comprised of White Pine and oak. The swamp ecosite is dominated by Green Ash, with sparse willow species in the understory; bulrush and sedges comprise the ground layer.	Large Open Bog with stick nests is contained within forest. Numerous fissures/holes in bedrock found.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	✓	---
B	8.06	0	Does not meet the minimum size criterion	Does not meet the minimum size criterion	Does not meet the minimum size criterion	Does not meet the minimum size criterion	Not uncommon in terms of species composition, cover type, age or structure. Species with a high Coefficient of Conservatism value (i.e., 8-10) were not observed in areas where access to this woodland was permitted, and were not observed following the alternative site investigation protocol in areas where access was not permitted. No rare species were observed.	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	---	✓
C (22*)	6.10	0	Does not meet the minimum size criterion	Does not meet the minimum size criterion	Does not meet the minimum size criterion	Does not meet the minimum size criterion	Not uncommon in terms of species composition, cover type, age or structure. Species with a high Coefficient of Conservatism value (i.e., 8-10) were not observed in areas where access to this woodland was permitted, and were not observed following the alternative site investigation protocol in areas where access was not permitted. No rare	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	---	✓

Woodland ID	Size Criterion	Ecological Functions Criteria					Woodland Uncommon Characteristics	Project Components within 120 m	Evaluation of Significance	
	Woodland Size (hectares)	Woodland Interior	Proximity to Other Significant Woodland or Habitats	Linkages	Water Protection	Woodland Diversity Representation			Significant	Not-Significant
	Size Threshold for Significance (hectares)									
	50	8	10	10	4	10	4			
							species were observed.			

*indicates identifier used in the original NHA (AMEC 2012)

8.3 Wildlife Habitat

As discussed in **Section 6.3**, wildlife habitat was assessed using the Significant Wildlife Habitat Ecoregion 6E Criterion Schedule (MNR 2012b) and the Significant Wildlife Habitat Technical Guide (MNR 2000). Candidate wildlife habitat was evaluated by applying the criteria found within the above technical guides, including associated appendices, to the site conditions in the project location and surrounding lands. Where appropriate studies to determine the significance of a wildlife habitat have not been conducted, wildlife habitat has been treated as significant and their status will be confirmed prior to construction, as outlined in the EIS and according to the methods presented in **Section 6.3**. Details of the current evaluation are outlined in **Table 6** in connection with the ELC mapping provided in **Figure 4** and significant wildlife habitat mapping in **Figures 5 - 7.** Details of the ELC communities are outlined in the NHA Site Investigation Addendum Report. Significant wildlife habitat within the amended project location includes:

Please note - "*" indicates identifier used in original AMEC (2012) NHA reports; "‡" indicates habitat is being 'Treated As' significant until studies can be completed prior to construction.

- Seasonal Concentration Areas
  - Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D1‡, D2‡, and D3‡)
  - Bat Maternity Colonies (BMC D1‡)
  - Reptile Hibernaculum (SH D1‡, and SH D2‡)
- Specialised Wildlife Habitat
  - Waterfowl Nesting Area (WFA D1‡ and D2‡)
  - Amphibian Breeding Habitat (Woodland) (ABF D1‡)
- Habitat for Species of Conservation Concern
  - Marsh Breeding Bird Habitat (MBB D2‡)
  - Open Country Breeding Bird Habitat (OCBB D1/9*)
  - Shrub/Successional Breeding Bird Habitat (SBB 4*)
  - Habitat for Common Nighthawk (CN D1‡)

In addition, the MNR has scoped the applicable wildlife habitat that may be impacted if a renewable energy project is developed within 120 m. This scoped list of wildlife habitat considers the type of project component located within either 50 m or 120 m. All other wildlife habitat that may occur entirely within 120 m can be assumed to exist and categorized as "Generalized Candidate Significant Wildlife Habitat" and must be treated as significant in the EIS. The applicable scoped wildlife habitat identified within 120 m of the amended project location and identified as "Generalized Candidate Significant Wildlife Habitat" is outlined in the NHA Site Investigation Addendum Report.

Sol-luce Kingston Solar PV Energy Project

Figure 4
Ecological Land Classification Map

QUABBIN ROAD
VAN ORDER ROAD
HIGHWAY 38
ROCK ROAD
SMITH ROAD
RAYMOND ROAD
UNITY ROAD

Site 25b & 25a
Site 2

SWM3-2
SWD4-5
MAM1-1
B001
FOC2-2
SWC
SWD2-1
MAM2
OAW
FOM4-3
CUS1
CUW1-1
FOC2-2
CUT2-1
FOM2-1
SWD2-2
CUW1-1 CUT2-1
CUT1-7
CUM1-1
CUW-1
SWT2-9MAM2-2
FOC2-2
OAGM4*
CUM2
SWT2-5
CUM1-1
CUM1-1
CUM1-1
CUM1-1
MEGM3
CUW1-1
CUS1
FOD4
OAGM2*
CUT1-4
MEGM3
CUW
CGL-2
CUW1-1
CVR-4
OAW
CUW1-1
OAGM2*
OAGM2*
CUM1-1
FOC2-2
FOC2-2
FOC2-2
OAGM*
CVR-4
CVR-4
CVR-4
CVR-4
CUS2

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Assumed Wetland

Ecological Land Classification

- B001
- CGL-2
- CUM1-1
- CUM2
- CUS1
- CUS2
- CUT1-4
- CUT1-7
- CUT2-1
- CUW
- CUW-1
- CUW1-1
- CVR-4
- FOC2-2
- FOD4
- FOM2-1
- FOM4-3
- MAM1-1
- MAM2
- MAM2-2
- MEGM3
- OAGM*
- OAGM2*
- OAGM4*
- OAW
- SWC
- SWD2-1
- SWD2-2
- SWD4-5
- SWM3-2
- SWT2-5
- SWT2-9

*Indicates that code was not included in the first approximation ELC

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Figure 5
Significant Wildlife Habitat Seasonal Concentration Areas

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

WSSA D2

WSSA D1

BMC D1

SH D1

WSSA D3

Site
25b & 25a

Site
2

SH D2

ROCK ROAD

Glenvale Creek

WESTBROOK ROAD

UNITY ROAD

SMITH ROAD

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Dug Farm Pond

Seasonal Concentration Areas

- Bat Maternity Colony (BMC)
- Waterfowl Stopover and Staging Area (Aquatic) (WSSA)
- Reptile Hibernaculum (SH)

- Generalized Candidate Significant Wildlife Habitat

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

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Figure 6
Significant Wildlife Habitat - Specialised Wildlife Habitat

QUABBIN ROAD

WNA D1

ABF D1

WNA D2

VAN ORDER ROAD

HIGHWAY 38

Site
25b & 25a

Site
2

SH D2

ROCK ROAD

Glenvale Creek

WESTBROOK ROAD

UNITY ROAD

SMITH ROAD

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Dug Farm Pond

Specialised Wildlife Habitat

- Waterfowl Nesting Area (WNA)
- Amphibian Breeding Habitat (Woodland) (ABF)

*Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

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Sol-luce Kingston Solar PV Energy Project

Figure 7
Significant Wildlife Habitat - Habitat of Species of Conservation Concern

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

MBB D2

CN D1

Site 25b & 25a

OCBB D1 (9*)

SSB 4

Site 2

ROCK ROAD

Glenvale Creek

WESTBROOK ROAD

UNITY ROAD

SMITH ROAD

Legend

- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Potential Stream
- Fence Line
- Project Location
- Amended Project Location
- 120 m Project Location Setback
- 300 m Project Location Setback
- 120 m Amended Project Location Setback
- 300 m Amended Project Location Setback
- Dug Farm Pond

Species of Conservation Concern

- Marsh Breeding Bird Habitat (MBB D2)
- Habitat for Common Nighthawk (CN)
- Open Country Bird Breeding Habitat (OCBB)
- Shrub/Early Successional Bird Breeding Habitat (SSB)*

*Treated as Significant

- Generalized Candidate Significant Wildlife Habitat

Identifiers in parentheses refer to the original AMEC prepared NHA reports (June 2012)

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Table 6: Evaluation of Candidate Wildlife Habitat in the Amended Project Location and Surrounding 120 metres

Wildlife Habitat	Attributes of Habitat**	Composition	Function	Relevant Evaluation Criteria Determining Status	Within Project Location	Within 120 m	Significant	Treated as Significant	Not Significant	Project Components within 120 m	Nearest Distance to project location
SEASONAL CONCENTRATION AREAS											
Waterfowl Stopover and Staging Areas (Aquatic) WSSA D1	Ponds, marshes, lakes, bays, coastal inlets and watercourses used during migration can be significant wildlife habitat for local and migrant waterfowl populations during migration. Sewage treatment ponds and storm water ponds do not qualify as a significant wildlife habitat; however, a reservoir managed as a large wetland or pond/lake does qualify. These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Can be found in the following community types: Meadow Marsh (MAM), Shallow Marsh (MAS), Shallow Aquatic (SA), Deciduous Swamp (SWD).	Potential habitat exists in a 7.92 ha Open Bog (B001) and within the 100 m buffer that includes woodland habitat and a small swamp feature. The total size is 26.22 ha.	Spring/ Breeding Habitat	Surveys to be conducted prior to construction	✓	✓	---	✓	---	▪ Solar Panels ▪ Fence	0
Waterfowl Stopover and Staging Areas (Aquatic) WSSA D2		Potential habitat exists in 9.79 ha area consisting of Poplar Conifer Mineral Mixed Swamp (SWM3-2), Poplar Mineral Deciduous Swamp (SWD4-5), and Reed Canary Grass Bedrock Meadow Marsh (MAM1-1). The potential habitat also includes a 100 m buffer that includes the surrounding woodland habitat. Total size is 15.94 ha.	Spring/ Breeding Habitat	Surveys to be conducted prior to construction	✓	✓	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Waterfowl Stopover and Staging Areas (Aquatic) WSSA D3		Potential habitat exists in a 1.65 ha Green Ash Mineral Deciduous Swamp (SWD2-1) plus a 100m buffer that includes the surrounding woodland and meadows. Total size is 14.13 ha.	Spring/ Breeding Habitat	Surveys to be conducted prior to construction	✓	✓	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Raptor Wintering Area RWA D1 (WR6*) Includes habitat for Short-eared Owl	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Least disturbed sites, idle/fallow or lightly grazed field/meadow habitats with adjacent woodlands may be considered significant wildlife habitat. Habitat includes any Forest (FO), in addition to one of the following Community Types: Meadow (CUM), Thicket (CUT), Savannah (CUS), Woodland (CUW) (<60% cover). Raptor wintering sites need to be >20 ha.	This large area (224.3 ha) consists of a variety of cultural open country community types. Dry-moist old field meadow and open pasture are both present and hay fields dominate. Broad-leaved sedge mineral meadow marsh was also identified within this habitat. Rural properties occur in the southern portion and a large open dug-out pond (man-made) is located at the centre of the habitat. A number of hedgerows are situated between fields. Forested lands border the east and west boundaries of this winter raptor area. Forest communities dry-fresh White Cedar coniferous forest, dry-fresh White Pine-Sugar Maple mixed forest, Green Ash Mineral deciduous swamp, Common Juniper	Winter Habitat	Habitat determined to be non-significant in Table 4-4 of the original NHA (AMEC 2012)	✓	✓	---	---	✓	n/a	n/a

Wildlife Habitat	Attributes of Habitat**	Composition	Function	Relevant Evaluation Criteria Determining Status	Within Project Location	Within 120 m	Significant	Treated as Significant	Not Significant	Project Components within 120 m	Nearest Distance to project location
	Species of Conservation Concern: Short-eared Owl	cultural alvar thicket, Red-osier Dogwood cultural thicket, Dry-Fresh White Cedar Coniferous Forest Type, White Cedar-Hardwood Mixed Forest Type, White Pine Coniferous Savannah Type, Dry-Fresh Red Cedar Coniferous Woodland Type and Red Cedar cultural woodland.									
Bat Maternity Colonies BMC D1	Maternity colonies can be found in tree cavities, vegetation and often in buildings; however, buildings are not considered significant wildlife habitat. Maternity roosts are not found in caves and mines in Ontario. This habitat is associated with any of the following Community Types: Deciduous Forest (FOD), Mixed Forest (FOM), that have ≥10/ha wildlife trees ≥25 cm diameter at breast height (dbh). Female bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2.	Potential habitat exists in a 16.36 ha Dry-Fresh White Cedar-Hardwood Mixed Forest Type (FOM4-3).	Breeding Habitat	Surveys to be conducted prior to construction.	✓	✓	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Reptile Hibernaculum SH D1	Hibernation occurs in sites located below frost lines in burrows, rock crevices, broken and fissured rock, wetlands such as 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. Wetlands can also be 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. Hibernacula can be found in any ecosite in central Ontario other than very wet ones. The following	A 53.38 ha area primarily consisting of Dry-Fresh White Cedar Coniferous Forest Type (FOC2-2) and Dry-Fresh White Cedar-Hardwood Mixed Forest Type (FOM4-3). The area also has 4.85 ha of Mineral Cultural Savannah (CUS2). Rock crevices of various sizes were observed throughout Sites 25a and 25b. (Habitat boundaries based on the location of observed rock crevices)	Winter Habitat	Surveys to be conducted prior to construction.	✓	✓	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Reptile Hibernaculum SH D2		A 3.71 ha area consisting of 1.13 ha of Dry-Fresh Graminoid Meadow Ecosite (MEGM3), 0.86 ha of Mineral Cultural Savannah (CUS2), 0.61 ha of Red Cedar Cultural Woodland Type (CUW1-1) and small amounts of other woodland type areas. (Habitat boundaries based on the location of observed rock crevices).	Winter Habitat	Surveys to be conducted prior to construction.	✓	✓	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0

Wildlife Habitat	Attributes of Habitat**	Composition	Function	Relevant Evaluation Criteria Determining Status	Within Project Location	Within 120 m	Significant	Treated as Significant	Not Significant	Project Components within 120 m	Nearest Distance to project location
	Community Types may be directly related to snake hibernacula: Talus (TA), Rock Barren (RB), Crevice (CCR), Cave (CCA), and Alvar (RBOA1, RBSA1, RBTA1). Species of Special Concern Eastern Milksnake										
SPECIALISED HABITAT FOR WILDLIFE											
Waterfowl Nesting Area WNA D1	Upland habitats of any kind located adjacent to the following wetland Community Types: Meadow Marsh (MAM), Shallow Marsh (MAS), Shallow Aquatic (SA), Bedrock Thicket (RBS), Mineral Thicket Swamp (SWT), or Mineral Deciduous Swamp (SWD). Habitat should be at least 120 m wide. Three types of delineation criteria are provided: 1. If the wetland is greater than 0.5 ha, the habitat extends 120 m from it. 2. If the wetland is greater than 0.5 ha and includes any small wetlands 0.5 ha within 120 m, the area 120 m from this is candidate habitat. 3. A cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each other. The upland areas should be at least 120 metres wide. Wood ducks and hooded mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites.	Potential habitat exists in 9.79 ha area consisting of Poplar Conifer Mineral Mixed Swamp (SWM3-2), Poplar Mineral Deciduous Swamp (SWD4-5), and Reed Canary Grass Bedrock Meadow Marsh (MAM1-1). The potential habitat also includes a 120 m buffer that includes the surrounding woodland habitat. Total size is 15.67 ha.	Nesting Habitat	Surveys to be conducted prior to construction.	✓	✓	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Waterfowl Nesting Area WNA D2		Potential habitat exists in a 1.65 ha Green Ash Mineral Deciduous Swamp (SWD2-1) plus a 120 m buffer that includes the surrounding woodland and meadows. Total size is 15.71 ha.	Nesting Habitat	Surveys to be conducted prior to construction.	✓	✓	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Woodland Raptor Nesting Habitat	Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or	A 29.49 ha area consisting primarily of Dry-Fresh White Cedar Coniferous Forest Type (FOC2-2) with smaller areas of Poplar Conifer Mineral Mixed Swamp (SWM3-2), Green Ash	Nesting Habitat	Habitat determined to be non-significant in Table 4-10 of the original NHA (AMEC 2012). Points BB84 and BB85 were used and no raptor species	✓	✓	---	---	✓	n/a	n/a

Wildlife Habitat	Attributes of Habitat**	Composition	Function	Relevant Evaluation Criteria Determining Status	Within Project Location	Within 120 m	Significant	Treated as Significant	Not Significant	Project Components within 120 m	Nearest Distance to project location
RN1*	crotches of trees. Species such as Cooper's Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. In disturbed sites, nests may be used again or a new nest will be in close proximity to the old nest. Can be found in the following ELC communities: Forest (FO), Treed Swamp (SW), Coniferous Plantation (CUP3/TAGM1) that are >30 ha with >10 ha of interior habitat (interior habitat having a 200 metres buffer of surrounding woodland and/or forest).	Mineral Deciduous Swamp Type (SWD2-2), and Red Cedar Cultural Woodland Type (CUW1-1). Woodland has 12.83 ha of interior habitat.		were observed. Point BB84 is within the mapped habitat and point BB85 is nearby but within an open area of Woodland A (surveys occurred on June 15-18, 21, and on July 4-6, 2011). Furthermore, Woodland A contains less than 10 ha of interior habitat (using 200 metre buffer) and no stick nests were observed.							
Amphibian Breeding Habitat (Woodland) ABF D1	The presence of a wetland, lake or pond within or adjacent to (within 120 m) a woodland that contains permanent ponds or contains water in most years until mid-July are most likely to be used as breeding habitat.	A 183.39 ha woodland area consisting of Dry-Fresh White Cedar Coniferous Forest Type (FOC2-2), Dry-Fresh White Cedar-Hardwood Mixed Forest Type (FOM4-3), Coniferous Swamp (SWC), Mineral Meadow Marsh (MAM2), Black Ash Mineral Deciduous Swamp (SWD2-1), Reed Canary Grass Bedrock Meadow Marsh (MAM1-1), Poplar Conifer Mineral Mixed Swamp (SWM3-2), Poplar Mineral Deciduous Swamp (SWD4-5) and Open Bog (BOO1).	Breeding Habitat	Surveys to be conducted within and/or adjacent to wetland areas found in the habitat prior to construction.	✓	✓	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
HABITAT OF SPECIES OF CONSERVATION CONCERN											
Marsh Breeding Bird Habitat MBB D2	This habitat includes all wetlands as long as there is shallow water with emergent aquatic vegetation present. For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently it may be found in upland shrubs or forest a considerable distance from water. The following ELC communities should be considered:	Potential habitat exists in 0.03 ha Mineral meadow marsh (MAM2) community on Site 25.	Breeding Habitat	Surveys to be conducted prior to construction	✓	---	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0

Wildlife Habitat	Attributes of Habitat**	Composition	Function	Relevant Evaluation Criteria Determining Status	Within Project Location	Within 120 m	Significant	Treated as Significant	Not Significant	Project Components within 120 m	Nearest Distance to project location
	Meadow Marsh (MAM), Shallow Aquatic (SA), Open Bog (BOO), Open Fen (FEO), or for Green Heron: SW (Swamp), MA (Marsh) and Meadow (ME). Species of Conservation Concern: Black Tern										
Open Country Bird Breeding Habitat OCBB D1/9*	Large grassland areas (including natural and cultural fields and meadows) are important to support grassland breeding bird species. Grassland areas > 30 ha, and do not include Class 1 or Class 2 agricultural lands. Habitat does not include fields with row-cropping or intensive hay or livestock pasturing in the last 5 years. This habitat can be found in Meadows (ME). Species of Conservation Concern: Short-eared Owl	A large (291.5 ha) open country habitat consisting of active pasture, used agricultural lands. This habitat extends well north of Unity Road and away from rural building and regular human activity. The area consists of 110.47 ha of Dry-Moist Old Field Meadow Type (CUM1-1), 39.73 ha of Perennial Cover Crop, 17.04 ha of Open Pasture, 12.54 ha of Rural Property, 5.82 ha of Annual Row Crop, and 3.86 ha of Mineral Cultural Savanah.	Breeding Habitat	Habitat determined to be significant in Table 4-7 of the original NHA (AMEC 2012)	✓	✓	✓	---	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Shrub/Early Successional Bird Breeding Habitat SSB 4*	Oldfield areas succeeding to shrub and thicket habitats >10 ha, that are not Class 1 or Class 2 agricultural lands, with no row-cropping or intensive hay or livestock pasturing in the last 5 years. This habitat can be found in Thickets (TH) and Savannahs (SV).	This feature is 16.39 ha in size and consists of Mineral Cultural Savannah (CUS1), Gray Dogwood Cultural Thicket Type (CUT1-4), Cultural Woodland (CUW), and Red Cedar Cultural Woodland Type (CUW1-1). Note this habitat boundary was revised from the original AMEC mapped SSB 4* (AMEC 2012 Appendix A Figure 3-7 and Appendix B 3-8).	Breeding Habitat	Habitat determined to be significant in Table 4-13 of the original NHA (AMEC 2012) Points BB100 and BB102 were used (see Appendix A, Figure 4-4f). Brown Thrasher, Eastern Towhee, and Field Sparrow were observed during breeding bird surveys.	✓	✓	✓	---	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0
Giant Swallowtail GS 2*	This species is associated with open woodlands and nearby fields. Giant Swallowtails feed on Hop Tree (*Ptelea*	This feature is comprised of cultural meadow and Red Cedar cultural woodland bordered by small forests. Patches of dense Northern Prickly-ash were noted, which may provide	Breeding and Foraging Habitat	Habitat determined to be not significant in Table 4-16 of the original NHA (AMEC 2012) .	✓	✓	---	---	✓	n/a	n/a

Wildlife Habitat	Attributes of Habitat**	Composition	Function	Relevant Evaluation Criteria Determining Status	Within Project Location	Within 120 m	Significant	Treated as Significant	Not Significant	Project Components within 120 m	Nearest Distance to project location
	trifoliate) and Northern Prickly-ash. The species is common to southwestern Ontario.	a food source for Giant Swallowtail caterpillars.									
Common Nighthawk CN D1	Traditional Common Nighthawk habitat consist of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings, and along gravel roads and railways, they tend to occupy natural sites.	A 51.25 ha unit. ELC was conducted within 29.24 ha of this unit consisting of 11.49 ha of Dry-Fresh White Cedar Coniferous Forest Type (FOC2-2) and 9.04 ha of Dry-Fresh White Cedar-Hardwood Mixed Forest Type (FO 4-3), 3 ha of Dry White Cedar Calcareous Bedrock Coniferous Forest Type (FOC2-2).	Nesting and Foraging Habitat	Surveys to be conducted prior to construction	✓	✓	---	✓	---	▪ Solar Panels ▪ Inverters ▪ Access Roads ▪ Fence	0

*indicates identifier used in original NHA reports; **Based on Significant Wildlife Habitat Technical Guide, MNR 2000; Natural Heritage Assessment Guide for Renewable Energy Projects, MNR 2012a; Ecoregion 6E criteria schedule MNR 2012b

9. Conclusions

This NHA Evaluation of Significance Report Addendum evaluated the significance of natural features determined to occur within 120 metres of the amended areas of the project location. The features evaluated for their significance in this addendum report were identified previously as part of the records review, site investigation and through consultation with relevant agencies, stakeholders and the public (as applicable). The evaluation of significance was undertaken according to the criteria and procedures currently accepted by the MNR. **Table 7** below summarizes the results of the evaluations.

In total, 24 candidate natural features were identified in the Site Investigation Addendum Report. Of these 24 candidate natural features, 17 were determined to be significant (i.e,. significant, assumed provincially significant or treated as significant), and four were categorized together as Generalized Candidate Significant Wildlife Habitat. The 17 significant natural features include the following (* indicates identifier used in original NHA report; "‡" indicates habitats were "treated as" significant and pre-construction surveys will be needed):

- 3 Wetlands assumed significant (Wetlands 8, 9, and 10);
- 1 Significant Woodland (Woodland A[18*]);
- 1 Significant Open Country Breeding Bird Habitat (OCBB D1[9*]);
- 1 Significant Shrub/Successional Breeding Bird Habitat (SBB 4*); and,
- 11 units of candidate wildlife habitat treated as significant.
    - 3 Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D1‡, D2‡, D3‡)
    - 1 Bat Maternity Colonies (BMC D1‡);
    - 2 Reptile Hibernacula (SH D1‡ and SH D2‡);
    - 2 Waterfowl Nesting Areas (WFA D1‡ and D2‡)
    - 1 Amphibian Breeding Habitat (Woodlands) (ABF D1‡);
    - 1 Marsh Breeding Bird Habitat (MBB D2‡); and,
    - 1 Habitat for Common Nighthawk (CN D1‡).

This report is intended to fulfill the requirements for the NHA Evaluation of Significance under *Ontario Regulation 359/09* for the amended portions of the project location. This NHA

Evaluation of Significance Addendum Report is the third report in a series that will fulfill the natural heritage assessment component of the *REA* process for the amended areas of the project location. A NHA Environmental Impact Study Addendum Report, which examines potential impacts, mitigation and other relevant items to protect these features, will be required for those significant, treated as significant, or assumed provincially significant natural features determined to be within the amended areas of the project location and surrounding 120 m.

Table 7: Natural Features Evaluation of Significance Summary

Natural Feature	Details			
Type	**Minimum Setback Provided from Project Location (Metres)**	**Provincially Significant/ Significant**	**Treated as‡/ Assumed Significant**	**Not Significant**
WETLANDS (see Figure 4 for locations)				
5	0	---	---	✓
8	54	---	✓	
9	33	---	✓	---
10	33	---	✓	---
11	0	---	---	✓
WOODLANDS (see Figure 4 for locations)				
A (18*)	0	✓	---	---
B	n/a	---	---	✓
C (22*)	n/a	---	---	✓
WILDLIFE HABITAT				
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D1)	0	---	---✓	---
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D2)	0	---	✓	---
Waterfowl Stopover and Staging Areas (Aquatic) (WSSA D3)	0	---	✓	---
Raptor Wintering Area (RWA D1/WR6*)	n/a	---	---	✓
Bat Maternity Colonies (BMC D1)	0	---	✓	---
Reptile Hibernaculum (SH D1)	0	---	✓	---
Reptile Hibernaculum (SH D2)	0	---	✓	---
Waterfowl Nesting Area (WNA D1)	0	---	✓	---
Waterfowl Nesting Area	0	---	✓	---

Natural Feature	Details			
Type	**Minimum Setback Provided from Project Location (Metres)**	**Provincially Significant/ Significant**	**Treated as‡/ Assumed Significant**	**Not Significant**
(WNA D2)				
Woodland Raptor Nesting Habitat (RN1*)	n/a	---	---	✓
Amphibian Breeding Habitat (Woodland) (ABF D1)	0	---	✓	---
Marsh Breeding Bird Habitat (MBB D2)	0	---	✓	---
Open Country Breeding Bird Habitat (OCBB D1/9*)	0	✓	---	---
Shrub/Successional Breeding Bird Habitat (SBB 4*)	0	✓	---	---
Habitat for Giant Swallowtail (GS2*)	n/a	---	---	✓
Habitat for Common Nighthawk (CN D1)	0	---	✓	---
Generalized Candidate Significant Wildlife Habitat	> 30 m	---	✓	---

‡Wildlife habitat treated as significant will be treated as significant in the EIS and evaluated for significance pre-construction; *Indicates identification code from original NHA report.

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Appendix A

Wetland Evaluations

WETLAND DATA AND SCORING RECORD

i) **WETLAND NAME:** Sol Lake Wetland Unit 8

ii) **MNR ADMINISTRATIVE REGION:** **DISTRICT:** Peterborough

AREA OFFICE (if different from District):

iii) **CONSERVATION AUTHORITY JURISDICTION:** Cataraqui

(If not within a designated CA, check here:____

iv) **COUNTY OR REGIONAL MUNICIPALITY:** Kingston.

v) **TOWNSHIP:**

vi) **LOTS & CONCESSIONS:**
(attach separate sheet if necessary)

vii) **MAP AND AIR PHOTO REFERENCES**

a) Latitude _____ Longitude: _____

b) UTM grid reference: Zone: _____ Block: _____
Grid: E __ __ __ N __ __ __

c) National Topographic Series:

map name(s) _____

map number(s) _____ edition _____

scale _____

d) Aerial photographs: Date photo taken: _____ Scale: _____

Flight & plate numbers: _____

_____

_____
(attach separate sheet if necessary)

e) Ontario Base Map numbers & scale _____

_____
(attach separate sheets if necessary)

viii) WETLAND SIZE AND BOUNDARIES

a) Single contiguous wetland area: _____hectares

b) Wetland complex comprised of 5 individual wetlands:

Single wetland unit in a complex of 5 units

Wetland Unit Number (for reference)	Size of each wetland unit
Wetland Unit No.1	_____ha
Wetland Unit No. 2	_____ha
Wetland Unit No. 3	_____ha
Wetland Unit No. 4	_____ha
Wetland Unit No. 5	_____ha
Wetland Unit No. 6	_____ha
Wetland Unit No. 7	_____ha
Wetland Unit No. 8	9.79 ha
Wetland Unit No. 9	_____ha
Wetland Unit No. 10	_____ha

Total area of 5 units = 43.57 ha

(Attach additional sheets if necessary)

TOTAL WETLAND SIZE _____ha

c) Brief documentation of reasons for including any areas less than 0.5 ha in size:

_____

_____

_____

(Attach separate sheets if necessary)

1.1.2 WETLAND TYPE (Fractional Area = area of wetland type/total wetland area)

	Fractional Area		Score
Bog	_____	x 3	_____
Fen	_____	x 6	_____
Swamp	0.99	x 8	8
Marsh	0.01	x 15	0

Wetland type score (maximum 15 points) 8

1.1.3 SITE TYPE (Fractional Area = area of site type/total wetland area)

	Fractional Area		Score
Isolated	_____	x 1 =	_____
Palustrine (permanent or intermittent flow)	1	x 2 =	2
Riverine	_____	x 4 =	_____
Riverine (at rivermouth)	_____	x 5 =	_____
Lacustrine (at rivermouth	_____	x 5 =	_____
Lacustrine (on enclosed bay, with barrier beach)	_____	x 3 =	_____
Lacustrine (exposed to lake)	_____	x 2 =	_____

Site Type Score (maximum 5 points) 2

1.2 BIODIVERSITY

1.2.1 NUMBER OF WETLAND TYPES

(Check only one)		Score
1) ✓	one	9 points
2) _____	two	13
3) _____	three	20
4) _____	four	30

Number of Wetland Types Score (maximum 30 points) 13

1.2.2 VEGETATION COMMUNITIES

Attach a separate sheet listing community (map) codes, vegetation forms and dominant species.
Use the form on the following page to record percent area by dominant vegetation form. This information will be used in other parts of the evaluation.

Communities should be grouped by number of forms. For example, 2 form communities might appear as follows:

2 forms

Code	Forms	Dominant Species
M6	re, ff	re, *Typha latifolia*; ff, *Lemna minor, Wolffia*
S1	ts, gc	ts, *Salix discolor*; gc, *Impatiens capensis, Thelypteris palustris*

Note that the dominant species for each form are separated by a semicolon. The dominant species (maximum of 2) within a form are separated by commas.

Scoring:

Total # of communities with 1-3 forms	Total # of communities with 4-5 forms	Total # of communities with 6 or more forms
1 = 1.5 points	1 = 2 points	1 = 3 points
2 = 2.5	2 = 3.5	2 = 5
3 = 3.5	3 = 5	3 = 7
4 = 4.5	4 = 6.5	4 = 9
5 = 5	5 = 7.5	5 = 10.5
6 = 5.5	6 = 8.5	6 = 12
7 = 6	7 = 9.5	7 = 13.5
8 = 6.5	8 = 10.5	8 = 15
9 = 7	9 = 11.5	9 = 16.5
10 = 7.5	10 = 12.5	10 = 18
11 = 8	11 = 13	11 = 19
+.5 each additional community = _____	+.5 each additional community = _____	+1 each additional community = _____

e.g., a wetland with 3 one form communities, 4 two form communities, 12 four form communities and 8 six form communities would score:

6 + 13.5 + 15 = 34.5 = 35 points

Vegetation Communities Score (maximum 45 points) 35

Wetland Name: Sol Lucy Wetland Unit 8

Wetland Size (ha): 9.79 ha.

Vegetation Form	% area in which form is dominant
h	99
c	—
dh	—
dc	—
ts	—
ls	—
ds	—
gc	—
m	—
ne	1
be	—
re	—
ff	—
f	—
su	—
u (unvegetated)	—

Total = 100%

1.2.3 DIVERSITY OF SURROUNDING HABITAT

(Check all appropriate items)

✓	row crop
✓	pasture
	abandoned agricultural land
✓	deciduous forest
✓	coniferous forest
✓	mixed forest (at least 25% conifer and 75% deciduous or vice versa)
	abandoned pits and quarries
	open lake or deep river
	fence rows with cover, or shelterbelts
	terrain appreciably undulating, hilly, or with ravines
	creek flood plain

Diversity of Surrounding Habitat Score (1 for each, maximum 7 points) 5

1.2.4 PROXIMITY TO OTHER WETLANDS

(Check first appropriate category only)

		Scoring
1)	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river within 1.5 km	8 points
2) ✓	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km	8
3)	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river from 1.5 to 4 km away	5
4)	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away	5
5)	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water	5
6)	Within 1 km of other wetlands, but not hydrologically connected by surface water	2
7)	No wetland within 1 km	0

Proximity to other Wetlands Score (Choose one only, maximum 8 points) 8

1.2.5 INTERSPERSION

Number of Intersections (Check one)		Score
1) 26 or less	____	3
2) 27 to 40	____	6
3) 41 to 60	____	9
4) 61 to 80	____	12
5) 81 to 100	✓	15
6) 101 to 125	____	18
7) 126 to 150	____	21
8) 151 to 175	____	24
9) 176 to 200	____	27
10) >200	____	30

Interspersion Score (Choose one only, maximum 30 points) 15

1.2.6 OPEN WATER TYPES

Permanently flooded: (Check one)		Score
1) ____	type 1	8
2) ____	type 2	8
3) ____	type 3	14
4) ____	type 4	20
5) ____	type 5	30
6) ____	type 6	8
7) ____	type 7	14
8) ____	type 8	3
9) ✓	no open water	0

Open Water Type Score (Choose one only, maximum 30 points) 0

3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION

If the wetland is a complex including isolated wetlands, apportion the 100 points according to area. For example, if 10 ha of a 100 ha complex is isolated, the isolated portion receives the maximum proportional score of 10. The remainder of the wetland is then evaluated out of 90.

Step 1 Determination of Maximum Score

_____Wetland is located on one of the defined 5 large lakes or 5 major rivers (Go to Step 4).
_____ Wetland is entirely isolated (i.e. not part of a complex) (Go to Step 4)
_____ All other wetland types (Go through steps 2, 3, and 4B)

Step 2. Determination of Upstream Detention Factor (DF)

(a)	Wetland area (ha)	9.79
(b)	Total area (ha) of upstream detention areas (include the wetland itself)	43.57
(c)	Ratio of (a):(b)	0.22
(d)	Upstream detention factor: (c) x 2 = (maximum allowable factor = 1)	0.44

Step 3 Determination of Wetland Attenuation Factor (AF)

(a)	Wetland area (ha)	9.79
(b)	Size of catchment basin (ha) upstream of wetland (include wetland itself in catchment area)	201.18
(c)	Ratio of (a):(b)	0.049
(d)	Wetland attenuation factor: (c) x 10 = (maximum allowable factor = 1)	0.49

Step 4. Calculation of final score

(a)	Wetlands on large lakes or major rivers	0
(b)	Wetland entirely isolated	100
(b)	All other wetlands -- calculate as follows:	
	Initial score	100*
	Upstream detention factor (DF) (Step 2)	0.44
	Wetland attenuation factor (AF) (Step 3)	0.49
	Final score: ((DF + AF)/2) x Initial score =	46.5

*Unless wetland is a complex with isolated portions (see above).

Flood Attenuation Score (maximum 100 points) 47

3.2 WATER QUALITY IMPROVEMENT

3.2.1 SHORT TERM WATER QUALITY IMPROVEMENT

Step 1: **Determination of maximum initial score**

__✓__ Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5a)
All other wetlands (Go through Steps 2, 3, 4, and 5b)

Step 2: **Determination of watershed improvement factor (WIF)**
Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA = area of site type/total area of wetland)	Fractional Area	
FA of isolated wetland	____ x 0.5 =	____
FA of riverine wetland	____ x 1.0 =	____
FA of palustrine wetland with no inflow	1 x 0.7 =	0.7
FA of palustrine wetland with inflows	____ x 1.0 =	____
FA of lacustrine on lake shoreline	____ x 0.2 =	____
FA of lacustrine at lake inflow or outflow	____ x 1.0 =	____

Sum (WIF cannot exceed 1.0) 0.7

Step 3: **Determination of catchment land use factor (LUF)**
(Choose the first category that fits upstream landuse in the catchment.)

1) ____	Over 50% agricultural and/or urban	1.0
2) ____	Between 30 and 50% agricultural and/or urban	0.8
3) ✓	Over 50% forested or other natural vegetation	0.6

LUF (maximum 1.0) 0.6

Step 4: **Determination of pollutant uptake factor (PUT)**

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the dominant live vegetation type. (FA = area of vegetation type/total area of wetland)

	Fractional Area	
FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	.99 x 0.75 =	0.74
FA of wetland with emergent, submergent or floating vegetation (re,be,ne,su,f,ff)	0.01 x 1.0 =	0.01
FA of wetland with little or no vegetation (u)	____ x 0.5 =	____

Sum (PUT cannot exceed 1.0) 0.75

Step 5: **Calculation of final score**

(a)	Wetland on large lakes or major rivers	0
(b)	All other wetlands - calculate as follows	
	Initial score	60
	Water quality improvement factor (WQF)	0.7
	Land use factor (LUF)	0.6
	Pollutant uptake factor (PUT)	0.75

Final score: 60 x WQF x LUF x PUT = 19

Short Term Water Quality Improvement Score (maximum 60 points) 19

3.2.2 LONG TERM NUTRIENT TRAP

Step 1:

✓	Wetland on large lakes or 5 major rivers	0 points
	All other wetlands (Proceed to Step 2)	

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

1) ____	Wetland located in a river mouth	10 points
2) ____	Wetland is a bog, fen, or swamp with more than 50% of the wetland being covered with organic soil	10
3) ✓	Wetland is a bog, fen, or swamp with less than 50% of the wetland being covered with organic soil	3
4) ____	Wetland is a marsh with more than 50% of the wetland covered with organic soil	3
5) ____	None of the above	0

Long Term Nutrient Trap Score (maximum 10 points) 3

3.2.3 GROUNDWATER DISCHARGE

(Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points assign the maximum score of 30.)

Wetland Characteristics	Potential for Discharge		
	None to Little	Some	High
Wetland type	1) Bog = 0	2) Swamp/Marsh = 2	3) Fen = 5
Topography	1) Flat/rolling = 0	2) Hilly = 2	3) Steep = 5
Wetland Area:Upslope Catchment Area	Large (>50%) = 0	Moderate (5-50%) = 2	Small (<5%) = 5
Lagg Development	1) None found = 0	2) Minor = 2	3) Extensive = 5
Seeps	1) None = 0	2) = or < 3 seeps = 2	3) > 3 seeps = 5
Surface marl deposits	1) None = 0	2) = or < 3 sites = 2	3) > 3 sites = 5
Iron precipitates	1) None = 0	2) = or < 3 sites = 2	3) > 3 sites = 5
Located within 1 km of a major aquifer	N/A = 0	N/A = 0	Yes = 10

(Scores are cumulative, maximum score 30 points)

Groundwater Discharge Score (maximum 30 points) 7

3.3 CARBON SINK

Choose only one of the following

1) _____	Bog, fen or swamp with more than 50% coverage by organic soil	5 points
2) _____	Bog, fen or swamp with between 10 to 49% coverage by organic soil	2
3) _____	Marsh with more than 50% coverage by organic soil	3
4) ✓	Wetlands not in one of the above categories	0

Carbon Sink Score (maximum 5 points) 0

3.4 SHORELINE EROSION CONTROL

Step 1:

	Score
✓ Wetland entirely isolated or palustrine	0
_____ Any part of the wetland riverine, or lacustrine (proceed to Step 2)	

Step 2:

Choose the one characteristic that best describes the shoreline vegetation (see text for a definition of shoreline)

	Score
1) _____ Trees and shrubs	15
2) _____ Emergent vegetation	8
3) _____ Submergent vegetation	6
4) _____ Other shoreline vegetation	3
5) _____ No vegetation	0

Shoreline Erosion Control Score (maximum 15 points) 0

3.5 GROUND WATER RECHARGE

3.5.1 WETLAND SITE TYPE

		Score
(a)	Wetland > 50% lacustrine (by area) or located on one of the five major rivers	0
(b)	Wetland not as above. Calculate final score as follows: (FA = area of site type/total area of wetland)	

	Fractional Area	
FA of isolated or palustrine wetland	1 x 50 =	50
FA of riverine wetland	_____ x 20 =	_____
FA of lacustrine wetland (wetland <50% lacustrine)	_____ x 0 =	_____

Ground Water Recharge, Wetland Site Type Component Score (maximum 50 points) 50

3.5.2 WETLAND SOIL RECHARGE POTENTIAL

(Circle only one choice that best describes the hydrologic soil class of the area surrounding the wetland being evaluated.)

Dominant Wetland Type	1) Sand, loam, gravel, till	2) Clay or bedrock
1) Lacustrine or on a major river	0	0
2) Isolated	10	5
3) Palustrine	7	4
4) Riverine (not a major river)	5	2

Ground Water Recharge, Wetland Soil Recharge Potential Score (maximum 10 points) 7

4.1.2 SPECIES

4.1.2.1 BREEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

Name of species	Source of information
1)_____	_____
2)_____	_____
3)_____	_____

Attach documentation.

Scoring:

For each species	250 points

(Score is cumulative, no maximum score)

Breeding Habitat for Endangered or Threatened Species Score (no maximum) 0

4.1.2.2 TRADITIONAL MIGRATION OR FEEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

Name of species	Source of information
1)_____	_____
2)_____	_____
3)_____	_____

Attach documentation.

Scoring:

For one species	150 points
For each additional species	75

(Score is cumulative, no maximum score)

Traditional Habitat for Endangered or Threatened Species Score (no maximum) 0

4.1.2.3 PROVINCIALLY SIGNIFICANT ANIMAL SPECIES

Name of species	Source of information
1) Western Chorus Frog	Observed in field
2)	
3)	
4)	
5)	

Attach separate list if necessary; Attach documentation

Federally SC, no provincial status

Scoring:

Number of provincially significant animal species in the wetland:

One species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

(no maximum score)

Provincially Significant Animal Species Score (no maximum) 50

4.1.2.4 PROVINCIALLY SIGNIFICANT PLANT SPECIES

(Scientific names must be recorded)

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			

Attach separate list if necessary. Attach documentation.

Scoring:

Number of provincially significant plant species in the wetland:

One species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species Score (no maximum) 0

4.1.2.5 REGIONALLY SIGNIFICANT SPECIES (SITE REGION)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

SIGNIFICANT IN SITE REGION:

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

Attach separate list if necessary. Attach documentation

Scoring:

No. of species significant in Site Region

One species	=	20	6 species	=	55
2 species	=	30	7 species	=	58
3 species	=	40	8 species	=	61
4 species	=	45	9 species	=	64
5 species	=	50	10 species	=	67

Add one point for every species past 10. (No maximum score)

Regionally Significant Species Score (Site Region) (no maximum) 0

4.2.1.6 LOCALLY SIGNIFICANT SPECIES (SITE DISTRICT)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			

Attach separate list if necessary. Attach documentation.

Scoring:

No. of species significant in Site District

One species	=	10	6 species	=	41
2 species	=	17	7 species	=	43
3 species	=	24	8 species	=	45
4 species	=	31	9 species	=	47
5 species	=	38	10 species	=	49

For each significant species over 10 in the wetland, add 1 point.

Locally Significant Species Score(Site District) (no maximum)

0

4.2 SIGNIFICANT FEATURES AND/OR FISH & WILDLIFE HABITAT

4.2.1 NESTING OF COLONIAL WATERBIRDS

Status	Name of species	Source of Information	Score
1) Currently nesting			50 points
2) Known to have nested within past 5 years			25
3) Active feeding area (Do not include feeding by great blue herons)			15
4) None known			0

Attach documentation (nest locations, etc., if known)

Score highest applicable category only; maximum score 50 points.

Score for Nesting Colonial Waterbirds (maximum 50 points) 0

4.2.2. WINTER COVER FOR WILDLIFE

(Check only highest level of significance) (one only) Score

1) _____	Provincially significant	100
2) _____	Significant in Site Region	50
3) _____	Significant in Site District	25
3) _____	Locally significant	10
4) _____	Little or poor winter cover present	0

Source of information:_____

Winter Cover for Wildlife Score (maximum 100 points) 0

4.2.3 WATERFOWL STAGING AND/OR MOULTING

(Check only highest level of significance for both staging and moulting; score is cumulative across columns, maximum score 150)

	Staging	Score (one only)	Moulting	Score (one only)
1) Nationally significant	_____	150	_____	150
2) Provincially significant	_____	100	_____	100
3) Regionally significant	_____	50	_____	50
4) Known to occur	_____	10	_____	10
5) Not possible	✓	0	_____	0
6) Unknown	_____	0	_____	0

Source of information: _____

Waterfowl Moulting and Staging Score (maximum 150 points) _____

4.2.4 WATERFOWL BREEDING

(Check only highest level of significance)		Score
1) _____	Provincially significant	100
2) _____	Regionally significant	50
3) ✓	Habitat suitable	10
4) _____	Habitat not suitable	0

Source of information: Fieldwork

Waterfowl Breeding Score (maximum 100 points) 10

4.2.5 MIGRATORY PASSERINE, SHOREBIRD OR RAPTOR STOPOVER AREA

(check highest applicable category)

		Score
1) _____	Provincially significant	100
2) _____	Significant in Site Region	50
3) _____	Significant in Site District	10
4) ✓	Not significant	0

Source of information: Fieldwork

Passerine, Shorebird or Raptor Stopover Score (maximum 100 points) _____

4.2.7 FISH HABITAT

4.2.7.1 Spawning and Nursery Habitat

Table 5. Area Factors for Low Marsh, High Marsh and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5 - 4.9	0.2
5.0 - 9.9	0.4
10.0 - 14.9	0.6
15.0 - 19.9	0.8
20.0+ ha	1.0

Step 1:

✓ Fish habitat is not present within the wetland (Score = 0)

___ Fish habitat is present within the wetland (Go to Step 2)

Step 2: Choose only one option

1) ___ Significance of the spawning and nursery habitat within the wetland is known (Go to Step3)

2) ___ Significance of the spawning and nursery habitat within the wetland is not known (Go through Steps 4, 5, 6, and 7)

Step 3: Select the highest appropriate category below, attach documentation:

1) ___	Significant in Site Region	100 points
2) ___	Significant in Site District	50
3) ___	Locally Significant Habitat (5.0+ ha)	25
4) ___	Locally Significant Habitat (<5.0 ha)	15

Score for Spawning and Nursery Habitat (maximum score 100 points) 0

Step 4: Proceed to Steps 4 to 7 only if Step 3 was not answered.

(**Low Marsh**: marsh area from the existing water line out to the outer boundary of the wetland)

_____ Low marsh not present (Continue to Step 5)
_____ Low marsh present (Score as follows)

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16, Table 16-2) for each Low Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed				5	
4	Arrowhead-Pickerelweed				5	
5	Duckweed				2	
6	Smartweed-Waterwillow				6	
7	Waterlily-Lotus				11	
8	Waterweed-Watercress				9	
9	Ribbongrass				10	
10	Coontail-Naiad-Watermilfoil				13	
11	Narrowleaf Pondweed				5	
12	Broadleaf Pondweed				8	
Total Score (maximum 75 points)						

Step 5: (**High Marsh**: area from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.)
_____ High marsh not present (Continue to Step 6)
_____ High marsh present (Score as follows)

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each High 1Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16, Table 16-2) for each High Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed				5	
4	Arrowhead-Pickerelweed				5	
Total Score (maximum 25 points)						

Step 6: (**Swamp**: Swamp communities containing fish habitat, either seasonally or permanently. Determine the total area of seasonally flooded swamps and permanently flooded swamps containing fish habitat.)

_____ Swamp containing fish habitat not present (Continue to Step 7)
_____ Swamp containing fish habitat present (Score as follows)

Swamp containing fish habitat	Present (check)	Total area (ha)	Area Factor (see Table 5)	Score	TOTAL SCORE (factor x score)
seasonally flooded				10	
permanently flooded				10	
SCORE (maximum 20 points)					

Step 7: Calculation of final score

Score for Spawning and Nursery Habitat (Low Marsh) (maximum 75) = ____

Score for Spawning and Nursery Habitat (High Marsh) (maximum 25) = ____

Score for Swamp Containing Fish Habitat (maximum 20) = ____

Sum (maximum score 100 points) = ____

4.2.6.2 Migration and Staging Habitat

Step 1:

1) ✓ Staging or Migration Habitat is not present in the wetland (Score = 0)

2) ___ Staging or Migration Habitat is present in the wetland, significance of the habitat is known (Go to Step 2)

3) ___ Staging or Migration Habitat is present in the wetland, significance of the habitat is not known (Go to Step 3)

NOTE: Only one of Step 2 or Step 3 is to be scored.

Step 2: Select the highest appropriate category below, attach documentation:

			Score
1)	___	Significant in Site Region	25 points
2)	___	Significant in Site District	15
3)	___	Locally Significant	10
4)	___	Fish staging and/or migration habitat present, but not as above	5

Score for Fish Migration and Staging Habitat (maximum score 25 points) 0

Step 3: Select the highest appropriate category below based on **presence** of the designated site type (does not have to be dominant). See Section 1.1.3. Note name of river for 2) and 3).

			Score
1)	___	Wetland is riverine at rivermouth or lacustrine at rivermouth	25 points
2)	___	Wetland is riverine, within 0.75 km of rivermouth	15
3)	___	Wetland is lacustrine, within 0.75 km of rivermouth	10
4)	___	Fish staging and/or migration habitat present, but not as above	0

Score for Staging and Migration Habitat (maximum score 25 points) 0

WETLAND DATA AND SCORING RECORD

i) **WETLAND NAME:** Sol Lake Wetland Unit 10

ii) **MNR ADMINISTRATIVE REGION:** **DISTRICT:** Peterborough

AREA OFFICE (if different from District):

iii) **CONSERVATION AUTHORITY JURISDICTION:** Cataraqui

(If not within a designated CA, check here:____

iv) **COUNTY OR REGIONAL MUNICIPALITY:** Kingston

v) **TOWNSHIP:**

vi) **LOTS & CONCESSIONS:**
(attach separate sheet if necessary)

vii) **MAP AND AIR PHOTO REFERENCES**

a) Latitude _____ Longitude: _____

b) UTM grid reference: Zone: _____ Block: _____
Grid: E ___ ___ ___ N ___ ___ ___

c) National Topographic Series:

map name(s) _____

map number(s) _____ edition _____

scale _____

d) Aerial photographs: Date photo taken: _____ Scale: _____

Flight & plate numbers: _____

_____

_____
(attach separate sheet if necessary)

e) Ontario Base Map numbers & scale _____

_____
(attach separate sheets if necessary)

viii) WETLAND SIZE AND BOUNDARIES

a) Single contiguous wetland area: _____hectares

b) Wetland complex comprised of ___individual wetlands: 5

Single Unit in a complex of ~~00~~ units

Wetland Unit Number (for reference)	Size of each wetland unit
Wetland Unit No.1	_____ha
Wetland Unit No. 2	_____ha
Wetland Unit No. 3	_____ha
Wetland Unit No. 4	_____ha
Wetland Unit No. 5	_____ha
Wetland Unit No. 6	_____ha
Wetland Unit No. 7	_____ha
Wetland Unit No. 8	_____ha
Wetland Unit No. 9	_____ha
Wetland Unit No. (10)	32.3 ha

Total area of 5 units = 43.57 Ha.

(Attach additional sheets if necessary)

TOTAL WETLAND SIZE _____ha

c) Brief documentation of reasons for including any areas less than 0.5 ha in size:

_____

_____

_____

(Attach separate sheets if necessary)

1.1.2 WETLAND TYPE (Fractional Area = area of wetland type/total wetland area)

	Fractional Area		Score
Bog	_____	x 3	_____
Fen	_____	x 6	_____
Swamp	.76	x 8	6
Marsh	.24	x 15	4

Wetland type score (maximum 15 points) 10

1.1.3 SITE TYPE (Fractional Area = area of site type/total wetland area)

	Fractional Area		Score
Isolated	_____	x 1 =	_____
Palustrine (permanent or intermittent flow)	1	x 2 =	2
Riverine	_____	x 4 =	_____
Riverine (at rivermouth)	_____	x 5 =	_____
Lacustrine (at rivermouth	_____	x 5 =	_____
Lacustrine (on enclosed bay, with barrier beach)	_____	x 3 =	_____
Lacustrine (exposed to lake)	_____	x 2 =	_____

Site Type Score (maximum 5 points) 2

1.2 BIODIVERSITY

1.2.1 NUMBER OF WETLAND TYPES

(Check only one)		Score
1)	one	9 points
2) ✓	two	13
3)	three	20
4)	four	30

Number of Wetland Types Score (maximum 30 points) 13

1.2.2 VEGETATION COMMUNITIES

Attach a separate sheet listing community (map) codes, vegetation forms and dominant species.
Use the form on the following page to record percent area by dominant vegetation form. This information will be used in other parts of the evaluation.

Communities should be grouped by number of forms. For example, 2 form communities might appear as follows:

2 forms

Code	Forms	Dominant Species
M6	re, ff	re, *Typha latifolia*; ff, *Lemna minor, Wolffia*
S1	ts, gc	ts, *Salix discolor*; gc, *Impatiens capensis, Thelypteris palustris*

Note that the dominant species for each form are separated by a semicolon. The dominant species (maximum of 2) within a form are separated by commas.

Scoring:

Total # of communities with 1-3 forms	Total # of communities with 4-5 forms	Total # of communities with 6 or more forms
1 = 1.5 points	1 = 2 points	1 = 3 points
2 = 2.5	2 = 3.5	2 = 5
3 = 3.5	3 = 5	3 = 7
4 = 4.5	4 = 6.5	4 = 9
5 = 5	5 = 7.5	5 = 10.5
6 = 5.5	6 = 8.5	6 = 12
7 = 6	7 = 9.5	7 = 13.5
8 = 6.5	8 = 10.5	8 = 15
9 = 7	9 = 11.5	9 = 16.5
10 = 7.5	10 = 12.5	10 = 18
11 = 8	11 = 13	11 = 19
+.5 each additional community = _____	+.5 each additional community = _____	+1 each additional community = _____

e.g., a wetland with 3 one form communities, 4 two form communities, 12 four form communities and 8 six form communities would score:

6 + 13.5 + 15 = 34.5 = 35 points

Vegetation Communities Score (maximum 45 points) 2

Wetland Name: S. L Lucy Wetland Unit 10

Wetland Size (ha): 32.3 ha

Vegetation Form	% area in which form is dominant
h	26
c	—
dh	—
dc	—
ts	—
ls	—
ds	—
gc	—
m	—
ne	11
be	—
re	—
ff	—
f	—
su	13
u (unvegetated)	—
Total = 100%	100

1.2.3 DIVERSITY OF SURROUNDING HABITAT

(Check all appropriate items)

✓	row crop
✓	pasture
	abandoned agricultural land
✓	deciduous forest
✓	coniferous forest
✓	mixed forest (at least 25% conifer and 75% deciduous or vice versa)
	abandoned pits and quarries
	open lake or deep river
	fence rows with cover, or shelterbelts
	terrain appreciably undulating, hilly, or with ravines
	creek flood plain

Diversity of Surrounding Habitat Score (1 for each, maximum 7 points) 5

1.2.4 PROXIMITY TO OTHER WETLANDS

(Check first appropriate category only)

		Scoring
1)	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river within 1.5 km	8 points
2) ✓	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km	8
3)	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river from 1.5 to 4 km away	5
4)	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away	5
5)	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water	5
6)	Within 1 km of other wetlands, but not hydrologically connected by surface water	2
7)	No wetland within 1 km	0

Proximity to other Wetlands Score (Choose one only, maximum 8 points) 8

1.2.5 INTERSPERSION

Number of Intersections (Check one)		Score
1) 26 or less	____	3
2) 27 to 40	____	6
3) 41 to 60	____	9
4) 61 to 80	____	12
5) 81 to 100	✓	15
6) 101 to 125	____	18
7) 126 to 150	____	21
8) 151 to 175	____	24
9) 176 to 200	____	27
10) >200	____	30

Interspersion Score (Choose one only, maximum 30 points) 15

1.2.6 OPEN WATER TYPES

Permanently flooded: (Check one)		Score
1) ✓	type 1	8
2) ____	type 2	8
3) ____	type 3	14
4) ____	type 4	20
5) ____	type 5	30
6) ____	type 6	8
7) ____	type 7	14
8) ____	type 8	3
9) ____	no open water	0

Open Water Type Score (Choose one only, maximum 30 points) 8

3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION

If the wetland is a complex including isolated wetlands, apportion the 100 points according to area. For example, if 10 ha of a 100 ha complex is isolated, the isolated portion receives the maximum proportional score of 10. The remainder of the wetland is then evaluated out of 90.

Step 1 Determination of Maximum Score

_____Wetland is located on one of the defined 5 large lakes or 5 major rivers (Go to Step 4).
_____ Wetland is entirely isolated (i.e. not part of a complex) (Go to Step 4)
_____ All other wetland types (Go through steps 2, 3, and 4B)

Step 2. Determination of Upstream Detention Factor (DF)

(a)	Wetland area (ha)	32.3
(b)	Total area (ha) of upstream detention areas (include the wetland itself)	43.57
(c)	Ratio of (a):(b)	0.74
(d)	Upstream detention factor: (c) x 2 = (maximum allowable factor = 1)	1.0

Step 3 Determination of Wetland Attenuation Factor (AF)

(a)	Wetland area (ha)	32.3
(b)	Size of catchment basin (ha) upstream of wetland (include wetland itself in catchment area)	201.18
(c)	Ratio of (a):(b)	0.16
(d)	Wetland attenuation factor: (c) x 10 = (maximum allowable factor = 1)	1

Step 4. Calculation of final score

(a)	Wetlands on large lakes or major rivers	0
(b)	Wetland entirely isolated	100
(b)	All other wetlands -- calculate as follows:	
	Initial score	100*
	Upstream detention factor (DF) (Step 2)	1.0
	Wetland attenuation factor (AF) (Step 3)	1.0
	Final score: ((DF + AF)/2) x Initial score =	100

*Unless wetland is a complex with isolated portions (see above).

Flood Attenuation Score (maximum 100 points) 100

3.2 WATER QUALITY IMPROVEMENT

3.2.1 SHORT TERM WATER QUALITY IMPROVEMENT

Step 1: **Determination of maximum initial score**

_____ Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5a)
_____ All other wetlands (Go through Steps 2, 3, 4, and 5b)

Step 2: **Determination of watershed improvement factor (WIF)**
Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA = area of site type/total area of wetland)	Fractional Area	
FA of isolated wetland	_____ x 0.5 =	_____
FA of riverine wetland	_____ x 1.0 =	_____
FA of palustrine wetland with no inflow	1 x 0.7 =	0.7
FA of palustrine wetland with inflows	_____ x 1.0 =	_____
FA of lacustrine on lake shoreline	_____ x 0.2 =	_____
FA of lacustrine at lake inflow or outflow	_____ x 1.0 =	_____

Sum (WIF cannot exceed 1.0) 0.7

Step 3: **Determination of catchment land use factor (LUF)**
(Choose the first category that fits upstream landuse in the catchment.)

1) _____	Over 50% agricultural and/or urban	1.0
2) _____	Between 30 and 50% agricultural and/or urban	0.8
3) √	Over 50% forested or other natural vegetation	0.6

LUF (maximum 1.0) 0.6

Step 4: **Determination of pollutant uptake factor (PUT)**

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the dominant live vegetation type. (FA = area of vegetation type/total area of wetland)

	Fractional Area	
FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	.76 x 0.75 =	0.57
FA of wetland with emergent, submergent or floating vegetation (re,be,ne,su,f,ff)	.24 x 1.0 =	.24
FA of wetland with little or no vegetation (u)	_____ x 0.5 =	_____

Sum (PUT cannot exceed 1.0) 0.91

Step 5: **Calculation of final score**

(a)	Wetland on large lakes or major rivers	0
(b)	All other wetlands - calculate as follows	
	Initial score	60
	Water quality improvement factor (WQF)	0.7
	Land use factor (LUF)	0.6
	Pollutant uptake factor (PUT)	0.81

Final score: 60 x WQF x LUF x PUT = 20

Short Term Water Quality Improvement Score (maximum 60 points) 20

3.2.2 LONG TERM NUTRIENT TRAP

Step 1:

___	Wetland on large lakes or 5 major rivers	0 points
✓	All other wetlands (Proceed to Step 2)	

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

1) ___	Wetland located in a river mouth	10 points
2) ___	Wetland is a bog, fen, or swamp with more than 50% of the wetland being covered with organic soil	10
3) ✓	Wetland is a bog, fen, or swamp with less than 50% of the wetland being covered with organic soil	3
4) ___	Wetland is a marsh with more than 50% of the wetland covered with organic soil	3
5) ___	None of the above	0

Long Term Nutrient Trap Score (maximum 10 points) 10

3.2.3 GROUNDWATER DISCHARGE

(Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points assign the maximum score of 30.)

Wetland Characteristics	Potential for Discharge		
	None to Little	Some	High
Wetland type	1) Bog = 0	2) Swamp/Marsh = 2	3) Fen = 5
Topography	1) Flat/rolling = 0	2) Hilly = 2	3) Steep = 5
Wetland Area:Upslope Catchment Area	Large (>50%) = 0	Moderate (5-50%) = 2	Small (<5%) = 5
Lagg Development	1) None found = 0	2) Minor = 2	3) Extensive = 5
Seeps	1) None = 0	2) = or < 3 seeps = 2	3) > 3 seeps = 5
Surface marl deposits	1) None = 0	2) = or < 3 sites = 2	3) > 3 sites = 5
Iron precipitates	1) None = 0	2) = or < 3 sites = 2	3) > 3 sites = 5
Located within 1 km of a major aquifer	N/A = 0	N/A = 0	Yes = 10

(Scores are cumulative, maximum score 30 points)

Groundwater Discharge Score (maximum 30 points) 4

3.3 CARBON SINK

Choose only one of the following

1) _____	Bog, fen or swamp with more than 50% coverage by organic soil	5 points
2) _____	Bog, fen or swamp with between 10 to 49% coverage by organic soil	2
3) _____	Marsh with more than 50% coverage by organic soil	3
4) ✓	Wetlands not in one of the above categories	0

Carbon Sink Score (maximum 5 points) 0

3.4 SHORELINE EROSION CONTROL

Step 1:

	Score
✓ Wetland entirely isolated or palustrine	0
_____ Any part of the wetland riverine, or lacustrine (proceed to Step 2)	

Step 2:

Choose the one characteristic that best describes the shoreline vegetation (see text for a definition of shoreline)

	Score
1) _____ Trees and shrubs	15
2) _____ Emergent vegetation	8
3) _____ Submergent vegetation	6
4) _____ Other shoreline vegetation	3
5) _____ No vegetation	0

Shoreline Erosion Control Score (maximum 15 points) 0

3.5 GROUND WATER RECHARGE

3.5.1 WETLAND SITE TYPE

		Score
(a)	Wetland > 50% lacustrine (by area) or located on one of the five major rivers	0
(b)	Wetland not as above. Calculate final score as follows: (FA = area of site type/total area of wetland)	

	Fractional Area
FA of isolated or palustrine wetland	1 x 50 = 50
FA of riverine wetland	_____ x 20 = _____
FA of lacustrine wetland (wetland <50% lacustrine)	_____ x 0 = _____

Ground Water Recharge, Wetland Site Type Component Score (maximum 50 points) 50

3.5.2 WETLAND SOIL RECHARGE POTENTIAL

(Circle only one choice that best describes the hydrologic soil class of the area surrounding the wetland being evaluated.)

Dominant Wetland Type	1) Sand, loam, gravel, till	2) Clay or bedrock
1) Lacustrine or on a major river	0	0
2) Isolated	10	5
3) Palustrine	7	4
4) Riverine (not a major river)	5	2

Ground Water Recharge, Wetland Soil Recharge Potential Score (maximum 10 points) 7

4.1.2 SPECIES

4.1.2.1 BREEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

Name of species	Source of information
1)_____	_____
2)_____	_____
3)_____	_____

Attach documentation.

Scoring:

For each species	250 points

(Score is cumulative, no maximum score)

Breeding Habitat for Endangered or Threatened Species Score (no maximum)_____

4.1.2.2 TRADITIONAL MIGRATION OR FEEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

Name of species	Source of information
1)_____	_____
2)_____	_____
3)_____	_____

Attach documentation.

Scoring:

For one species	150 points
For each additional species	75

(Score is cumulative, no maximum score)

Traditional Habitat for Endangered or Threatened Species Score (no maximum) 0

4.1.2.3 PROVINCIALLY SIGNIFICANT ANIMAL SPECIES

Name of species	Source of information
1)	
2)	
3)	
4)	
5)	

Attach separate list if necessary; Attach documentation

Scoring:

Number of provincially significant animal species in the wetland:

One species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

(no maximum score)

Provincially Significant Animal Species Score (no maximum) 0

4.1.2.4 PROVINCIALLY SIGNIFICANT PLANT SPECIES

(Scientific names must be recorded)

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			

Attach separate list if necessary. Attach documentation.

Scoring:

Number of provincially significant plant species in the wetland:

One species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species Score (no maximum) 0

4.1.2.5 REGIONALLY SIGNIFICANT SPECIES (SITE REGION)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

SIGNIFICANT IN SITE REGION:

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

Attach separate list if necessary. Attach documentation

Scoring:

No. of species significant in Site Region

One species	=	20	6 species	=	55
2 species	=	30	7 species	=	58
3 species	=	40	8 species	=	61
4 species	=	45	9 species	=	64
5 species	=	50	10 species	=	67

Add one point for every species past 10. (No maximum score)

Regionally Significant Species Score (Site Region) (no maximum) 0

4.2.1.6 LOCALLY SIGNIFICANT SPECIES (SITE DISTRICT)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			

Attach separate list if necessary. Attach documentation.

Scoring:

No. of species significant in Site District

One species	=	10	6 species	=	41
2 species	=	17	7 species	=	43
3 species	=	24	8 species	=	45
4 species	=	31	9 species	=	47
5 species	=	38	10 species	=	49

For each significant species over 10 in the wetland, add 1 point.

Locally Significant Species Score(Site District) (no maximum)

0

4.2 SIGNIFICANT FEATURES AND/OR FISH & WILDLIFE HABITAT

4.2.1 NESTING OF COLONIAL WATERBIRDS

Status	Name of species	Source of Information	Score
1) Currently nesting	GBHE	Field Observation	50 points
2) Known to have nested within past 5 years			25
3) Active feeding area (Do not include feeding by great blue herons)			15
4) None known			0

Attach documentation (nest locations, etc., if known)

Score highest applicable category only; maximum score 50 points.

Score for Nesting Colonial Waterbirds (maximum 50 points) 50

4.2.2. WINTER COVER FOR WILDLIFE

(Check only highest level of significance) (one only)		Score
1) _____	Provincially significant 100	
2) _____	Significant in Site Region	50
3) _____	Significant in Site District	25
3) _____	Locally significant	10
4) ✓	Little or poor winter cover present	0

Source of information: Fieldwork

Winter Cover for Wildlife Score (maximum 100 points) 0

4.2.3 WATERFOWL STAGING AND/OR MOULTING

(Check only highest level of significance for both staging and moulting; score is cumulative across columns, maximum score 150)

	Staging	Score (one only)	Moulting	Score (one only)
1) Nationally significant	_____	150	_____	150
2) Provincially significant	_____	100	_____	100
3) Regionally significant	_____	50	_____	50
4) Known to occur	_____	10	_____	10
5) Not possible	_____	0	_____	0
6) Unknown	✓	0	_____	0

Source of information: Fieldwork

Waterfowl Moulting and Staging Score (maximum 150 points) 0

4.2.4 WATERFOWL BREEDING

(Check only highest level of significance)		Score
1) _____	Provincially significant	100
2) _____	Regionally significant	50
3) ✓	Habitat suitable	10
4) _____	Habitat not suitable	0

Source of information: Fieldwork

Waterfowl Breeding Score (maximum 100 points) 10

4.2.5 MIGRATORY PASSERINE, SHOREBIRD OR RAPTOR STOPOVER AREA

(check highest applicable category)

		Score
1) _____	Provincially significant	100
2) _____	Significant in Site Region	50
3) _____	Significant in Site District	10
4) ✓	Not significant	0

Source of information: Field work

Passerine, Shorebird or Raptor Stopover Score (maximum 100 points) _____

4.2.7 FISH HABITAT

4.2.7.1 Spawning and Nursery Habitat

Table 5. Area Factors for Low Marsh, High Marsh and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5 - 4.9	0.2
5.0 - 9.9	0.4
10.0 - 14.9	0.6
15.0 - 19.9	0.8
20.0+ ha	1.0

Step 1:

___ Fish habitat is not present within the wetland (Score = 0)

___ Fish habitat is present within the wetland (Go to Step 2)

Step 2: Choose only one option

1) ___ Significance of the spawning and nursery habitat within the wetland is known (Go to Step3)

2) ✓ Significance of the spawning and nursery habitat within the wetland is not known (Go through Steps 4, 5, 6, and 7)

Step 3: Select the highest appropriate category below, attach documentation:

1) ___	Significant in Site Region	100 points
2) ___	Significant in Site District	50
3) ___	Locally Significant Habitat (5.0+ ha)	25
4) ___	Locally Significant Habitat (<5.0 ha)	15

Score for Spawning and Nursery Habitat (maximum score 100 points) _____

Step 4: Proceed to Steps 4 to 7 only if Step 3 was not answered.

(**Low Marsh**: marsh area from the existing water line out to the outer boundary of the wetland)

___ Low marsh not present (Continue to Step 5)
_✓_ Low marsh present (Score as follows)

dominant vegetation form not determined.

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16, Table 16-2) for each Low Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed				5	
4	Arrowhead-Pickerelweed				5	
5	Duckweed				2	
6	Smartweed-Waterwillow				6	
7	Waterlily-Lotus				11	
8	Waterweed-Watercress				9	
9	Ribbongrass				10	
10	Coontail-Naiad-Watermilfoil				13	
11	Narrowleaf Pondweed				5	
12	Broadleaf Pondweed				8	
Total Score (maximum 75 points)						

Step 5: (**High Marsh**: area from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.)

___ High marsh not present (Continue to Step 6)
_✓_ High marsh present (Score as follows)

dominant vegetation form not determined.

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each High 1Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16, Table 16-2) for each High Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed				5	
4	Arrowhead-Pickerelweed				5	
Total Score (maximum 25 points)						

Step 6: (**Swamp**: Swamp communities containing fish habitat, either seasonally or permanently. Determine the total area of seasonally flooded swamps and permanently flooded swamps containing fish habitat.)

_____ Swamp containing fish habitat not present (Continue to Step 7)
_____ Swamp containing fish habitat present (Score as follows)

Swamp containing fish habitat	Present (check)	Total area (ha)	Area Factor (see Table 5)	Score	TOTAL SCORE (factor x score)
seasonally flooded				10	
permanently flooded				10	
SCORE (maximum 20 points)					

Step 7: Calculation of final score

Score for Spawning and Nursery Habitat (Low Marsh) (maximum 75) = ____

Score for Spawning and Nursery Habitat (High Marsh) (maximum 25) = ____

Score for Swamp Containing Fish Habitat (maximum 20) = ____

Sum (maximum score 100 points) = ____

no score given dominant veg forms not determined.

4.2.6.2 Migration and Staging Habitat

Step 1:

1) ✓ Staging or Migration Habitat is not present in the wetland (Score = 0)

2) ___ Staging or Migration Habitat is present in the wetland, significance of the habitat is known (Go to Step 2)

3) ___ Staging or Migration Habitat is present in the wetland, significance of the habitat is not known (Go to Step 3)

NOTE: Only one of Step 2 or Step 3 is to be scored.

Step 2: Select the highest appropriate category below, attach documentation:

			Score
1)	___	Significant in Site Region	25 points
2)	___	Significant in Site District	15
3)	___	Locally Significant	10
4)	___	Fish staging and/or migration habitat present, but not as above	5

Score for Fish Migration and Staging Habitat (maximum score 25 points) 0

Step 3: Select the highest appropriate category below based on **presence** of the designated site type (does not have to be dominant). See Section 1.1.3. Note name of river for 2) and 3).

			Score
1)	___	Wetland is riverine at rivermouth or lacustrine at rivermouth	25 points
2)	___	Wetland is riverine, within 0.75 km of rivermouth	15
3)	___	Wetland is lacustrine, within 0.75 km of rivermouth	10
4)	___	Fish staging and/or migration habitat present, but not as above	0

Score for Staging and Migration Habitat (maximum score 25 points)____

WETLAND DATA AND SCORING RECORD

i) **WETLAND NAME:** Sol Luce Wetland Unit 9

ii) **MNR ADMINISTRATIVE REGION:** **DISTRICT:** Peterborough

AREA OFFICE (if different from District): _____

iii) **CONSERVATION AUTHORITY JURISDICTION:** Cataraqui

(If not within a designated CA, check here:____

iv) **COUNTY OR REGIONAL MUNICIPALITY:** Kingston

v) **TOWNSHIP:** _____

vi) **LOTS & CONCESSIONS:** _____
(attach separate sheet if necessary)

vii) **MAP AND AIR PHOTO REFERENCES**

a) Latitude _____ Longitude: _____

b) UTM grid reference: Zone: _____ Block: _____
Grid: E __ __ __ N __ __ __

c) National Topographic Series:

map name(s) _____

map number(s) _____ edition _____

scale _____

d) Aerial photographs: Date photo taken: _____ Scale: _____

Flight & plate numbers: _____

_____

_____
(attach separate sheet if necessary)

e) Ontario Base Map numbers & scale _____

_____
(attach separate sheets if necessary)

viii) WETLAND SIZE AND BOUNDARIES

a) Single contiguous wetland area: _____hectares

b) Wetland complex comprised of 5 individual wetlands:

Single wetland unit in a complex of 5 units

Wetland Unit Number (for reference)	Size of each wetland unit
Wetland Unit No.1	_____ha
Wetland Unit No. 2	_____ha
Wetland Unit No. 3	_____ha
Wetland Unit No. 4	_____ha
Wetland Unit No. 5	_____ha
Wetland Unit No. 6	_____ha
Wetland Unit No. 7	_____ha
Wetland Unit No. 8	_____ha
Wetland Unit No. 9	1.39 ha
Wetland Unit No. 10	_____ha

Total area of 5 units = 43.57 ha.

(Attach additional sheets if necessary)

TOTAL WETLAND SIZE _____ha

c) Brief documentation of reasons for including any areas less than 0.5 ha in size:

_____

_____

_____

(Attach separate sheets if necessary)

1.1.2 WETLAND TYPE (Fractional Area = area of wetland type/total wetland area)

	Fractional Area		Score
Bog	_____	x 3	_____
Fen	_____	x 6	_____
Swamp	_____	x 8	_____
Marsh	_____	x 15	_____

no access to determine

Wetland type score (maximum 15 points) _____

1.1.3 SITE TYPE (Fractional Area = area of site type/total wetland area)

	Fractional Area		Score
Isolated	_____	x 1 =	_____
Palustrine (permanent or intermittent flow)	1	x 2 =	2
Riverine	_____	x 4 =	_____
Riverine (at rivermouth)	_____	x 5 =	_____
Lacustrine (at rivermouth	_____	x 5 =	_____
Lacustrine (on enclosed bay, with barrier beach)	_____	x 3 =	_____
Lacustrine (exposed to lake)	_____	x 2 =	_____

Site Type Score (maximum 5 points) 2

1.2 BIODIVERSITY

1.2.1 NUMBER OF WETLAND TYPES

(Check only one)		Score
1) _____	one	9 points
2) _____	two	13
3) _____	three	20
4) _____	four	30

no access to determine

Number of Wetland Types Score (maximum 30 points) _____

1.2.2 VEGETATION COMMUNITIES

Attach a separate sheet listing community (map) codes, vegetation forms and dominant species.
Use the form on the following page to record percent area by dominant vegetation form. This information will be used in other parts of the evaluation.

Communities should be grouped by number of forms. For example, 2 form communities might appear as follows:

2 forms

Code	Forms	Dominant Species
M6	re, ff	re, *Typha latifolia*; ff, *Lemna minor, Wolffia*
S1	ts, gc	ts, *Salix discolor*; gc, *Impatiens capensis*, *Thelypteris palustris*

Note that the dominant species for each form are separated by a semicolon. The dominant species (maximum of 2) within a form are separated by commas.

Scoring:

Total # of communities with 1-3 forms	Total # of communities with 4-5 forms	Total # of communities with 6 or more forms
1 = 1.5 points	1 = 2 points	1 = 3 points
2 = 2.5	2 = 3.5	2 = 5
3 = 3.5	3 = 5	3 = 7
4 = 4.5	4 = 6.5	4 = 9
5 = 5	5 = 7.5	5 = 10.5
6 = 5.5	6 = 8.5	6 = 12
7 = 6	7 = 9.5	7 = 13.5
8 = 6.5	8 = 10.5	8 = 15
9 = 7	9 = 11.5	9 = 16.5
10 = 7.5	10 = 12.5	10 = 18
11 = 8	11 = 13	11 = 19
+.5 each additional community = _____	+.5 each additional community = _____	+1 each additional community = _____

e.g., a wetland with 3 one form communities, 4 two form communities, 12 four form communities and 8 six form communities would score:

6 + 13.5 + 15 = 34.5 = 35 points

Vegetation Communities Score (maximum 45 points) _____ no access to determine

Southern Ontario Wetland Evaluation, Data and Scoring Record March 1993

Wetland Name: Sol Luce Wetland Unit 9

Wetland Size (ha): 1.39 ha

Vegetation Form	% area in which form is dominant
h	—
c	—
dh	—
dc	—
ts	—
ls	—
ds	—
gc	—
m	—
ne	—
be	—
re	—
ff	—
f	—
su	—
u (unvegetated)	—

Total = 100%

no access to determine.

1.2.3 DIVERSITY OF SURROUNDING HABITAT

(Check all appropriate items)

✓	row crop
✓	pasture
✓	abandoned agricultural land
✓	deciduous forest
✓	coniferous forest
✓	mixed forest (at least 25% conifer and 75% deciduous or vice versa)
	abandoned pits and quarries
	open lake or deep river
	fence rows with cover, or shelterbelts
	terrain appreciably undulating, hilly, or with ravines
	creek flood plain

Diversity of Surrounding Habitat Score (1 for each, maximum 7 points) _____

1.2.4 PROXIMITY TO OTHER WETLANDS

(Check first appropriate category only)		Scoring
1)	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river within 1.5 km	8 points
2) ✓	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km	8
3)	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river from 1.5 to 4 km away	5
4)	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away	5
5)	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water	5
6)	Within 1 km of other wetlands, but not hydrologically connected by surface water	2
7)	No wetland within 1 km	0

Proximity to other Wetlands Score (Choose one only, maximum 8 points) 8

1.2.5 INTERSPERSION

Number of Intersections (Check one)		Score
1) 26 or less	____	3
2) 27 to 40	____	6
3) 41 to 60	____	9
4) 61 to 80	____	12
5) 81 to 100	✓	15
6) 101 to 125	____	18
7) 126 to 150	____	21
8) 151 to 175	____	24
9) 176 to 200	____	27
10) >200	____	30

Interspersion Score (Choose one only, maximum 30 points) 15

1.2.6 OPEN WATER TYPES

Permanently flooded: (Check one)		Score
1) ____	type 1	8
2) ____	type 2	8
3) ____	type 3	14
4) ____	type 4	20
5) ____	type 5	30
6) ____	type 6	8
7) ____	type 7	14
8) ____	type 8	3
9) ✓	no open water	0

Open Water Type Score (Choose one only, maximum 30 points) 0

3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION

If the wetland is a complex including isolated wetlands, apportion the 100 points according to area. For example, if 10 ha of a 100 ha complex is isolated, the isolated portion receives the maximum proportional score of 10. The remainder of the wetland is then evaluated out of 90.

Step 1 Determination of Maximum Score

___ Wetland is located on one of the defined 5 large lakes or 5 major rivers (Go to Step 4).
___ Wetland is entirely isolated (i.e. not part of a complex) (Go to Step 4)
√ All other wetland types (Go through steps 2, 3, and 4B)

Step 2. Determination of Upstream Detention Factor (DF)

(a)	Wetland area (ha)	1.39
(b)	Total area (ha) of upstream detention areas (include the wetland itself)	43.57
(c)	Ratio of (a):(b)	0.032
(d)	Upstream detention factor: (c) x 2 = (maximum allowable factor = 1)	0.064

Step 3 Determination of Wetland Attenuation Factor (AF)

(a)	Wetland area (ha)	1.39
(b)	Size of catchment basin (ha) upstream of wetland (include wetland itself in catchment area)	201.18
(c)	Ratio of (a):(b)	0.007
(d)	Wetland attenuation factor: (c) x 10 = (maximum allowable factor = 1)	0.014

Step 4. Calculation of final score

(a)	Wetlands on large lakes or major rivers	0
(b)	Wetland entirely isolated	100
(b)	All other wetlands -- calculate as follows:	
	Initial score	100*
	Upstream detention factor (DF) (Step 2)	0.064
	Wetland attenuation factor (AF) (Step 3)	0.014
	Final score: ((DF + AF)/2) x Initial score =	4

*Unless wetland is a complex with isolated portions (see above).

Flood Attenuation Score (maximum 100 points) 4

3.2 WATER QUALITY IMPROVEMENT

3.2.1 SHORT TERM WATER QUALITY IMPROVEMENT

Step 1: **Determination of maximum initial score**

____ Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5a)
✓ All other wetlands (Go through Steps 2, 3, 4, and 5b)

Step 2: **Determination of watershed improvement factor (WIF)**

Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA = area of site type/total area of wetland)	Fractional Area	
FA of isolated wetland	____ x 0.5 =	____
FA of riverine wetland	____ x 1.0 =	____
FA of palustrine wetland with no inflow	1 x 0.7 =	0.7
FA of palustrine wetland with inflows	____ x 1.0 =	____
FA of lacustrine on lake shoreline	____ x 0.2 =	____
FA of lacustrine at lake inflow or outflow	____ x 1.0 =	____

Sum (WIF cannot exceed 1.0) 0.7

Step 3: **Determination of catchment land use factor (LUF)**

(Choose the first category that fits upstream landuse in the catchment.)

1) ____	Over 50% agricultural and/or urban	1.0
2) ____	Between 30 and 50% agricultural and/or urban	0.8
3) ✓	Over 50% forested or other natural vegetation	0.6

LUF (maximum 1.0) 0.6

Step 4: **Determination of pollutant uptake factor (PUT)**

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the dominant live vegetation type. (FA = area of vegetation type/total area of wetland)

	Fractional Area	
FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	____ x 0.75 =	____
FA of wetland with emergent, submergent or floating vegetation (re,be,ne,su,f,ff)	____ x 1.0 =	____
FA of wetland with little or no vegetation (u)	____ x 0.5 =	____

no access to determine.

Sum (PUT cannot exceed 1.0) ____

Step 5: **Calculation of final score**

(a)	Wetland on large lakes or major rivers	0
(b)	All other wetlands - calculate as follows	
	Initial score	60
	Water quality improvement factor (WQF)	_____
	Land use factor (LUF)	_____
	Pollutant uptake factor (PUT)	_____

Final score: 60 x WQF x LUF x PUT = _____

Short Term Water Quality Improvement Score (maximum 60 points)_____

3.2.2 LONG TERM NUTRIENT TRAP

Step 1:

_____	Wetland on large lakes or 5 major rivers	0 points
_____	All other wetlands (Proceed to Step 2)	

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

1) _____	Wetland located in a river mouth	10 points
2) _____	Wetland is a bog, fen, or swamp with more than 50% of the wetland being covered with organic soil	10
3) _____	Wetland is a bog, fen, or swamp with less than 50% of the wetland being covered with organic soil	3
4) _____	Wetland is a marsh with more than 50% of the wetland covered with organic soil	3
5) _____	None of the above	0

no access to determine soil type

Long Term Nutrient Trap Score (maximum 10 points) _____

3.2.3 GROUNDWATER DISCHARGE

(Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points assign the maximum score of 30.)

Wetland Characteristics	Potential for Discharge		
	None to Little	Some	High
Wetland type	1) Bog = 0	2) Swamp/Marsh = 2	3) Fen = 5
Topography	1) Flat/rolling = 0	2) Hilly = 2	3) Steep = 5
Wetland Area:Upslope Catchment Area	Large (>50%) = 0	Moderate (5-50%) = 2	Small (<5%) = 5
Lagg Development	1) None found = 0	2) Minor = 2	3) Extensive = 5
Seeps	1) None = 0	2) = or < 3 seeps = 2	3) > 3 seeps = 5
Surface marl deposits	1) None = 0	2) = or < 3 sites = 2	3) > 3 sites = 5
Iron precipitates	1) None = 0	2) = or < 3 sites = 2	3) > 3 sites = 5
Located within 1 km of a major aquifer	N/A = 0	N/A = 0	Yes = 10

no access to determine

(Scores are cumulative, maximum score 30 points)

Groundwater Discharge Score (maximum 30 points)_____

3.3 CARBON SINK

Choose only one of the following

1) _____ Bog, fen or swamp with more than 50% coverage by organic soil — 5 points
2) _____ Bog, fen or swamp with between 10 to 49% coverage by organic soil — 2
3) _____ Marsh with more than 50% coverage by organic soil — 3
4) _____ Wetlands not in one of the above categories — 0

no access to determine soil type

Carbon Sink Score (maximum 5 points) _____

3.4 SHORELINE EROSION CONTROL

Step 1:

		Score
✓	Wetland entirely isolated or palustrine	0
_____	Any part of the wetland riverine, or lacustrine (proceed to Step 2)	

Step 2:

Choose the one characteristic that best describes the shoreline vegetation (see text for a definition of shoreline)

		Score
1) _____	Trees and shrubs	15
2) _____	Emergent vegetation	8
3) _____	Submergent vegetation	6
4) _____	Other shoreline vegetation	3
5) _____	No vegetation	0

Shoreline Erosion Control Score (maximum 15 points) 0

3.5 GROUND WATER RECHARGE

3.5.1 WETLAND SITE TYPE

		Score
(a)	Wetland > 50% lacustrine (by area) or located on one of the five major rivers	0
(b)	Wetland not as above. Calculate final score as follows: (FA = area of site type/total area of wetland)	

	Fractional Area	
FA of isolated or palustrine wetland	1 x 50 =	50
FA of riverine wetland	_____ x 20 =	_____
FA of lacustrine wetland (wetland <50% lacustrine)	_____ x 0 =	_____

Ground Water Recharge, Wetland Site Type Component Score (maximum 50 points) 50

3.5.2 WETLAND SOIL RECHARGE POTENTIAL

(Circle only one choice that best describes the hydrologic soil class of the area surrounding the wetland being evaluated.)

Dominant Wetland Type	1) Sand, loam, gravel, till	2) Clay or bedrock
1) Lacustrine or on a major river	0	0
2) Isolated	10	5
3) Palustrine	7	4
4) Riverine (not a major river)	5	2

No access to determine soil type

Ground Water Recharge, Wetland Soil Recharge Potential Score (maximum 10 points)_____

4.1.2 SPECIES

4.1.2.1 BREEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

Name of species	Source of information
1)_____	_____
2)_____	_____
3)_____	_____

Attach documentation.

Scoring:

For each species	250 points

no access to determine

(Score is cumulative, no maximum score)

Breeding Habitat for Endangered or Threatened Species Score (no maximum)_____

4.1.2.2 TRADITIONAL MIGRATION OR FEEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

Name of species	Source of information
1)_____	_____
2)_____	_____
3)_____	_____

Attach documentation.

Scoring:

For one species	150 points
For each additional species	75

no access to determine

(Score is cumulative, no maximum score)

Traditional Habitat for Endangered or Threatened Species Score (no maximum)_____

4.1.2.3 PROVINCIALLY SIGNIFICANT ANIMAL SPECIES

Name of species	Source of information
1)	
2)	
3)	
4)	
5)	

Attach separate list if necessary; Attach documentation

NO access to determine

Scoring:

Number of provincially significant animal species in the wetland:

One species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

(no maximum score)

Provincially Significant Animal Species Score (no maximum) _____

4.1.2.4 PROVINCIALLY SIGNIFICANT PLANT SPECIES

(Scientific names must be recorded)

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			

Attach separate list if necessary. Attach documentation.

Scoring:

Number of provincially significant plant species in the wetland:

One species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

no access to determine

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species Score (no maximum)_____

4.1.2.5 REGIONALLY SIGNIFICANT SPECIES (SITE REGION)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

SIGNIFICANT IN SITE REGION:

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			

Attach separate list if necessary. Attach documentation

Scoring:

No. of species significant in Site Region

One species	=	20	6 species	=	55
2 species	=	30	7 species	=	58
3 species	=	40	8 species	=	61
4 species	=	45	9 species	=	64
5 species	=	50	10 species	=	67

No access to determine.

Add one point for every species past 10. (No maximum score)

Regionally Significant Species Score (Site Region) (no maximum)_____

4.2.1.6 LOCALLY SIGNIFICANT SPECIES (SITE DISTRICT)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			

Attach separate list if necessary. Attach documentation.

Scoring:

No. of species significant in Site District

One species	=	10	6 species	=	41
2 species	=	17	7 species	=	43
3 species	=	24	8 species	=	45
4 species	=	31	9 species	=	47
5 species	=	38	10 species	=	49

no access to determine.

For each significant species over 10 in the wetland, add 1 point.

Locally Significant Species Score(Site District) (no maximum)

_____

4.2 SIGNIFICANT FEATURES AND/OR FISH & WILDLIFE HABITAT

4.2.1 NESTING OF COLONIAL WATERBIRDS

Status	Name of species	Source of Information	Score
1) Currently nesting			50 points
2) Known to have nested within past 5 years			25
3) Active feeding area (Do not include feeding by great blue herons)			15
4) None known			0

Attach documentation (nest locations, etc., if known)

Score highest applicable category only; maximum score 50 points.

Score for Nesting Colonial Waterbirds (maximum 50 points) 0

4.2.2. WINTER COVER FOR WILDLIFE

(Check only highest level of significance) (one only)		Score
1) _____	Provincially significant 100	
2) _____	Significant in Site Region	50
3) _____	Significant in Site District	25
3) _____	Locally significant	10
4) ✓	Little or poor winter cover present	0

Source of information: Aerial image interpretation.

Winter Cover for Wildlife Score (maximum 100 points) 0

4.2.3 WATERFOWL STAGING AND/OR MOULTING

(Check only highest level of significance for both staging and moulting; score is cumulative across columns, maximum score 150)

	Staging	Score (one only)	Moulting	Score (one only)
1) Nationally significant	_____	150	_____	150
2) Provincially significant	_____	100	_____	100
3) Regionally significant	_____	50	_____	50
4) Known to occur	_____	10	_____	10
5) Not possible	✓	0	_____	0
6) Unknown	_____	0	_____	0

Source of information: Aerial photo interpretation

Waterfowl Moulting and Staging Score (maximum 150 points) 0

4.2.4 WATERFOWL BREEDING

(Check only highest level of significance)		Score
1) _____	Provincially significant	100
2) _____	Regionally significant	50
3) ✓	Habitat suitable	10
4) _____	Habitat not suitable	0

Source of information: Aerial image interpretation.

Waterfowl Breeding Score (maximum 100 points) 10

4.2.5 MIGRATORY PASSERINE, SHOREBIRD OR RAPTOR STOPOVER AREA

(check highest applicable category)

		Score
1) _____	Provincially significant	100
2) _____	Significant in Site Region	50
3) _____	Significant in Site District	10
4) ✓	Not significant	0

Source of information: Aerial image interpretation

Passerine, Shorebird or Raptor Stopover Score (maximum 100 points) 0

4.2.7 FISH HABITAT

4.2.7.1 Spawning and Nursery Habitat

Table 5. Area Factors for Low Marsh, High Marsh and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5 - 4.9	0.2
5.0 - 9.9	0.4
10.0 - 14.9	0.6
15.0 - 19.9	0.8
20.0+ ha	1.0

Step 1:

V Fish habitat is not present within the wetland (Score = 0)

___ Fish habitat is present within the wetland (Go to Step 2)

Step 2: Choose only one option

1) ___ Significance of the spawning and nursery habitat within the wetland is known (Go to Step3)

2) ___ Significance of the spawning and nursery habitat within the wetland is not known (Go through Steps 4, 5, 6, and 7)

Step 3: Select the highest appropriate category below, attach documentation:

1) ___	Significant in Site Region	100 points
2) ___	Significant in Site District	50
3) ___	Locally Significant Habitat (5.0+ ha)	25
4) ___	Locally Significant Habitat (<5.0 ha)	15

Score for Spawning and Nursery Habitat (maximum score 100 points) 0

Step 4: Proceed to Steps 4 to 7 only if Step 3 was not answered.

(**Low Marsh**: marsh area from the existing water line out to the outer boundary of the wetland)

_____ Low marsh not present (Continue to Step 5)
_____ Low marsh present (Score as follows)

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16, Table 16-2) for each Low Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed				5	
4	Arrowhead-Pickerelweed				5	
5	Duckweed				2	
6	Smartweed-Waterwillow				6	
7	Waterlily-Lotus				11	
8	Waterweed-Watercress				9	
9	Ribbongrass				10	
10	Coontail-Naiad-Watermilfoil				13	
11	Narrowleaf Pondweed				5	
12	Broadleaf Pondweed				8	
Total Score (maximum 75 points)						

Step 5: (**High Marsh**: area from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.)
_____ High marsh not present (Continue to Step 6)
_____ High marsh present (Score as follows)

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each High 1Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16, Table 16-2) for each High Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	
2	Shortgrass-Sedge				11	
3	Cattail-Bulrush-Burreed				5	
4	Arrowhead-Pickerelweed				5	
Total Score (maximum 25 points)						

Step 6: (**Swamp**: Swamp communities containing fish habitat, either seasonally or permanently. Determine the total area of seasonally flooded swamps and permanently flooded swamps containing fish habitat.)

_____ Swamp containing fish habitat not present (Continue to Step 7)
_____ Swamp containing fish habitat present (Score as follows)

Swamp containing fish habitat	Present (check)	Total area (ha)	Area Factor (see Table 5)	Score	TOTAL SCORE (factor x score)
seasonally flooded				10	
permanently flooded				10	
SCORE (maximum 20 points)					

Step 7: Calculation of final score

Score for Spawning and Nursery Habitat (Low Marsh) (maximum 75) = ____

Score for Spawning and Nursery Habitat (High Marsh) (maximum 25) = ____

Score for Swamp Containing Fish Habitat (maximum 20) = ____

Sum (maximum score 100 points) = ____

4.2.6.2 Migration and Staging Habitat

Step 1:

1) ✓ Staging or Migration Habitat is not present in the wetland (Score = 0)

2) ___ Staging or Migration Habitat is present in the wetland, significance of the habitat is known (Go to Step 2)

3) ___ Staging or Migration Habitat is present in the wetland, significance of the habitat is not known (Go to Step 3)

NOTE: Only one of Step 2 or Step 3 is to be scored.

Step 2: Select the highest appropriate category below, attach documentation:

			Score
1)	___	Significant in Site Region	25 points
2)	___	Significant in Site District	15
3)	___	Locally Significant	10
4)	___	Fish staging and/or migration habitat present, but not as above	5

Score for Fish Migration and Staging Habitat (maximum score 25 points) 0

Step 3: Select the highest appropriate category below based on **presence** of the designated site type (does not have to be dominant). See Section 1.1.3. Note name of river for 2) and 3).

			Score
1)	___	Wetland is riverine at rivermouth or lacustrine at rivermouth	25 points
2)	___	Wetland is riverine, within 0.75 km of rivermouth	15
3)	___	Wetland is lacustrine, within 0.75 km of rivermouth	10
4)	___	Fish staging and/or migration habitat present, but not as above	0

Score for Staging and Migration Habitat (maximum score 25 points) 0

Sol-luce Kingston Solar PV Energy Project

25 A/B Wetlands

QUABBIN ROAD

VAN ORDER ROAD

HIGHWAY 38

ROCK ROAD

25B

25A

8

10

5

11

9

7A

4

2

3

Id

- 1
- 0
- Freeway
- Expressway / Highway
- Arterial Road
- Collector Road
- Local Road
- Watercourse
- Intermittent Stream; Permanent Stream (AMEC)
- Catchment Area
- Property Boundary of Project Location Lands
- Property Where New Lands for Study Occur
- Wetland
- Water Body

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