

November 30, 2015

proj#1695

Jack Gibbons
Chair, North Gwillimbury Forest Alliance
160 John St., #300
Toronto, Ontario M5V 2E5

Dear Mr. Gibbons,

Re: Peer Review of the Maple Lake Estates, Georgina, Ontario Environmental Impact Study

Natural Resource Solutions Inc. (NRSI) was retained by the North Gwillimbury Forest Alliance to complete a peer review of the *Maple Lake Estates, Georgina, Ontario Environmental Impact Study* (EIS) prepared by Dillon Consulting (Dillon Consulting 2015a). The EIS was completed on behalf of the DG Group for a proposed residential development within a property located in the Town of Georgina. As part of this peer review, NRSI also reviewed the *Edge Management Plan* (Dillon 2015b), which was appended to the EIS. The Terms of Reference agreed between NRSI and the North Gwillimbury Forest Alliance are attached as Appendix I.

It is understood that the proponent applied to the Lake Simcoe Region Conservation Authority (LSRCA) for a permit under Section 28 of the *Conservation Authorities Act* to allow development of the lands in accordance with municipal planning approvals granted in the late 1980s and early 1990s. The EIS and Edge Management Plan were prepared in support of this permit application. The LSRCA may issue a Section 28 permit provided that the requirements of the LSRCA's Ontario Regulation 179/06 have been met. This scientific peer review has been completed to understand if the EIS scope of work completed in support of the development was comprehensive and whether the findings are scientifically defensible.

This peer review does not seek to re-assess potential impacts of the proposed development. However, it does consider whether comprehensive information has been obtained and utilized to fully identify and mitigate impacts that may occur to the existing natural features. Although the PPS is not directly applicable as this project already has Official Plan and zoning bylaw approval from the local planning authority, the natural heritage protection policies of the PPS and Natural Heritage Reference Manual (OMNR 2010) have been used as a guide in this peer review in considering aspects of significance and sensitivity (e.g., Significant Wildlife Habitat (SWH), fish habitat). Accordingly, technical documentation including the Ontario Ministry of Natural Resources and Forestry (MNRF) Significant Wildlife Habitat Technical Guide (OMNR 2000) and Ecoregion Criteria Schedules Addendum for Ecoregion 6E (MNRF 2015) have been referred to in completion of this peer review.

The EIS was also reviewed against the following criteria adapted from the Terms of Reference, with general comments provided for each below:

- 1) *That the submitted study has been prepared by a qualified professional*
The EIS has been prepared by a qualified professional ecological consultant.

- 2) *That the submitted study follows accepted technical guidelines, standards, methodologies and procedures*
The EIS follows accepted technical guidelines, standards, methodologies and procedures. Comments requesting additional information (e.g., specific survey dates) are provided below to help confirm that appropriate survey timing requirements have been met.

- 3) *That the submitted study utilizes appropriate data, or if other data could have been used and if the information was properly analyzed*
It is recommended that the EIS consider additional sources of background information, and to consider additional aspects of natural feature significance and sensitivity (e.g., habitat for Species of Conservation Concern (SCC), which are considered SWH) that were not fully addressed.

- 4) *That relevant existing comprehensive studies for the area have been utilized or cross referenced*

It is recommended that the MNRF wetland evaluation for the Paradise Beach-Island Grove Provincially Significant Wetland (PSW) be summarized and referenced as a source of existing information for the subject property. We are not aware of other existing study reports that have been completed for the subject property.

- 5) *Is the assessment of impacts of development, their potential mitigation, and residual impacts thorough and credible?*
Based on the information contained within the EIS and Edge Management Report I would characterize the assessment of impacts as incomplete. The most notable omission from the assessment of impacts is that the golf course has not been considered. Other questions still remain as they relate to potential for impacts to the hydrological regime and confirmed or candidate Significant Wildlife Habitats, etc.

- 6) *Were impacts on natural heritage features and hydrologic features beyond the subject lands, including larger-scale features beyond 120 m from the property boundary, adequately considered? (Comments on hydrologic features will be limited to potential impacts on natural features that are affected by ground and surface water regimes.)*

While the PPS looks at lands within 120m, the Conservation of Lands test is not scoped as to study area distance. Potential impacts such as forest fragmentation, wildlife movement corridors or groundwater regimes should be considered at appropriate scales. There is no discussion of potential impacts beyond 120m within the reports.

- 7) *Whether the technical conclusions are reasonable.*

The EIS omits development details and potential impacts associated with the proposed golf course development as well as lands previously cleared of vegetation (10-20 years ago). It is recommended that the EIS consider these additional components of the development in the assessment of impacts and recommended mitigation and restoration/enhancement measures.

It is unclear if a hydrogeological study has been completed in support of this development. The EIS twice suggests that a hydrogeological assessment has been completed and should be referred to; however, no such assessment was submitted to LSRCA in support of the permit application. Due to the fact that much of the study area is PSW, understanding how ground and surface water regimes will be impacted or sustained through this development is critical to understanding how the remaining plant and wildlife habitats will be affected.

8) *Has future monitoring been appropriately addressed?*

The EIS includes section 6.7 Environmental Monitoring Plan which outlines monitoring of erosion and sediment controls during construction and makes reference to monitoring of restoration plantings and protected vegetation areas, but does not include any during- or post-construction monitoring of surface or groundwater quantity or quality. Best practice would normally include such monitoring.

9) *Is this an appropriate and sufficient study to support the owner's application for a Section 28 permit?*

A Section 28 permit may be issued by the Conservation Authority when a "development proposal has demonstrated, to the satisfaction of LSRCA staff, that there will be no negative impacts to the control of flooding, erosion, pollution, dynamic beaches or the **conservation of land**" (LSRCA 2015, p.24). The conservation of land "means the protection, management or restoration of lands within the watershed ecosystem for the purpose of maintaining or enhancing the natural features and hydrologic and ecological functions within the watershed" (Conservation Ontario, 2008). The Mining and Lands Commissioner has ruled that the conservation of land "includes all aspects of the physical environment, be it terrestrial, aquatic, biological, botanic or air and the relationship between them." (LSRCA, 2015, p.70). It is my professional opinion that the information contained in the EIS and Edge Management Plan is insufficient to convince me that the natural features and hydrologic and ecological functions that exist within the subject property and adjacent lands will be maintained or enhanced through this development. If LSRCA staff draw these same conclusions then this application will not satisfy the requirements for a Section 28 permit.

The EIS prepared by Dillon Consulting has been reviewed against the relevant background information, applicable policy documents and the EIS criteria identified. Detailed review comments have been organized to correspond to sections in the EIS.

Applicable Policy Framework for the EIS

It is understood that Maple Lakes Estates is an approved two-lot Registered Plan of Subdivision (registered August 18, 1992) with municipal development approvals through Official Plan policies and zoning provisions. As the applicable planning documents

currently stand, no further planning approvals would be required for the development to proceed.

However, it is understood that the proposed development is still subject to the LSRCA's O. Reg. 179/06 under the *Conservation Authorities Act*. The majority of the subject property occurs within the Paradise Beach-Island Grove PSW complex, as identified in the EIS. Section 2(1) of the O. Reg. 179/06 prohibits development within wetlands or areas where development could interfere with the hydrologic functioning of a wetland, including areas within 120m of PSW or within 30m of all other wetlands. Consequently, a permit from the LSRCA is required to allow development if it can be demonstrated that the conditions of the regulation can be met.

It is also understood that although the Registered Plan of Subdivision pre-dates the provincial *Endangered Species Act* (ESA), 2007, the Registered Plan is not exempt from the policies of the ESA. Therefore, evaluation of potential Species at Risk (SAR) impacts have been considered as part of this peer review.

Review of the EIS by Report Section

1.0 Introduction

1.1 General

This section provides a brief overview and context of the subject property and approved Registered Plan of Subdivision. It states the purpose and scope of the EIS, and refers to previous consultation with the LSRCA to establish the EIS scope. However, the EIS does not append any consultation documentation or an LSRCA-approved EIS Terms of Reference. It is therefore difficult to evaluate the EIS against an approved work scope. It is recommended that the approved Terms of Reference be appended to the EIS.

1.2 Description of Development

The EIS describes the proposed development as a phased project, comprising a Phase 1 residential development and Phase 2 golf course development. However, the EIS states a focus solely on development Phase 1. In order to understand all of the anticipated impacts, it is recommended that the EIS consider all of the development, including the proposed golf course, rather than just the Phase 1 residential development.

2.0 Planning Context

This section provides a comprehensive overview of the land use planning policies, legislation and regulations that relate to natural heritage and were reviewed in completion of the EIS. This section identifies which policy plans are applicable and not applicable to the Registered Plan of Subdivision, based on the dates of plan approval and registration relative to subsequent land use planning policies. Within the context of the PPS, it is stated in the EIS that the MNRF had confirmed, through an appended letter dated October 18, 2004, that the MNRF recognizes the legal status of the existing Registered Plan of Subdivision. However, the MNRF has rescinded its 2004 letter by way of a letter dated March 11, 2015. It is recommended that the EIS be updated to recognize the MNRF's most recent comments.

The EIS identifies the presence of two watercourses within the subject property. The report should indicate whether or not the federal *Fisheries Act* applies to these watercourses. If so, consideration for the policies of this Act should be made as part of the planning (and legislative) context for the EIS.

3.0 Methodology of Biophysical Inventory

This section of the EIS provides a description of desktop- and field-based methods to characterize the physical and biological features within the subject property. This includes a description of secondary information review of “endangered, rare and threatened species” as determined through review of the NHIC database. We agree with the need to reference NHIC species records to identify significant records for the subject property and vicinity. However, the EIS does not make reference to additional sources of background information, such as wildlife atlases, including the following:

- the Ontario Breeding Bird Atlas online database (Bird Studies Canada et al. 2006, <http://www.birdsontario.org/atlas/index.jsp>);
- the online Atlas of Reptiles and Amphibians in Ontario (Ontario Nature 2013, http://www.ontarionature.org/protect/species/reptiles_and_amphibians/index.php) ; and
- the Atlas of the Mammals of Ontario (Dobbyn 1994).

Were regulatory agencies, such as the MNRF and the LSRCA, contacted for additional background information on natural heritage features and significant species records in the subject property and vicinity? In particular, it is recommended that the MNRF be consulted to provide any additional records of SAR and SCC that may occur in the subject property vicinity.

Although policies governing SWH protection, in the PPS and municipal Official Plan, are not considered directly applicable to this development, it is nonetheless recommended that SWH occurrence within the subject property be considered as a means of assessing natural feature significance and sensitivity. NRSI has undertaken a desktop-level screening of SWH based on MNRF criteria (MNRF 2015) as described below.

The fieldwork program completed in support of this EIS contains survey methodologies that are considered appropriate based on the on-site natural features and the results of secondary source information review. Field-based surveys, including the completion of Ecological Land Classification (Lee et al. 1998), 3-season vegetation inventory, breeding bird surveys (Ontario Breeding Bird Atlas (OBBA) 2001) and amphibian call surveys (Bird Studies Canada 2008) appear to have been completed correctly according to standard methodology. However, the specific timing of individual surveys could not be ascertained (e.g., to confirm the 10-day minimum requirement between breeding bird surveys based on the OBBA protocol). The specific dates for individual surveys should be incorporated into the EIS.

The fieldwork program does not include an assessment of aquatic habitat or fish communities associated with the identified on-site watercourses. Is there rationale for why these field assessments were not included? The fieldwork program may also require consideration of additional survey methods based on the results of more comprehensive significant species and SWH screenings (e.g., assessment of bat habitat), as described below.

The EIS indicates that wetlands within the subject property were delineated using protocols outlined in the Southern Manual of the Ontario Wetland Evaluation System (OMNR 2003). It is understood that the subject property falls within the Aurora District of the MNRF, and that the MNRF undertakes responsibility for PSW boundary review and confirmation within this District. The then MNR issued an evaluation and mapping of the subject PSW in April 2004. Was the MNRF consulted to review and confirm the

delineated wetland boundaries within the subject property? Were confirmed wetland boundaries GPS-surveyed to sub-metre accuracy for mapping purposes?

4.0 Results – Biophysical Inventory

Section 4.0 provides a description of desktop- and field-based methods to effectively characterize the biological and physical features within the subject property. This includes an overview of historical land use, topographical and geological conditions, and vegetation and wildlife inventory results.

4.4 Vegetation

The EIS effectively documents the results of the 3-season vegetation inventory, including specific identification of species with a Coefficient of Conservatism of ≥ 7 , and species that are SAR or SCC (one species observed: Butternut (*Juglans cinerea*)). This section of the EIS correctly states that Butternut Health Assessments may be required for any of the eight identified Butternut trees that may be impacted by development.

4.5 Ecological Land Classification

The EIS provides a detailed description of each ELC community mapped within the subject property. However Map 3, Ecological Land Classification is overlain by the proposed street network and residential lot layout making it difficult to read. Specifically, the road network and areas that the EIS note to have been cleared 10-20 years ago do not appear to have been classified per ELC. As this is the characterization section of the report it does not make sense for the proposed development layout to be showing. Map 3 should be revised to show only the ELC polygons and area in hectares for the entire property.

4.6 Wetland Boundary Delineation

Figure 4 shows the majority of the subject property as “wetland communities”. Presumably, most if not all of these communities are part of the Paradise Beach Island Grove PSW. If so then Map 4 legend should be revised to identify “Wetland Communities” as PSW. If there are new polygons that do not correspond with the PSW units accessible from Land Information Ontario (LIO) they should be shown as unevaluated on EIS mapping.

Similar to comments pertaining to the ELC, it is unclear from Map 4 whether wetland areas exist beneath some of the road network and residential lot layout. The development layout details should not appear on the map, so that the wetland communities can be clearly seen.

4.7 Breeding Bird Survey

This section provides a comprehensive list of bird species that were inventoried during breeding bird surveys. However, it is recommended that descriptions of breeding evidence (i.e., breeding evidence codes defined in OBBA (2001)) be included for each species in Table 4.

The EIS describes observation of the SAR Barn Swallow (*Hirundo rustica*) and states that no nesting habitat for this species was found within the subject property. The EIS describes Barn Swallow as foraging within the subject property. Additional information on this species observation, including observation location(s) and number of individuals, should be provided in the EIS.

Two additional provincially significant species, Wood Thrush (*Hylocichla mustelina*) and Eastern Wood-Pewee (*Contopus virens*), were documented during field surveys. Both species are considered SCC in Ontario; nationally, Eastern Wood-Pewee is considered a Species of Special Concern while Wood Thrush is considered Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (MNR 2015, COSEWIC 2015). These species are considered Species of Conservation Concern (SCC) based on the definition provided in the Natural Heritage Reference Manual (OMNR 2010). Habitat for SCC are considered SWH by the Significant Wildlife Habitat Technical Guide (OMNR 2000). While these species and their habitats are not protected under the Species at Risk Act or ESA, as shown in Table 4, ignoring the significance of these observed species omits an aspect of observed habitat significance and sensitivity within the subject property. It is recommended that the EIS address the presence of SCC and SWH as one means of assessing on-site natural feature significance and sensitivity to development impact. It is further recommended that the EIS consider regionally or locally significant species that may have been inventoried, if significance information is available.

Additional information on the location of Wood Thrush and Eastern Wood-Pewee observations should be provided. Table 4 identifies “agricultural” and “marsh” as primary breeding habitats for Wood Thrush and Eastern Wood-Pewee, respectively. Neither of these habitat types are considered typical breeding habitat for their respective species. The report should clarify what level of breeding evidence was associated with each of these species observations.

4.8 Amphibian Survey

This section provides an overview of amphibian species documented through targeted surveys, including a detailed tabulation of species observations, calling codes and estimated abundances recorded through amphibian call surveys. This section correctly identifies Western Chorus Frog (*Pseudacris triseriata*), recorded through site surveys, as a SCC.

The EIS describes observation of three Jefferson/Blue-spotted Salamander Complex (*Ambystoma jeffersonianum-laterale*) individuals during salamander surveys. The EIS describes this species complex as having an S4 rating and not protected by federal or provincial SAR legislation. However, the Jefferson/Blue-spotted Salamander Complex has been given an NHIC S-ranking of S2 (Imperiled), making this Complex a SCC. Nonetheless, Jefferson Salamander (*Ambystoma jeffersonianum*) is not known from the vicinity of the subject property, with the nearest recorded population located near Newmarket (Jefferson/Blue-spotted hybrid) (COSEWIC 2010). It is therefore anticipated that the individuals observed may have been Blue-spotted Salamander (*Ambystoma laterale*).

4.10. Endangered, Threatened and Rare Species

This section summarizes the results of the NHIC background review, which identifies a record for one species, Arrow Clubtail (*Stylurus spiniceps*), which is considered absent from the subject property due to a lack of suitable habitat. This section lists two other SAR that were documented within the subject property: Butternut and Barn Swallow. This section does not list the SCC that were acknowledged in the EIS (Monarch (*Danaus plexippus*) and Western Chorus Frog) or the observed SCC that were not acknowledged (Wood Thrush and Eastern Wood-Pewee). For clarification, provincial Species at Risk are defined as species listed as Special Concern, Threatened, Endangered or Extirpated. Species at Risk designated as Special Concern provincially, or Threatened or Endangered on a national level only, are discussed under Species of Conservation Concern. Confirmed habitat for provincially Threatened and Endangered Species is

protected under the Endangered Species Act and the Provincial Policy Statement. It is recommended that additional information about the observation location(s) and abundances of these SCC be provided in Section 4 of the EIS.

As noted above, NRSI completed its own screening of SAR and SCC based on review of the following wildlife atlas sources and on-line information:

- Ontario Breeding Bird Atlas (Bird Studies Canada 2008)
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2015)
- Atlas of the Mammals of Ontario (Dobbyn 1994)
- MNRF SAR species known from York Region (<https://www.ontario.ca/environment-and-energy/species-risk-area>)

Appendix II includes a list of SAR and SCC (listed on the MNRF's Species at Risk in Ontario list or provincially ranked S1-S3 by NHIC) that was compiled based on NRSI's review of atlas squares from the sources listed above, in combination with significant species information provided in the EIS. Based on this review, a total of 1 vegetation species, 4 bird species, 3 herpetofauna species (excluding Jefferson/Blue-spotted Salamander Complex), 2 mammal species and 1 insect species were identified as having records in the subject property vicinity.

As part of the significant species screening exercise, NRSI staff completed a desktop-level habitat screening for each species, as shown in Appendix II. Habitat availability on the subject property was determined based on review of vegetation community descriptions provided in the EIS, and review of current satellite imagery of the property. These were cross-referenced against preferred habitat types known for each species (OMNR 2000). Based on this habitat screening, the following SAR were identified as having suitable habitat or potential on the subject property

- Butternut (observed)
- Barn Swallow (observed; foraging habitat only)
- Little Brown Myotis (not observed)
- Northern Myotis (not observed)

The following SCC were identified as having suitable habitat or potential on the subject property:

- Eastern Wood-Pewee (observed)
- Wood Thrush (observed)
- Red-headed Woodpecker (not observed)
- Snapping Turtle (not observed)
- Eastern Milksnake (not observed)
- Eastern Ribbonsnake (not observed)
- Western Chorus Frog (observed)
- Monarch (observed)

Based on the results of this screening, two bat SAR (regulated under the ESA) were deemed to have suitable habitat but were not observed. The fieldwork program did not include cavity tree assessments to identify the potential presence of bat SAR habitat within areas anticipated to require tree removal. Due to the potential for bat SAR habitat to occur within the subject property, it is recommended that additional field surveys be considered, in consultation with the MNRF. It is further recommended that the EIS be updated to assess significant species presence based on a more detailed background information review.

4.11 Agency Designated Environmental Features

This section recognizes the LSRCA regulated wetlands on-site as being associated with the Paradise Beach-Island Grove PSW complex. Due to the importance and widespread extent of this PSW complex to the subject property's natural feature characteristics, it is recommended that further information be provided about this PSW complex based on the MNRF's 2004 Wetland Evaluation. This may include information on aspects of wetland complex significance, rare species occurrences, etc. For example the Wetland Evaluation includes the following statements:

- “the 70 hectares of mixed and coniferous swamps and deciduous swamps with White Cedar in the understorey are locally significant for wintering White-tailed Deer “,
- “The swamps and associated upland forests support sensitive breeding forest bird species”,
- “The wetlands also support locally significant fish habitat”,
- “The Wetland Complex receives a high score of 211 for its hydrological component... The Paradise Beach – Island Grove Wetlands thus serve a critical role in water storage and in short term water quality improvement for three small watersheds that drain into Lake Simcoe” (MNR 2004).

4.12 Ecological Function

This section is subdivided to provide a more in depth discussion of the functional significance of the on-site natural features, including habitat connectivity, swamp hydrology and ecology, and drainage features. The EIS states that the property exists as part of a larger tract of forest and swamp communities extending to the east, south and west, and acknowledges the functional connectivity of the subject property to these areas. However, the EIS states that the fragmentation caused by major roads (e.g., Woodbine Avenue) limits the ecological function of this connectivity. Additional information should be provided about how these existing roads limit functional connectivity. Are these roads heavily travelled by cars, and does this fragmentation affect certain wildlife groups more than others?

This section provides a good summary description of the importance of the two-stage seasonal variation in swamp hydrology and why it is important this be maintained. It is stated in this section that there are two drainage features on the subject property, and that these features are the result of concentrated surface water flow with minimal groundwater inputs or base flow. The report should clarify how this was determined. As noted above, the EIS did not include an assessment of aquatic habitat. As noted, it is unclear whether a hydrogeological report was completed in support of this EIS. If a report was completed it is recommended that it be summarized in the impact assessment and appended to the EIS.

Figure 7 appears to show only one watercourse on the property, not two.

As noted above, an assessment of SWH is not included within this EIS. An assessment of SWH can be used to determine the functional importance of the subject property as wildlife habitat. As part of this peer review, NRSI completed a desktop-based SWH screening based on MNRF criteria established for Ecoregion 6E (MNRF 2015). The results of this screening, which was completed based on results presented in the EIS, are included in Appendix III. The screening table is comprised of 6 columns of information. The format of this table and the first 5 columns are from the MNRF Ecoregion Criterion Table for SWH. The 6th column has been added by NRSI to make a determination as to whether the habitat or species described in the first 5 columns of each row are found on-site, or if they have the potential to be found on-site (e.g. Candidate SWH). Typically this screening exercise is done at the outset of an EIS to

identify appropriate field studies that help determine whether SWH exist within a study area or not.

Based on this screening, the following SWH types were confirmed for the study area:

- Deer Yarding Area (based on Stratum 2 overwintering habitat mapped by MNRF)
- Deer Winter Congregation Area (based on Stratum 2 overwintering habitat mapped by MNRF)
- Habitat for Special Concern and Rare Wildlife Species (e.g., confirmed habitat for Western Chorus Frog)

This peer review did not attempt to interpret the EIS data in assessing the occurrence of SWH on the subject property. Rather, the screening exercise identified various Candidate SWH types based on the presence of suitable vegetation communities, regardless of the EIS survey results. The following Candidate SWH types were identified for the subject property based on presence of suitable vegetation community types:

- Waterfowl Stop-over and Staging Areas (Aquatic)
- Bat Maternity Colonies
- Turtle Wintering Areas
- Snake Hibernacula
- Colonially-nesting Bird Breeding Habitat (Trees/Shrubs)
- Waterfowl Nesting Area
- Bald Eagle and Osprey Foraging, Nesting and Perching Habitat
- Woodland Raptor Nesting Habitat
- Seeps and Springs
- Amphibian Breeding Habitat (Woodland)
- Woodland Area-Sensitive Bird Breeding Habitat
- Terrestrial Crayfish Habitat

It is recommended that the EIS be updated to incorporate an assessment of SWH. Several of these Candidate SWH types may potentially be addressed (i.e., confirmed or ruled out) based on the existing fieldwork data. Other forms of Candidate SWH may require additional targeted surveys to address (e.g., bat maternity colonies). The presence of confirmed and candidate SWH types should be incorporated into discussions about natural feature significance and sensitivity on the subject property.

5.0 Impact Assessment

As described above, the EIS should consider impacts associated with the proposed golf course and ancillary recreational features within this section.

5.1.1 Swamp Fragmentation and Alteration of Hydrologic Regime

This report section suggests that a net infiltration target for the property can be met through diversion of clean roof water into various swamp units, thereby maintaining the swamp's pre-construction hydrology. A proportion of non-roof impervious surface runoff is proposed for treatment in Low Impact Development (LID) features, for ultimate discharge into swamp units to help maintain hydrological balance. The source of this analysis should be clarified. It is unclear where the subject property infiltration target is derived from, or how the assessment was made and by whom. As stated above, NRSI did not have access to any hydrogeological report prepared for this subject property. Nonetheless, it is also stated in this section that "*preliminary and detailed design will demonstrate how the run-off area is the same under pre and post conditions*". It is recommended that a water balance analysis be completed and presented within the EIS

to effectively demonstrate how a water balance can be achieved between pre- and post-development phases. Otherwise, it is difficult to conclude that the development will not cause impact to the existing swamp hydrological regime.

Despite the sub-title, this section does not speak to impacts caused by swamp fragmentation.

5.1.2 Tree and Vegetation Removal

This section does a good job of breaking down the anticipated extents of vegetation removal within various vegetation community types on the subject property, as well as the extent and proportion of vegetated areas that will be preserved. However, as noted above, areas cleared 10-20 years ago were not included within these totals; it is anticipated that vegetation that has re-established within these areas will also require removal. This assessment also assumes that areas outside of the residential development will be preserved, although it's known that a large proportion of the remaining area is proposed for golf course development. The EIS should be revised to account for vegetation clearing requirements in the previously cleared areas, as well as lands proposed for golf course development.

5.1.4 Sedimentation of Natural Features

A summary of potential water quality impacts to Lake Simcoe receiving waters is presented. It is recommended that consideration also be given to impacts to on-site watercourses, including any potential impacts to fish habitat that should be considered under *Fisheries Act* regulations.

5.1.5 Loss of or Disturbance to Wildlife and Wildlife Habitat

Based on the more comprehensive assessment of significant species and SWH recommended above, it is suggested that this section provide further consideration toward impacts on these significant habitats, such as through direct habitat loss and fragmentation.

6.0 Mitigation and Opportunities for Enhancement

This section provides a comprehensive summary of various proposed mitigation techniques that have been proposed for implementation. The suite of key mitigation/enhancement/restoration categories proposed represents a solid foundation on which to base the mitigation strategy. This section provides additional information about each of the proposed mitigation types and how they may effectively mitigate potential or anticipated impacts caused by the development.

6.1 Low Impact Development Techniques

It is stated that the combination of LID techniques is expected to achieve the established net infiltration target for the subject property. The report should indicate how this assessment was completed to determine that the infiltration target would be met. Although this section provides information on a variety of LID measures that could be considered, it is acknowledged in the EIS that "*the suitability of individual LID techniques will be determined during the preliminary and detailed design phase of the development*". Is it possible, based on the existing design concept, to assess whether a water balance can be achieved, with details to be refined during detailed design? It is acknowledged that specific LID technique selection for the subject property may be determined through detailed design, subject to assessments of existing soils and hydrogeological conditions.

6.2 Corridor Conservation and Wildlife Movement Strategy

The EIS describes and maps a proposed wildlife corridor that would be preserved within and adjacent to the subject property, to maintain existing wildlife movement functions through the property between the Arnold Matthews Nature Reserve on the west and the lands east of Woodbine Avenue on the east. The EIS should assess whether certain species will be resilient to the narrowing of the existing wildlife movement habitat on-site, and whether certain species will be negatively affected. It is noted that a large proportion of the proposed wildlife corridor occurs off-property. No assurance is provided that the existing habitat within the off-property wildlife corridor areas will be maintained and preserved. It is also unclear whether the proposed wildlife corridor would conflict with the proposed golf course within the subject property.

6.5 Environmental Restoration and Enhancement Plan

The EIS speaks very little to recommended buffers, although this information is included in more detail within the Edge Management Plan. See below for comments on recommended buffers and on-site restoration and enhancement measures as discussed within the Edge Management Plan.

6.7 Environmental Monitoring Plan

This section identifies appropriate monitoring to be completed to ensure compliance with recommended erosion and sediment control measures. It is also stated that restoration planting and protected vegetation areas will require periodic monitoring to ensure no impacts caused by the adjacent development. However, the recommendations for the Environmental Monitoring Plan fall short of recommending monitoring of surface and/or groundwater quantity and quality within the study area. Effectiveness monitoring of water balance mitigation measures should be incorporated into the monitoring plan due to the higher potential for hydrologic impact on this site.

6.8 Stewardship Opportunities

The EIS references opportunities to integrate existing informal trails on the property with existing formal municipal and nature reserve trails. The report does not identify where are these informal and formal trails located on and adjacent to the subject property. Recommendations should be provided in terms of improving the informal on-site trails. The report should also consider whether this would represent additional potential for natural feature or species impact within areas to be retained (e.g., potential for trail use conflicts within the retained wildlife corridor). An impact assessment should be considered for a formal trail system on the subject property.

Stewardship/educational information provided to new homeowners, and the placement of educational/interpretive signage, as recommended in the EIS, represent suitable measures to help inform local residents and raise awareness about the significance of the surrounding natural features.

Edge Management Plan (Dillon Consulting, April 2015)

1.0 Introduction

The Edge Management Plan indicates that the scope of the plan was prepared in consultation with the LSRCA. It is not clear whether the scope was prescribed by the Terms of Reference for the EIS, or separately. If the latter, the relevant correspondence with the LSRCA should be appended to the report.

The Edge Management Plan refers to the proposed residential development on the subject property. It does not refer to the proposed golf course development on the property. In updating the EIS to incorporate the proposed golf course development, it is recommended that the Edge Management Plan also be updated accordingly.

2.0 Existing Conditions and Proposed Vegetation Clearing

2.1 Existing Forest Edge Conditions

Refer to EIS Section 4.5 comment regarding lack of ELC characterization of previously cleared areas on the subject property.

2.2 Proposed Vegetation Clearing to Establish the New Forest Edge

Areas cleared 10-20 years ago were not included in assessments of vegetation removal requirement summarized in Table 1. Were these areas considered in assessing vegetation removal requirements on the subject property?

Figure 5 illustrates ecological communities that will be preserved and located adjacent to the proposed residential development. However, it is acknowledged in the EIS that a proportion of these retained areas are proposed for development as a golf course. It is recommended that the Edge Management Plan be updated to incorporate the golf course development within the proposed development concept that is to be assessed.

3.0 Edge Management Plan

The Edge Management Plan clearly identifies various impacts to the existing natural features that may be caused by the proposed development if not appropriately mitigated. Various measures have been recommended across three temporal development phases, which if implemented, are intended to effectively minimize and mitigate negative ecological effects.

3.2 Vegetation Clearing to Establish the Development Limit

This section recommends appropriate measures to mitigate vegetation and wildlife impacts that may arise during vegetation clearing activities, such as avoiding the core bird nesting period, taking measures to protect the woodland edge during construction, and assessing the potential for impact to SAR Butternuts using accepted MNRF methods.

The Edge Management Plan recommends establishment of a 4m wide buffer between the forest edge and the edge of development (referred to as a “transition zone”). The report should explain what type of assessment was completed to conclude that a 4m wide transition zone would be sufficient for the protection of the adjacent natural features. It is noted that the MNRF commonly requests development setbacks of 30m from confirmed PSW boundaries. It is also stated that the 4m transition zone may be

used for construction vehicle turning. It is recommended that construction vehicles be maintained outside of the transition zone in order to avoid soil compaction impacts. We agree with the recommendation to clearly delineate the boundary of this transition zone. The outer boundary of the transition zone should be demarcated with suitable tree protection fencing.

3.3 Earthworks and Home Construction

This section recommends installation of tree protection fencing at the dripline of the new forest edge. The rationale for removing existing native vegetation within the 4m transition zone should be explained. It is recommended that tree protection fencing be installed along the outer boundary of the transition zone to preserve existing native vegetation.

We agree with the various additional measures that have been proposed as means of mitigating and monitoring construction-stage impacts on the adjacent natural features and transition zone.

3.4 Post-Construction

A general edge restoration plan has been recommended to mitigate post-development edge effects and provide a buffer between the development and the new forest edge. The Edge Management Plan indicates that the zone of restoration will generally vary between 1 and 5 metres. We are unsure whether the majority of proposed restoration will comprise areas of 1m width vs. 5m. It is recommended that the Edge Management Plan accurately map proposed zones of restoration (including their widths) on the subject property.

Figure 6 illustrates a cross-section of a typical restoration area. This figure shows an edge transition and restoration zone extending to within the dripline of the retained woodland edge trees. This conflicts with the Edge Management Plan recommendation that tree protection fencing be installed at the dripline of the new forest edge. It is also questionable whether the woodland edge transitional planting plan illustrated in Figure 6 can reasonably be accommodated within a 3m width of the transition zone, accounting for the 1m outer strip to be seeded with a herbaceous seed mix.

Figure 7 illustrates areas of new forest edge that are proposed for restoration. Assuming that removal of renaturalized vegetation in the previously cleared areas will be required, is there rationale to exclude edge restoration measures along these woodland edge sections?

The Edge Management Plan recommends various other measures for restoration planting and seeding which we consider appropriate. We also agree with the recommendations made for restoration monitoring.

4.0 Edge Management Plan Summary and Schedule

Table 4 presents a summary of edge management plan recommendations, divided into three temporal periods. This table recommends installation of tree protection fencing around the new forest edge during the “earthworks and home construction stage”. We recommend installation of tree protection fencing prior to the first phase of construction (“vegetation clearing to establish the development limit”) and that this fencing be established along the limits of the transition zone.

The schedule presented in Table 4 also indicates that restoration plantings should be installed within 24 months of completion of residential development construction. We

recommend that restoration plantings be installed following construction but prior to home ownership.

Appendix F: Forest/Swamp Loss Compensation Methodology

This appendix summarizes the methodology that was followed to derive a recommended quantity of tree plantings in compensation for the trees to be removed for residential development construction. The calculated areas of woodland, forest and swamp to be removed do not consider areas previously cleared 10-20 years ago that may have regenerated into one of the above three vegetation community types. We recommend that these previously cleared areas be considered in assessments of tree removal and compensation requirements.

The Edge Management Plan proposes to compensate for estimated forest/wetland loss by planting new trees equivalent to 30% of the trees removed. The report should clarify how the 30% tree replacement rate was selected. The report should also clarify the size of trees that will be planted.

The Edge Management Plan acknowledges that off-site tree compensation plantings will be required. The Plan should indicate what approximate proportion of compensation tree plantings can be accommodated within the subject property.

Conclusions and Recommendations

Overall, the Maple Lake Estates EIS followed a logical progression including a detailed description of methodology, characterization of the existing natural features, assessment of ecological significance, identification of anticipated or potential impacts, and recommended measures for mitigation, ecological restoration and monitoring. However, the EIS does not recognize the inclusion of the proposed golf course lands as part of the development and therefore does not address an important aspect of anticipated ecological impact on the property. For this fundamental reason alone, the EIS is considered incomplete.

While the EIS correctly acknowledges that various planning policies are not in force for the proposed residential development, it should be recognized that significant natural feature and ecological function types that are protected under those policies (e.g., fish habitat, SWH as under the PPS) should still be considered to fully characterize the significance and sensitivity of the features that may be impacted. Furthermore, a re-evaluation of SAR and SCC impacts that may occur, based on the updated screening provided above, should be considered. Therefore, it is recommended that the EIS be revised to incorporate additional aspects of natural heritage significance and sensitivity that occur within the subject property, and how these may be affected by the proposed development.

Additional key recommendations include the following:

1. An approved Terms of Reference and/or documented correspondence with the LSRCA regarding approved EIS scope should be appended to the EIS.
2. The EIS should consider regulatory implications of the MNRF's rescindment of their 2004 letter by way of their March 2015 letter regarding LSRCA regulatory authority.
3. A more comprehensive review of existing background information sources, and information requests to the applicable regulatory agencies, should be considered

- in enhancing the secondary source review of existing natural heritage and species information.
4. The need for aquatic habitat and fish community characterization on the subject property should be considered to inform the impact assessment and recommended mitigation measures.
 5. Areas that were previously cleared should be considered in natural feature characterization descriptions and mapping, and if necessary considered among assessments of required vegetation removal.
 6. Impacts to SAR and SCC should be re-assessed, and impacts to SWH assessed, in consideration of the desktop-level screenings provided above.
 7. Additional information should be provided to demonstrate that wetland water balance impacts will be effectively avoided or mitigated.
 8. Impacts on broader-scale natural heritage and hydrologic features beyond 120 m from the subject lands should be considered.
 9. Additional information should be provided to assess how the proposed wildlife movement corridor will maintain existing wildlife corridor functions through the subject property, including whether or how potential off-property impacts to the proposed corridor should be considered.
 10. Additional rationale is required to determine whether a conceptual pedestrian trail network can be accommodated within the subject property without conflicting with the proposed residential and golf course development plans or negatively impacting the retained natural features and functions.
 11. Additional rationale is required to support a 4m transition zone buffer between the development and new natural feature edges, and how the proposed restoration plan can be effectively accommodated within these zones.
 12. Clarification of the rationale supporting the proposed tree compensation ratio is requested.

I trust this review of the Maple Lake Estates EIS is of assistance in your review of the submitted Section 28 application. If you have any questions or require additional information or clarification, please do not hesitate to contact the undersigned.

Sincerely,
Natural Resource Solutions Inc.

A handwritten signature in black ink, appearing to read "Brett Woodman", with a long, sweeping horizontal line extending to the right.

Brett Woodman, M.E.S.
Senior Manager, Terrestrial and Wetlands Biologist, Certified Arborist

Appendix I Terms of Reference

North Gwillimbury Forest Alliance
Peer Review - Maple Lake Estates - Dillon EIS
Terms of Reference
September 25, 2015

1. NGFA is retaining a qualified consultant to conduct a scientific peer review of Dillon Consulting's Environmental Impact Study (EIS), including an appended Edge Management Plan, April 2015. These documents were submitted by Maple Lake Estates Inc. to the Lake Simcoe Region Conservation Authority, in support of its May 2015 application for a *Conservation Authorities Act* Section 28 permit to enable development on the subject property as described in the EIS. This permit would be required because 95% of the subject property is regulated by the CA as wetland or "other areas" (adjacent lands).
2. NGFA's planning consultant has already prepared a review of the EIS from a planning perspective, which will be provided to the retained consultant. The peer review should complement and not overlap the planning review.
3. The consultant will review any other available information that it considers necessary, first contacting NGFA for such information as NGFA may already have. A site visit is not expected and would not likely be permitted by the owner in any case.
4. The consultant will attempt to answer the following questions about the EIS:
 - Was it prepared by qualified professionals?
 - Did it follow generally accepted technical guidelines, standards, methodologies and procedures for the preparation of an EIS?
 - Were the appropriate data used and were they properly analyzed?
 - Were the relevant existing comprehensive studies for the area used and referenced?
 - Is the assessment of impacts of development, their potential mitigation, and residual impacts thorough and credible?
 - Were impacts on natural heritage features and hydrologic features beyond the subject lands, including larger-scale features beyond 120 m from the property boundary, adequately considered? (Comments on hydrologic features will be limited to potential impacts on natural features that are affected by ground and surface water regimes.)
 - Are the technical conclusions and recommendations reasonable?
 - Has future monitoring been appropriately addressed?
 - Is this an appropriate and sufficient study to support the owner's application for a Section 28 permit?

Appendix II Significant Species Screening

Federal and Provincial Significant Species Known from the Study Area and Vicinity

| Scientific Name | Common Name | SRANK ¹ | COSSARO ² | COSEWIC ³ | SARA Schedule ⁴ | Habitat Preference ^{5,6,7,8,9} | Background Source | Suitable Habitats within Subject Property | Observed within Subject Property |
|-------------------------------|--------------------------------------|--------------------|----------------------|----------------------|----------------------------|--|---|---|--|
| Vascular Plants | | | | | | | | | |
| <i>Platanthera leucophaea</i> | Eastern Prairie White-fringed Orchid | S2 | END | E | Schedule 1 | Fens, wet meadows, marshes and prairies. | MNRF 2015a | No | No |
| <i>Juglans cinerea</i> | Butternut | S3? | END | E | Schedule 1 | Generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows. | MNRF 2015b; Dillon Consulting 2015 | Yes | A total of 8 Butternuts were observed within the subject property during field surveys (Dillon Consulting 2015). |
| <i>Liparis liliifolia</i> | Purple Twayblade | S2 | THR | R | Schedule 1 | Dry sandy sites in open mixed woods, pine plantations and sumac thickets. | MNRF 2015a | No | No |
| Birds (Square 17PK20) | | | | | | | | | |
| <i>Ammodramus henslowii</i> | Henslow's Sparrow | SHB | END | E | Schedule 1 | Large, fallow, grassy area with ground mat of dead vegetation, dense herbaceous vegetation, ground litter and some song perches; neglected weedy fields; wet meadows; cultivated uplands; a moderate amount of moisture needed; requires a minimum tract of grassland of 40 ha, but usually in areas >100 ha. | MNRF 2015a | No | No |
| <i>Chlidonias niger</i> | Black Tern | S3B | SC | NAR | -- | Wetlands, coastal or inland marshes; large cattail marshes, marshy edges of rivers, lakes or ponds, wet open fens, wet meadows; returns to same area to nest each year in loose colonies; must have shallow (0.5 to 1m deep) water and areas of open water near nests; requires marshes >20 ha in size; feeds over adjacent grasslands | MNRF 2015a | No | No |
| <i>Contopus virens</i> | Eastern Wood-pewee | S4B | SC | SC | -- | Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearings, edges; farm woodlots, parks. | BSC et al. 2008; Dillon Consulting 2015 | Yes | Yes |
| <i>Dolichonyx oryzivorus</i> | Bobolink | S4B | THR | T | -- | Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha. | BSC et al. 2008 | No | No |
| <i>Hirundo rustica</i> | Barn Swallow | S4B | THR | T | -- | Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water. | BSC et al. 2008; Dillon Consulting 2015 | Yes (foraging habitat only) | Yes |
| <i>Hylocichla mustelina</i> | Wood Thrush | S4B | SC | T | -- | Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12m. | Dillon Consulting 2015 | Yes | Yes |
| <i>Icteria virens</i> | Yellow-breasted Chat | S2B | END | E | Schedule 1 | Thickets, tall tangles of shrubbery beside streams, ponds; requires tracts of grassland >50 ha overgrown bushy clearings with deciduous thickets; nests above ground in bush, vines etc. | MNRF 2015a | No | No |

| Scientific Name | Common Name | SRANK ¹ | COSSARO ² | COSEWIC ³ | SARA Schedule ⁴ | Habitat Preference ^{5,6,7,8,9} | Background Source | Suitable Habitats within Subject Property | Observed within Subject Property |
|-----------------------------------|-----------------------|--------------------|----------------------|----------------------|----------------------------|--|-------------------|---|----------------------------------|
| <i>Ixobrychus exilis</i> | Least Bittern | S4B | THR | T | Schedule 1 | Deep marshes, swamps, bogs; marshy borders of lakes, ponds, streams, ditches; dense emergent vegetation of cattail, bulrush, sedge; nests in cattails; intolerant of loss of habitat and human disturbance. | MNRF 2015a | No | No |
| <i>Lanius ludovicianus</i> | Loggerhead Shrike | S2B | END | E | Schedule 1 | Grazed pasture, marginal farmland with scattered hawthorn shrubs, hedgerows; fence posts, wires and associated low-lying wetland; located on core areas of limestone plain adjacent to Canadian Shield; greatest threat is fragmentation of suitable habitat due to natural succession; probably needs at least 25 ha of suitable habitat. | MNRF 2015a | No | No |
| <i>Melanerpes erythrocephalus</i> | Red-headed Woodpecker | S4B | SC | T | Schedule 1 | Open, deciduous forest with little understory; fields or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees; feeds on insects and stores nuts or acorns for winter; loss of habitat is limiting factor; requires cavity trees with at least 40 cm dbh; require about 4 ha for a territory. | MNRF 2015a | Yes | No |
| <i>Phalaropus tricolor</i> | Wilson's Phalarope | S3B | -- | -- | -- | Open wetlands, ponds, lakes, marshes and sloughs with wet meadow vegetation; freshwater coastal marshes; nests on ground in loose colonies; sewage lagoons with grassy edges; feeds on land and aquatic insects; may nest in loose colonies where nests are 9 to 12m apart. | BSC et al. 2008 | No | No |
| <i>Riparia riparia</i> | Bank Swallow | S4B | THR | T | -- | Sand, clay or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits, road-cuts, grassland or cultivated fields that are close to water. | BSC et al. 2008 | No | No |
| <i>Rallus elegans</i> | King Rail | S2B | END | E | Schedule 1 | Large, shallow, fresh water marshes, shrubby swamps, marshy borders of lakes and ponds with abundant vegetation; an 'edge' species; territories are 0.3 to 0.5 ha; loss of large marshes in the south is limiting to this species. | MNRF 2015a | No | No |
| <i>Setophaga cerulea</i> | Cerulean Warbler | S3B | E | THR | Schedule 1 | Mature deciduous woodland of Great Lakes-St. Lawrence and Carolinian forests, sometimes coniferous; swamps or bottomlands with large trees; area sensitive species needing extensive areas of forest (>100 ha). | MNRF 2015a | No | No |
| <i>Sturnella magna</i> | Eastern Meadowlark | S4B | THR | T | -- | Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size. | BSC et al. 2008 | No | No |

| Scientific Name | Common Name | SRANK ¹ | COSSARO ² | COSEWIC ³ | SARA Schedule ⁴ | Habitat Preference ^{5,6,7,8,9} | Background Source | Suitable Habitats within Subject Property | Observed within Subject Property |
|--|--|--------------------|----------------------|----------------------|----------------------------|---|---|---|----------------------------------|
| Herpetofauna (Square 17PK20) | | | | | | | | | |
| <i>Ambystoma jeffersonianum</i> | Jefferson Salamander | S2 | END | E | Schedule 1 | Damp shady deciduous forest, swamps, moist pasture, lakeshores; temporary woodland pools for breeding; hides under leaf litter, stones or in decomposing logs. | MNRF 2015a | No. Although individuals (3) of Jefferson/Blue-spotted Salamander Complex observed on-site (Dillon Consulting 2015), this site is north of known Jefferson Salamander populations in Ontario. | No |
| <i>Apalone spinifera</i> | Spiny Softshell | S3 | THR | T | Schedule 1 | Intolerant of pollution; large river systems, shallow lakes and ponds with muddy bottoms and aquatic vegetation; basks on sandbars, mud flats, grassy beaches, logs or rocks; eggs are laid near water on sandy beaches or gravel banks in areas with sun; requires acceptable feeding, nesting, habitat and natural, undisturbed corridors between these critical habitats. | MNRF 2015a | No | No |
| <i>Chelydra serpentina serpentina</i> | Snapping Turtle | S3 | SC | SC | Schedule 1 | Permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites. | Ontario Nature 2015 | Yes | No |
| <i>Emydoidea blandingii</i> | Blanding's Turtle (<i>Great Lakes/St Lawrence pop.</i>) | S3 | THR | T | Schedule 1 | Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks. | Ontario Nature 2015 | No | No |
| <i>Graptemys geographica</i> | Northern Map Turtle | S3 | SC | SC | Schedule 1 | Large bodies of water with soft bottoms, and aquatic vegetation; basks on logs or rocks or on beaches and grassy edges, will bask in groups; uses soft soil or clean dry sand for nest sites; may nest at some distance from water; home range size is larger for females (about 70ha) than males (about 30ha) and includes hibernation, basking, nesting and feeding areas; aquatic corridors (e.g. stream) are required for movement. | MNRF 2015a | No | No |
| <i>Lampropeltis taylori triangulum</i> | Eastern Milksnake | S3 | SC | SC | Schedule 1 | Farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods; hides under logs, stones, or boards or in outbuildings. | MNRF 2015a | Yes | No |
| <i>Pseudacris triseriata</i> pop. 2 | Western Chorus Frog (<i>Great Lakes/St. Lawrence - Canadian Shield Pop.</i>) | S3 | NAR | T | Schedule 1 | Roadside ditches or temporary ponds in fields; swamps or wet meadows; woodland or open country with cover and moisture; small ponds and temporary pools. | Ontario Nature 2015; Dillon Consulting 2015 | Yes | Yes |
| <i>Sternotherus odoratus</i> | Eastern Musk Turtle | S3 | SC | SC | Schedule 1 | Aquatic, except when laying eggs; shallow slow moving water of lakes, streams, marshes and ponds; hibernate in underwater mud, in banks or in muskrat lodges; eggs are laid in debris or under stumps or fallen logs at waters edge; often share nest sites; sometimes congregate at hibernation sites; not readily observed. | MNRF 2015a | No | No |

| Scientific Name | Common Name | SRANK ¹ | COSSARO ² | COSEWIC ³ | SARA Schedule ⁴ | Habitat Preference ^{5,6,7,8,9} | Background Source | Suitable Habitats within Subject Property | Observed within Subject Property |
|--|-------------------------|--------------------|----------------------|----------------------|----------------------------|--|---|---|----------------------------------|
| <i>Thamnophis sauritus septentrionalis</i> | Eastern Ribbonsnake | S3 | SC | SC | Schedule 1 | Sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams. | MNRF 2015a | Yes | No |
| Mammals | | | | | | | | | |
| <i>Myotis lucifuga</i> | Little Brown Myotis | S4 | END | E | Schedule 1 | Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges. | Dobbyn 1994 | Yes | No |
| <i>Myotis septentrionalis</i> | Northern Myotis | S3 | END | E | Schedule 1 | Hibernates during winter in mines or caves; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy. | Dobbyn 1994 | Yes | No |
| Fish | | | | | | | | | |
| <i>Clinostomus elongatus</i> | Redside Dace | S2 | END | E | Schedule 3 | Pools and slow-moving sections of relatively small (<10 m width), clear, cool, streams with sand or gravel bottoms, riffle/pool habitat and overhanging vegetation; preferred water temperature range 14-23°C. | MNRF 2015a | No | No |
| Insects | | | | | | | | | |
| <i>Bombus affinis</i> | Rusty-patched Bumblebee | S1 | END | E | Schedule 1 | Open habitats such as mixed farmland, urban settings, savannah, open woods and sand dunes. | MNRF 2015a | No | No |
| <i>Danaus plexippus</i> | Monarch | S2N, S4B | SC | SC | Schedule 1 | Host plant is Milkweed (<i>Asclepias</i> spp.). | Jones et al. 2015; Dillon Consulting 2015 | Yes | Yes |
| <i>Gomphus quadricolor</i> | Rapids Clubtail | S1 | END | E | Schedule 1 | Large streams and rivers with gravel in rocky riffles or rapids; also within sluggish mud-bottomed rivers. | MNRF 2015a | No | No |
| <i>Stylurus spiniceps</i> | Arrow Clubtail | S2 | -- | -- | -- | Sand-bottomed large rivers, rarely streams or lakes. | MNRF 2015b | No | No |

^{1,2}MNRF 2015a, ^{3,4}Government of Canada 2015, ⁵MNRF 2000, ⁶Layberry et al. 1998, ⁷Paulson 2011, ⁸Reznicek et al. 2015, ⁹Eakins 2015

| LEGEND | |
|------------------------|---------------------------------|
| SRANK | |
| S1 | Critically Imperiled |
| S2 | Imperiled |
| S3 | Vulnerable |
| S4 | Apparently Secure |
| B | Breeding |
| N | Non-breeding |
| COSSARO/COSEWIC | |
| END/E | Endangered |
| THR/T | Threatened |
| SC/SC | Special Concern |
| NAR | Not at Risk |
| SARA Schedule | |
| Schedule 1 | Officially Protected under SARA |

Appendix III Significant Wildlife Habitat Screening

Significant Wildlife Habitat Assessment Tables

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|--|--|---|--|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Waterfowl Stopover and Staging Areas (Terrestrial) | | | | | |
| <p><u>Rationale:</u> Habitat important to migrating waterfowl.</p> | <p>American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall</p> | <p>CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.</p> | <p>Fields with sheet water during Spring (mid March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they considered SWH unless they have spring sheet water available ^{exviii}.</p> <p><u>Information Sources</u> • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities (CAs) • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area</p> | <p>Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{xxxi} • Any mixed species aggregations of 100ⁱ or more individuals required. • The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependent on local site conditions and adjacent land use is the significant wildlife habitat ^{cxviii}. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMIST^{cxix} Index #7 provides development effects and mitigation measures.</p> | <p>Suitable habitat not present within the study area. Not SWH</p> |

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

| | Wildlife Species ¹ | | Candidate SWH | | Confirmed SWH | Study Area |
|---|--|--|---|--|--|----------------------|
| | ELC Ecosite Codes ¹ | | Habitat Criteria and Information Sources ¹ | | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Waterfowl Stopover and Staging Areas (Aquatic) | | | | | | |
| Rationale: important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district. | Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked Duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback | MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 | <ul style="list-style-type: none"> • Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, 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). <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • Environment Canada • Naturalist clubs often are aware of staging/stopover areas. • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area | <p>Studies carried out and verified presence of:</p> <ul style="list-style-type: none"> • Aggregations of 100¹ or more of listed species for 7 days¹, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH ^{cdix} • The combined area of the ELC ecosites and a 100m radius area is the SWH ^{cdviii} • Wetland area and shorelines associated with sites identified within the SWHTG ^{cdviii} <p>Appendix K ^{cdix} are significant wildlife habitat.</p> <ul style="list-style-type: none"> • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" ^{cccd} • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMiST ^{cdix} Index #7 provides development effects and mitigation measures. | Deciduous swamp communities present within the subject property. | Candidate SWH |

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|---|--|--|--|---|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Shorebird Migratory Stopover Area | | | | | |
| Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use. | Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Ruddy Turnstone Sanderling Dunlin Whimbrel | BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5 | Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groyne and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area | Studies confirming: • Presence of 3 or more of listed species and > 1000 ¹ shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 ¹ Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area ^{cxviii} • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" ^{ccoc} • SWHMiST ^{cdix} Index #8 provides development effects and mitigation measures. | Suitable habitat not present within the study area. Not SWH |
| Wildlife Habitat: Raptor Wintering Area | | | | | |
| Rationale: Sites used by multiple species, a high number of individuals and used annually are most significant | Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl <u>Special Concern:</u> Short-eared Owl Bald Eagle | Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class: Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW | The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering sites need to be > 20 ha ^{cdvii, cdix} with a combination of forest and upland. ^{xxi, xxii, xxviii, xxx, xxxi, xxxi} Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands ^{cdix} Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water, large trees and snags available for roosting <u>Information Sources</u> • OMNRF Ecologist or Biologist • Field Natural Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Reports and other information available from Conservation Authorities CAs. | Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years) ^{cdix} for a minimum of 20 days by the above number of birds. ¹ • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" ^{ccoc} • SWHMiST ^{cdix} Index #10 and #11 provides development effects and mitigation measures. | Cultural meadow and woodland areas on the subject property are too small to support significant raptor wintering habitat. Not SWH |

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|------------------------------------|--|--|---|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Bat Hibernacula | | | | | |
| Rationale Bat hibernacula are rare habitats in Ontario landscapes. | Big Brown Bat Tri-coloured Bat | Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH) | <ul style="list-style-type: none"> Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. Active mine sites should not be considered as SWH The locations of bat hibernacula are relatively poorly known. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> OMNRF for possible locations and contact for local experts Natural Heritage Information Center (NHIC) Bat Hibernaculum Ministry of Northern Development and Mines for location of mine shafts. Clubs that explore caves (eg. Sierra Club) University Biology Departments with bat experts. | <ul style="list-style-type: none"> All sites with confirmed hibernating bats are SWH¹. The habitat area includes a 200m radius around the entrance of the hibernaculum^{ccviii, ccvii, i}, for most. Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"^{ccv}. SWHMIST^{ccix} Index #1 provides development effects and mitigation measures. | Suitable habitat not present within the study area. Not SWH |
| Wildlife Habitat: Bat Maternity Colonies | | | | | |
| Rationale: Known locations of forested bat maternity colonies is extremely rare in all Ontario landscapes. | Big Brown Bat Silver-haired Bat | Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM | <ul style="list-style-type: none"> Maternity colonies can be found in tree cavities, vegetation and often in buildings^{xxii, xxv, xxvi, xxvii, xxxi} (buildings are not considered to be SWH). Maternity roosts are not found in caves and mines in Ontario^{xxii}. Maternity colonies located in Mature deciduous or mixed forest stands^{ccix, ccx} with >10/ha large diameter (>25cm dbh) wildlife trees^{ccvii} Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3^{ccvii} or class 1 or 2^{ccxii} Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred^{ccx} <p><u>Information Sources</u></p> <ul style="list-style-type: none"> OMNRF for possible locations and contact for local experts University Biology Departments with bat experts. | <ul style="list-style-type: none"> Maternity Colonies with confirmed use by: <ul style="list-style-type: none"> >10 Big Brown Bats >5 Adult Female Silver-haired Batsⁱ The area of the habitat includes the entire woodland or the a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for wind Power Projects"^{ccv}. SWHMIST^{ccix} Index #12 provides development effects and mitigation measures. | The study area contains suitable forested habitat. Candidate SWH |

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|--|--|---|---|--|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Bat Migratory Stopover Area | | | | | |
| | Hoary Bat Eastern Red Bat Silver-haired Bat | No specified ELC types. | Long distance migratory bats typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migrations concentrate these species of bats at stopover areas. The location and characteristics of stopover habitats are generally unknown. <u>Information Sources</u> • OMNR for possible locations and contact for local experts • University of Waterloo, Biology Department | Long Point has been identified as a significant stopover habitat for fall migrating Silver-haired Bats, due to significant increases in abundance, activity and feeding that was documented during fall migration ^{ccv} . • The confirmation criteria and habitat areas for this SWH are still being determined. • SWHDSS ^{cdix} Index #38 provides development effects and mitigation measures | Criteria unavailable to assess significance of habitat within the study area. |
| Wildlife Habitat: Turtle Wintering Area | | | | | |
| <u>Rationale:</u> Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant | Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle | Snapping and Midland Painted Turtles - ELC Community Classes: SW, MA, OA and SA; ELC Community Series: FEO and BOO Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat. | For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen ^{cx, cx, cx, cxviii} . • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <u>Information Sources</u> • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF ecologist or biologist • Natural Heritage Information Center (NHIC) | • Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) ^{cvi} . • Congregation of turtles is more common where wintering areas are limited and therefore significant ^{cx, cx, cx, cxii} . • SWHMiST ^{cdix} Index #28 provides development effects and mitigation measures for turtle wintering habitat. | The study area contains suitable wetland (i.e. swamp) habitat. Candidate SWH |
| Wildlife Habitat: Snake Hibernaculum | | | | | |
| <u>Rationale:</u> Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant | <u>Snakes:</u> Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake <u>Special Concern:</u> Milksnake Eastern Ribbonsnake <u>Lizard:</u> <u>Special Concern</u> (Southern Shield population): Five-lined Skink | For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3 | • For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. The existence of features that go below the frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line ^{cx, cx, cxii} . • 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. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures ^{ccii} . <u>Information Sources</u> • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). • Reports and other information from CAs. • Local Field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. clubs • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks | Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or: individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or: individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • <u>Note:</u> If there are Special Concern Species present, then site is SWH • <u>Note:</u> Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population [i.e. strong hibernation site fidelity]. Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30m buffer is the SWH ¹ • SWHMiST ^{cdix} Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST ^{cdix} Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat. | The study area contains suitable habitat that would support potential snake hibernacula. Candidate SWH |

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|--|---|---|---|---|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Bank and Cliff) | | | | | |
| <p>Rationale: Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow populations are declining in Ontario.</p> | <p>Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)</p> | <p>Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns</p> <p>Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1</p> | <ul style="list-style-type: none"> Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. Does not include a licensed/permitted Mineral Aggregate Operation. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Reports and other information available from CAs Ontario Breeding Bird Atlas^{CCV} Bird Studies Canada; <i>NatureCounts</i> http://www.birdscanada.org/birdmon/ Field Naturalist clubs | <p>Studies confirming:</p> <ul style="list-style-type: none"> Presence of 1 or more nesting sites with 8^{CDIX} or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. A colony identified as SWH will include a 50m radius habitat area from the peripheral nests^{CCVI} Field surveys to observe and count swallow nests are to be completed during the breeding season Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{CCXI} SWHMiST^{CDIX} Index #4 provides development effects and mitigation measures | <p>Suitable habitat not present within the study area.</p> <p>Not SWH</p> |
| Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) | | | | | |
| <p>Rationale: Large Colonies are important to local bird population, typically sites are only known colony in area and are used annually.</p> | <p>Great Blue Heron Black-crowned Night-heron Great Egret Green Heron</p> | <p>SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1</p> | <ul style="list-style-type: none"> Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. Most nests in trees are 11 to 15m from ground, near the top of the tree. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Ontario Breeding Bird Atlas^{CCV}, colonial nest records. Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNR). NHIC Mixed Wader Nesting Colony Aerial photographs can help identify large heronries Reports and other information available from CAs MNRF District Offices Local naturalist clubs | <p>Studies confirming:</p> <ul style="list-style-type: none"> Presence of 5¹ or more active nests of Great Blue Heron or other listed species. The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH^{CC, CCVII} Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells SWHMiST^{CDIX} Index #5 provides development effects and mitigation measures. | <p>The study area contains suitable wetland (i.e. swamp) habitat.</p> <p>Candidate SWH</p> |

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|--|---|---|--|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Coloniality - Nesting Bird Breeding Habitat (Ground) | | | | | |
| <p>Rationale: Colonies are important to local bird populations, typically sites are only known colony in area and are used annually.</p> | <p>Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird</p> | <p>Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map).</p> <p>Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird)</p> <p>MAM1 – 6 MAS1 – 3 CUM CUT CUS</p> | <p>• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas.</p> <p>• Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • Ontario Breeding Bird Atlas^{ccv}, rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field naturalist clubs | <p>Studies confirming:</p> <ul style="list-style-type: none"> • Presence of >25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern¹. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH^{cc, ccvii} • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccvi} • SWHMiST^{cdix} Index #6 provides development effects and mitigation measures. | <p>Suitable habitat not present within the study area.</p> <p>Not SWH</p> |
| Wildlife Habitat: Migratory Butterfly Stopover Areas | | | | | |
| <p>Rationale: Butterfly stopovers areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.</p> | <p>Painted Lady Red Admiral</p> <p><u>Special Concern:</u> Monarch</p> | <p>Combination of ELC Community Series: Need to have present one Community Series from each landclass:</p> <p><u>Field:</u> CUM CUS CUT</p> <p><u>Forest:</u> FOC FOM FOD CUP</p> <p>Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed.</p> | <p>A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario^{cdix}.</p> <ul style="list-style-type: none"> • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat cxtviii, cxlix. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes xxxvii, xxxviii, xxxix, xl, xli. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities | <p>Studies confirm:</p> <ul style="list-style-type: none"> • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)^{viiii}. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day^{xxxvii}, significant variation can occur between years and multiple years of sampling should occur xl, xlii. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • SWHMiST^{cdix} Index #16 provides development effects and mitigation measures. | <p>Study area not located within 5 km of Lake Ontario.</p> <p>Not SWH</p> |

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|--|---|--|---|---|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Landbird Migratory Stopover Areas | | | | | |
| <p>Rationale: Sites with a high diversity of species as well as high number are most significant</p> | <p>All migratory songbirds.</p> <p>Canadian Wildlife Service Ontario website: http://www.on.ec.gc.ca/wildlife_e.html</p> <p>All migrant raptors species:</p> <p>Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)</p> | <p>All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD</p> | <p>Woodlots need to be >10 ha¹ in size and within 5km^{iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv} of Lake Ontario.</p> <ul style="list-style-type: none"> • If multiple woodlands are located along the shoreline, those woodlands <2km from Lake Ontario are more significant^{cxix} • Sites have a variety of habitats; forest, grassland and wetland complexes^{cxix}. • The largest sites are more significant^{cxix} • Woodlots and forest fragments are important habitats to migrating birds^{ccviii}, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH^{cxviii}. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program | <p>Studies confirm:</p> <ul style="list-style-type: none"> • Use of the woodlot by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr/May) and fall (Aug/Oct) migration using standardized assessment techniques. <p>Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{cccx}</p> <ul style="list-style-type: none"> • SWHMiST^{cxix} Index #9 provides development effects and mitigation measures. | <p>Study area not located within 5 km of Lake Ontario.</p> <p>Not SWH</p> |
| Wildlife Habitat: Deer Yarding Areas | | | | | |
| <p>Rationale: Winter habitat for deer is considered to be the main factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.</p> | <p>White-tailed Deer</p> | <p>Note: OMNRF to determine this habitat.</p> <p>ELC Community Series providing a thermal cover component for a deer yard would include: FOM, FOC, SWM and SWC.</p> <p>Or these ELC Ecosites: CUP2 CUP3 FOD3 CUT</p> | <ul style="list-style-type: none"> • Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%^{ccxv}. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual"^{ccxv} • Woodlots with high densities of deer due to artificial feeding are not significant. | <p>No Studies Required:</p> <ul style="list-style-type: none"> • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH^{vi, vii, viii, ix, x, i} • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations^{ccxv}. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST^{cxix} Index #2 provides development effects and mitigation measures. | <p>Deer Wintering Area (Stratum 2) identified within subject property.</p> <p>Confirmed SWH</p> |

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|-------------------------------|--|---|---|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Deer Winter Congregation Areas | | | | | |
| Rationale: Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions ^{cxviii} | White-tailed Deer | All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50ha may also be used. | <ul style="list-style-type: none"> • Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Eco-region 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands ^{cxviii}. • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha ^{cxoxv}. • Woodlots with high densities of deer due to artificial feeding are not significant. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • MNRF District Offices • LIO/NRVIS | <p>Studies confirm:</p> <ul style="list-style-type: none"> • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF ^{cxviii}. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF ¹. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques ^{cxoxv}, ground or road surveys, or a pellet count deer density survey ^{cxoxv}. • If a SWH is determined for Deer Wintering Area of if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMIST ^{cxix} Index #2 provides development effects and mitigation measures. | <p>Deer Wintering Area (Stratum 2) identified within subject property.</p> <p>Confirmed SWH</p> |

Significant Wildlife Habitat Assessment Tables

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

| Rare Vegetation Community ¹ | Candidate SWH | | | Confirmed SWH | Study Area |
|---|---|---|--|--|---|
| | ELC Ecosite Codes ¹ | Habitat Description ¹ | Detailed Information and Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Cliff and Talus Slopes | | | | | |
| <p><u>Rationale:</u> Cliffs and Talus Slopes are extremely rare habitats in Ontario.</p> | <p>Any ELC Ecosite within Community Series:</p> <p>TAO CLO TAS CLS TAT CLT</p> | <p>A Cliff is vertical to near vertical bedrock >3m in height.</p> <p>A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.</p> | <p>Most cliff and talus slopes occur along the Niagara Escarpment.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information on their website • Local naturalist clubs • Conservation Authorities | <ul style="list-style-type: none"> • Confirm any ELC Vegetation Type for Cliffs or Talus Slopes^{lxviii} • SWHMiST^{cxlix} Index #21 provides development effects and mitigation measures. | <p>Vegetation type not present within the study area.</p> <p>Not SWH</p> |
| Sand Barrens | | | | | |
| <p><u>Rationale:</u> Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.</p> | <p>ELC Ecosites: SBO1 SBS1 SBT1</p> <p>Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60%.</p> | <p>Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.</p> | <p>Any sand barren area, >0.5ha in size.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • OMNRF Districts. • Natural Heritage Information Center (NHIC) has location information on their website • Field naturalist clubs • Conservation Authorities | <ul style="list-style-type: none"> • Confirm any ELC Vegetation Type for Sand Barrens^{lxviii} • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)ⁱ. • SWHMiST^{cxlix} Index #20 provides development effects and mitigation measures. | <p>Vegetation type not present within the study area.</p> <p>Not SWH</p> |

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

| Rare Vegetation Community ¹ | Candidate SWH | | | Confirmed SWH | Study Area |
|---|--|--|---|---|---|
| | ELC Ecosite Codes ¹ | Habitat Description ¹ | Detailed Information and Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Alvar | | | | | |
| <p>Rationale: Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregion 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.</p> | <p>ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2</p> <p>Five Alvar</p> <p>Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema branchiatum</p> <p>These indicator species are very specific to Alvars within Ecoregion 6E</p> | <p>An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoo geographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover^{lxxviii}.</p> | <p>An Alvar site > 0.5 ha in size^{lxxv}.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • Alvars of Ontario (2000), Federation of Ontario Naturalists^{lxxvi}. • Ontario Nature – Conserving Great Lakes Alvars^{ccviii}. • Natural Heritage Information Center (NHIC) has location information on their website • Field Naturalist clubs • Conservation Authorities | <p>Field studies identify four of the five Alvar indicator species^{lxxv}.^{cxlix} at a Candidate Alvar site is Significant.</p> <ul style="list-style-type: none"> • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotics sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses^{lxxv}. • SWHMiST^{cxlix} Index #17 provides development effects and mitigation measures. | <p>Vegetation type not present within the study area.</p> <p>Not SWH</p> |

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

| Rare Vegetation Community ¹ | Candidate SWH | | | Confirmed SWH | Study Area |
|---|---|---|---|---|---|
| | ELC Ecosite Codes ¹ | Habitat Description ¹ | Detailed Information and Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Old Growth Forest | | | | | |
| <p><u>Rationale:</u> Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.</p> | <p>Forest Community Series: FOD FOC FOM SWD SWC SWM</p> | <p>Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.</p> | <p>Woodland Stands areas 30ha or greater in size or with at least 10 ha interior habitat assuming 100m buffer at edge of forest í.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • OMNRF Forest Resource Inventory mapping • OMNRF Forester, Ecologist or Biologist • Field Local naturalist clubs • Conservation Authorities • Sustainable Forestry License (SFL) companies will possibly know locations through field operations. • Municipal forestry departments | <p>Field Studies will determine:</p> <ul style="list-style-type: none"> • If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat ^{cxlviii} • The stand will have experienced no recognizable forestry activities ^{cxlvii} • The area of Forest Ecosites combined to make up the stand is the SWH. • Determine ELC Vegetation Type for forest stand ^{lxxviii} • SWHDSS^{cxlix} Index #23 provides development effects and mitigation measures. | <p>Vegetation type not present within the study area.</p> <p>Not SWH</p> |
| Savannah | | | | | |
| <p><u>Rationale:</u> Savannahs are extremely rare habitats in Ontario.</p> | <p>TPS1 TPS2 TPW1 TPW2 CUS2</p> | <p>A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.</p> | <ul style="list-style-type: none"> • No minimum size to site • Site must be restored or a natural site. • Remnant sites such as railway right of ways are not considered to be SWH. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • Natural Heritage Information Center (NHIC) has location information on their website • OMNRF Ecologists • Field naturalists clubs • Conservation Authorities | <p>Field studies confirm one or more of the Savannah indicator species listed in ^{lxxxv} Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used ^{cxlviii}.</p> <ul style="list-style-type: none"> • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics sp.). • SWHMiST^{cxlix} Index #18 provides development effects and mitigation measures. | <p>Vegetation type not present within the study area.</p> <p>Not SWH</p> |

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

| Rare Vegetation Community ¹ | Candidate SWH | | | Confirmed SWH | Study Area |
|--|--|--|---|---|---|
| | ELC Ecosite Codes ¹ | Habitat Description ¹ | Detailed Information and Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Tallgrass Prairie | | | | | |
| <p>Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.</p> | TPO1 TPO2 | A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. | <ul style="list-style-type: none"> No minimum size to site Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> OMNR Districts Natural Heritage Information Center (NHIC) has location information available on their website Field naturalists clubs Conservation Authorities | <p>Field studies confirm one or more of the Prairie indicator species listed in ^{boxv} Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used^{cxlviii}.</p> <ul style="list-style-type: none"> Area of the ELC Ecosite is the SWH Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). SWHMiST^{cxlix} Index #19 provides development effects and mitigation measures. | <p>Vegetation type not present within the study area.</p> <p>Not SWH</p> |
| Other Rare Vegetation Communities | | | | | |
| <p>Rationale: Plant communities that often contain rare species which depend on the habitat for survival.</p> | Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG ^{cxlviii} . Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH. | Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps. | <p>ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M^{cxlviii}</p> <p>The OMNR/NHIC will have up to date listing for rare vegetation communities.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Natural Heritage Information Center (NHIC) has location information available on their website OMNRF Districts Field naturalists clubs Conservation Authorities | <p>Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG^{cxlviii}.</p> <ul style="list-style-type: none"> Area of the ELC Vegetation Type polygon is the SWH. SWHMiST^{cxlix} Index #37 provides development effects and mitigation measures. | <p>Other rare vegetation types not present within the study area.</p> <p>Not SWH</p> |

Significant Wildlife Habitat Assessment Tables

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|---|---|---|---|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Waterfowl Nesting Area | | | | | |
| <p><u>Rationale:</u> Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.</p> | <p>American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard</p> | <p>All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4</p> <p>Note: includes adjacency to Provincially Significant Wetlands</p> | <p>A waterfowl nesting area extends 120m^{cxlix} from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120m of each individual wetland where waterfowl nesting is known to occur^{cxlix}.</p> <ul style="list-style-type: none"> • Upland areas should be at least 120m wide so that predators such as raccoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from CAs | <p>Studies confirmed:</p> <ul style="list-style-type: none"> • Presence of 3 or more nesting pairs for listed species excluding Mallards, or • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccxi} • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120m^{cxviii} from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST^{cxlix} Index #25 provides development effects and mitigation measures. | <p>Areas of suitable wetland-upland combinations occur within the subject property</p> <p>Candidate SWH</p> |

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|---|---|--|--|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Bald Eagle and Osprey Nesting, Foraging and Perching Habitat | | | | | |
| <p>Rationale: Nest sites are fairly uncommon in Eco-region 6E are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.</p> | <p>Osprey</p> <p><u>Special Concern:</u> Bald Eagle</p> | <p>ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands</p> | <ul style="list-style-type: none"> Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. Nature Counts, Ontario Nest Records Scheme data. OMNRF Districts Sustainable Forestry License (SFL) companies will identify additional nesting locations through field operations. Check the Ontario Breeding Bird Atlas ^{ccv} or Rare Breeding Birds in Ontario for species documented Reports and other information available from CAs. Field naturalists clubs | <p>Studies confirm the use of these nests by:</p> <ul style="list-style-type: none"> One or more active Osprey or Bald Eagle nests in an area^{cxlviii}. Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. For an Osprey, the active nest and a 300m radius around the nest or the contiguous woodland stand is the SWH^{ccvii}, maintaining undisturbed shorelines with large trees within this area is important^{cxlviii}. For a Bald Eagle the active nest and a 400-800m radius around the nest is the SWH^{cvi}, ^{ccvii}. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat^{cvi}. To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant^{ccvii}. Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccxi} SWHDSS SWHMIST ^{cxlix} Index #26 provides development effects and mitigation measures | <p>The subject property is in relatively close proximity to Lake Simcoe. Abundant wooded features occur on the subject property that may provide suitable nesting habitat.</p> <p>Candidate SWH</p> |

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|---|---|--|---|---|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Woodland Raptor Nesting Habitat | | | | | |
| <p><u>Rationale:</u> Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.</p> | <p>Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk</p> | <p>May be found in all forested ELC Ecosites.</p> <p>May also be found in SWC, SWM, SWD and CUP3.</p> | <p>All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat^{bxxxviii, boxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii}. Interior habitat determined with a 200m buffer^{cxlviii}.</p> <ul style="list-style-type: none"> Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or 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 old nest. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> OMNRF Check the Ontario Breeding Bird Atlas^{ccv} or Rare Breeding Birds in Ontario for species documented. Check data from Bird Studies Canada Reports and other information available from CAs | <p>Studies confirm:</p> <ul style="list-style-type: none"> Presence of 1 or more active nests from species list is considered significant^{cxlviii}. Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28ha area of habitat is the SWH^{ccvii}. Barred Owl – a 200m radius around the nest is the SWH^{ccvii}. Broad-winged Hawk and Coopers Hawk – a 100m radius around the nest is the SWH^{ccvii}. Sharp-shinned Hawk – a 50m radius around the nest is the SWH^{ccvii}. Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. SWHMiST^{cxlix} Index #27 provides development effects and mitigation measures. | <p>Suitable treed habitat is present within the study area. Barred Owl observed within the study area (Dillon Consulting 2015).</p> <p>Candidate SWH</p> |

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|--|--|---|--|--|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Turtle Nesting Area | | | | | |
| <p><u>Rationale:</u> These habitats are rare and when identified will often be the only breeding site for local populations of turtles</p> | <p>Midland Painted Turtle</p> <p><u>Special Concern:</u> Northern Map Turtle Snapping Turtle</p> | <p>Exposed mineral soil (sand or gravel) areas adjacent (<100m)^{cxviii} or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1</p> | <ul style="list-style-type: none"> • Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs and landowners | <p>Studies confirm:</p> <ul style="list-style-type: none"> • Presence of 5 or more nesting Midland Painted Turtles • One or more Northern Map Turtle or Snapping Turtle nesting is a SWHⁱ • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH^{cxviii}. • Travel routes from wetland to nesting area are to be considered within the SWH^{cxlix}. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMIST^{cxlix} Index #28 provides development effects and mitigation measures for turtle nesting habitat. | <p>Suitable habitat not present within the study area.</p> <p>Not SWH</p> |

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|---|--|--|--|---|---|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Seeps and Springs | | | | | |
| <p>Rationale: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.</p> | <p>Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.</p> | <p>Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.</p> | <p>Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system ^{cxvii, cxlix}</p> <ul style="list-style-type: none"> • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species ^{cxix, cxx, cxxi, cxxii, cxiii, cxiv} <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • Topographical Map • Thermography • Hydrological surveys conducted by CAs and MOE • Field naturalists clubs and landowners • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped. | <p>Field Studies confirm:</p> <ul style="list-style-type: none"> • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat ^{cxlviii}. • SWHMiST^{cxlix} Index #30 provides development effects and mitigation measures | <p>Seeps/springs may be present within the study area.</p> <p>Candidate SWH</p> |
| Wildlife Habitat: Amphibian Breeding Habitat (Woodland) | | | | | |
| <p>Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.</p> | <p>Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog</p> | <p>All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD</p> <p>Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.</p> | <ul style="list-style-type: none"> • Presence of a wetland, pond or woodland pool (including vernal pools) >500m² (about 25m diameter) ^{ccvii} within or adjacent (within 120m) to a woodland (no minimum size) ^{clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxxx, lxx}. Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat ^{cxlviii}. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org | <p>Studies confirm:</p> <ul style="list-style-type: none"> • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) ^{lxxi} or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys ^{cviii} will be required during the spring March-June when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the woodland area plus a 230m radius of woodland area ^{lxiii, lxv, lxvi, lxvii, lxviii, lxxx, lxx} if a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is the be included in the habitat. • SWHMiST^{cxlix} Index #14 provides development effects and mitigation measures. | <p>Suitable amphibian breeding habitat may exist within the study area.</p> <p>Candidate SWH</p> |

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|--|--|---|--|---|---|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Amphibian Breeding Habitat (Wetland) | | | | | |
| <p><u>Rationale:</u> These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations</p> | <p>Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Tree frog Western Chorus Frog Northern Leopard Frog Pickereel Frog Green Frog Mink Frog Bullfrog</p> | <p>ELC Community Classes SW, MA, FE, BO, OA and SA.</p> <p>Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.</p> | <ul style="list-style-type: none"> Wetlands >500m² (about 25m diameter)^{ccvii} supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats^{clxxxiv}. Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. Bullfrogs require permanent water bodies with abundant emergent vegetation. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Ontario Herpetofaunal Summary Atlas (or other similar atlases) Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. OMNRF Districts and wetland evaluations Reports and other information available from CAs. | <p>Studies confirm:</p> <ul style="list-style-type: none"> Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species and with at least 20 individuals (adults or eggs masses)^{lxxi, lxxiii}, or 2 or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant. The ELC ecosite wetland area and the shoreline are the SWH. A combination of observational study and call count surveys^{cviii} will be required during spring (March to June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. SWHMiST^{cxlix} Index #15 provides development effects and mitigation measures. | <p>Isolated wetland features not present within the study area.</p> <p>Not SWH</p> |
| Woodland Area-Sensitive Bird Breeding Habitat | | | | | |
| <p><u>Rationale:</u> Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.</p> | <p>Yellow-Bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren</p> <p>Special Concern: Cerulean Warbler Canada Warbler</p> | <p>All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD</p> | <ul style="list-style-type: none"> Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha.^{cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvii, clviii, clx} Interior forest habitats are at least 200m from forest edge habitat. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Local bird clubs Canadian Wildlife Service (CWS) for the location of forest bird monitoring. Bird studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to greatest value to interior species Reports and other information available from CAs. | <ul style="list-style-type: none"> Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. Conduct field investigations in spring and early summer when birds are singing and defending their territories. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccxi} SWHMiST^{cxlix} Index #34 provides development effects and mitigation measures. | <p>Contiguous treed habitat of suitable size (>30 ha) present within the study area.</p> <p>Candidate SWH</p> |

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

| Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area | |
|---|--|--|--|---|---|
| | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details | |
| Wildlife Habitat: Shrub/Early Successional Bird Breeding Habitat | | | | | |
| <p>Rationale: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records cxcix.</p> | <p>Indicator spp.: Brown Thrasher Clay-coloured Sparrow</p> <p>Common spp.: Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher</p> <p>Special Concern: Yellow-breasted Chat Golden-winged Warbler</p> | <p>CUT1 CUT2 CUS1 CUS2 CUW1 CUW2</p> <p>Patches of shrub ecosites can be complexed into a larger habitat for some bird species.</p> | <p>Large field areas succeeding to shrub and thicket habitats >10ha^{cxcv} in size.</p> <ul style="list-style-type: none"> • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years)¹. <p>Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species^{cxcviii}.</p> <p>Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.</p> <p>Information Sources</p> <ul style="list-style-type: none"> • Agricultural land classification maps Ministry of Agriculture • Local bird clubs • Ontario Breeding Bird Atlas^{cxcv} • Reports and other information available from CAs | <p>Field Studies confirm:</p> <ul style="list-style-type: none"> • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species¹. • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{cxcvi} • SWHMiST^{cxcix} Index #33 provides development effects and mitigation measures. | <p>Early successional habitat on the property is too small to support significant habitat function</p> <p>Not SWH</p> |
| Wildlife Habitat: Terrestrial Crayfish | | | | | |
| <p>Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare. ^{cctii}</p> | <p>Chimney or Digger Crayfish: (<i>Fallicambarus fodiens</i>)</p> <p>Devil Crawfish or Meadow Crayfish: (<i>Cambarus Diogenes</i>)</p> | <p>MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM</p> | <p>Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish.</p> <ul style="list-style-type: none"> • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <p>Information Sources</p> <ul style="list-style-type: none"> • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998 | <p>Studies Confirm:</p> <ul style="list-style-type: none"> • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites^{ccti} • Area of ELC Ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH • Surveys should be done April to August during in temporary or permanent water <p>Note the presence of burrows or chemistry are often the only indicator of presence, observation or collection of individuals is very difficult^{ccti}</p> <ul style="list-style-type: none"> • SWHMiST^{cxcix} Index #36 provides development effects and mitigation measures. | <p>Suitable Terrestrial Crayfish habitat may exist within the study area.</p> <p>Candidate SWH</p> |
| Wildlife Habitat: Special Concern and Rare Wildlife Species | | | | | |
| <p>Rationale: These species are quite rare or have experienced significant population declines in Ontario.</p> | <p>All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.</p> | <p>All plant and animal element occurrences (EO) within a 1 or 10km grid.</p> <p>Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.</p> | <p>When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites^{bcxviii}.</p> <p>Information Sources</p> <ul style="list-style-type: none"> • Natural Heritage Information Centre (NHIC) will have the Special Concern and Provincially Rare (S1-S3, SH) species lists with and element occurrences data. • NHIC Website: "Get Information": http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas^{cxcv} • Expert advice should be sought as many of the rare spp. have little information available about their requirements. | <p>Studies Confirm:</p> <ul style="list-style-type: none"> • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs to be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat. • SWHMiST^{cxcix} Index #37 provides development effects and mitigation measures. | <p>Several Special Concern and Rare Wildlife Species observed within study area. Refer to EIS (Dillon Consulting 2015) for further details.</p> <p>Confirmed SWH</p> |

Significant Wildlife Habitat Assessment Tables

Table 5. Characteristics of Animal Movement Corridors for Ecoregion 6E.

| | Wildlife Species ¹ | Candidate SWH | | Confirmed SWH | Study Area |
|--|--|---|--|---|--|
| | | ELC Ecosite Codes ¹ | Habitat Criteria and Information Sources ¹ | Defining Criteria ¹ | Assessment Details |
| Wildlife Habitat: Amphibian Movement Corridors | | | | | |
| <p>Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.</p> | <p>Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog</p> | <p>Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.</p> | <p>Movement corridors between breeding habitat and summer habitat^{cxixiv, cxov, cxovi, cxovii, cxoviii, cxoix, cxox, cxoxi}. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat – Wetland) of this Scheduleⁱ. <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Center NHIC • Reports and other information available from CAs • Field Naturalist Clubs</p> | <ul style="list-style-type: none"> • Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant^{cxlix}. • Corridors should have at least 15m of vegetation on both sides of waterway^{cxlix} or be up to 200m wide^{cxlix} of woodland habitat and with gaps <20m^{cxlix}. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat^{cxlix}. • SWHMiST^{cxlix} Index #40 provides development effects and mitigation measures. | <p>Amphibian Breeding Habitat - Wetland has not been identified as candidate or confirmed SWH within the study area. Therefore, amphibian movement corridors are not applicable.</p> <p>Not SWH</p> |
| Wildlife Habitat: Deer Movement Corridors | | | | | |
| <p>Rationale: Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.</p> | <p>White-tailed Deer</p> | <p>Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.</p> | <p>Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this scheduleⁱ. • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion^{cxooii, cxooiii, cxlix, cxciv}. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Center (NHIC) • Reports and other information available from CAs • Field Naturalist Clubs</p> | <ul style="list-style-type: none"> • Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering yard should be unbroken by roads and residential areas. • Corridors should be at least 200m wide^{cxlix} with gaps <20m^{cxlix} and if following riparian area with at least 15m of vegetation on both sides of waterway^{cxlix}. Shorter corridors are more significant than longer corridors, ^{cxlix}. • SWHMiST^{cxlix} Index #39 provides development effects and mitigation measures. | <p>The majority of the habitat functions as the overwintering habitat. Significant movement corridors to this overwintering habitat may occur off-site.</p> <p>Not SWH</p> |