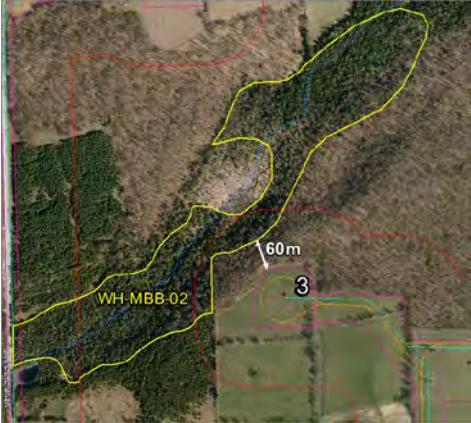
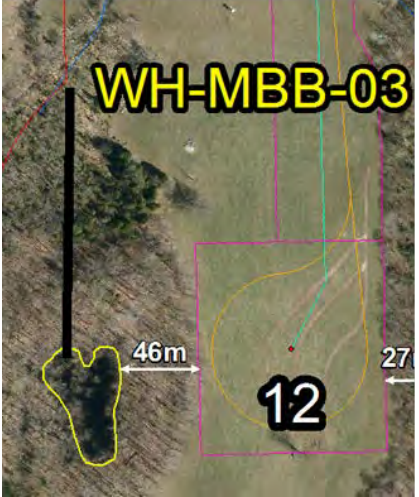
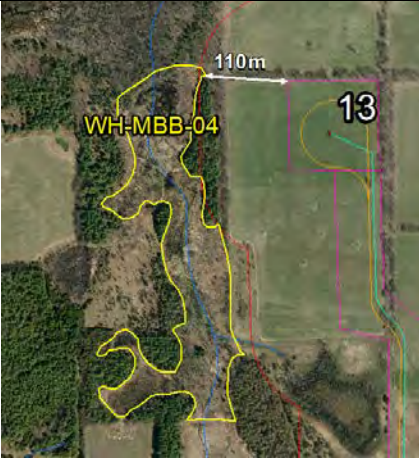
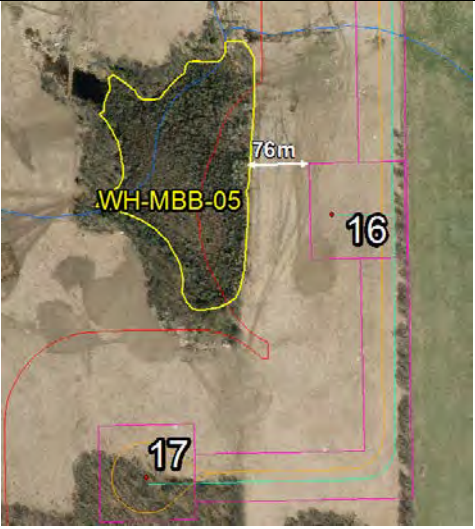
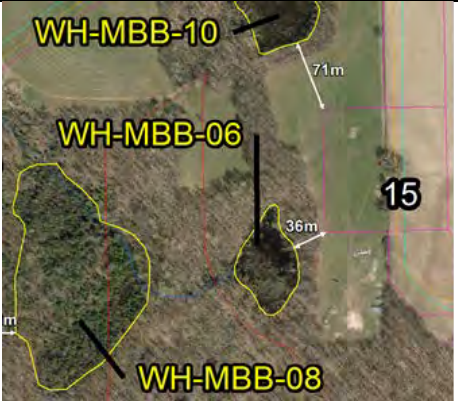




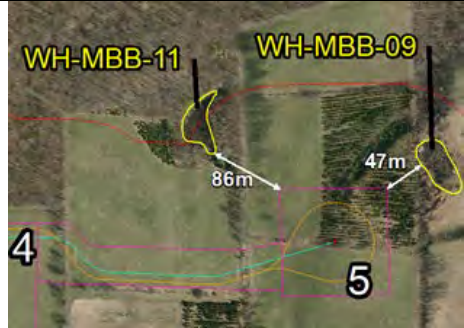

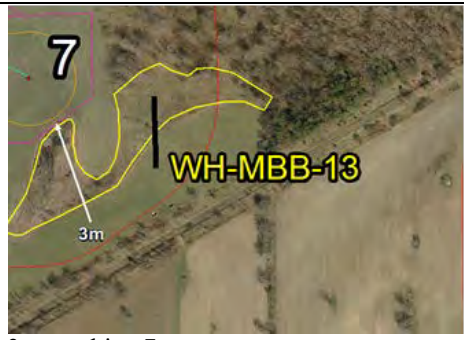
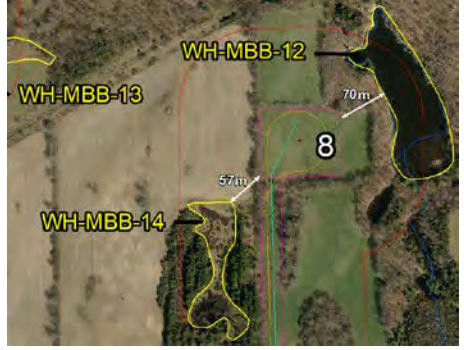


Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/No)
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-02	14.33	Unknown	Unit 33 - Tamarack balsam fir coniferous swamps	capillare). Dominated by tamarack, balsam fir with occasional black ash and red maple.	Potential habitat for marsh breeding birds		60m	Yes
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-03	0.20	Unknown	Unit 117 - red maple deciduous swamp	Wetland dominated by red maple, with some yellow birch, red ash ( <i>Fraxinus pennsylvanica</i> ), and white elm. Alder-leaved buckthorn ( <i>Rhamnus alnifolia</i> ) is abundant within the understory, while reed-canary grass and ferns ( <i>O. sensibilis</i> , <i>Osmunda regalis</i> , <i>Thelypteris palustris</i> var. <i>pubescens</i> ) are found within the ground layer.	Potential habitat for marsh breeding birds		46m	Yes
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-04	4.24	4.24	Unit 234 - balsam poplar deciduous swamp	White elm, balsam poplar, and trembling aspen are common species within the canopy with a few tamarack and white cedar mixed through. Lance-leaved aster, sedges, spotted joe-pye weed, reed-canary grass, and rough-leaved goldenrod are dominant within the ground layer.	Potential habitat for marsh breeding birds		110m	Yes

Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/No)
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-05	4.28	4.28	Unit 103 - Black ash deciduous swamp – Feature is isolated, and surrounded by primarily agriculture and with sugar maple deciduous forest bordering on southwest edge.	Wetland dominated by ash ( <i>Fraxinus</i> spp.) and maple ( <i>Acer</i> spp.) with abundant Chokeberry ( <i>Photinia melanocarpa</i> ), pussy willow, and leatherleaf ( <i>Chamaedaphne calyculata</i> ) in the understory, while fringed sedge ( <i>Carex crinita</i> ), reed-canary grass, and water parsnip ( <i>Sium suave</i> ) are abundant among groundcover.	Potential habitat for marsh breeding birds		76m	Yes
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-06	0.42	Unknown	Unit 120 - willow thicket swamp/red maple swamp	Slender willow, and red-osier dominate the community with red maple occurring along the perimeter, while sedges ( <i>Dulichium arundinaceum</i> ), grasses ( <i>Glyceria</i> spp., <i>P. arundinacea</i> ), and mosses are common in the ground layer. Red maple dominates the canopy with fewer white elm, white cedar, and yellow birch throughout.	Potential habitat for marsh breeding birds		36m	Yes
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-07	3.20	Unknown	Unit 124 - black ash deciduous swamp Unit 123 - forb mineral deciduous swamp	Black ash with occasional red maple and balsam fir are found within the canopy layer, while red-osier dogwood, willows and narrow leaf meadowsweet are common in the understory. Wood ferns ( <i>Dryopteris</i> spp.), sedges, spotted joe-pye weed ( <i>Eupatorium maculatum</i> var. <i>maculatum</i> ), and buttercup ( <i>Ranunculus</i> spp.) make up the ground layer. Dominated by forbs such as spotted joe-pye weed, buttercup, lance-leaved goldenrod, ferns and sedges. Occasional red ash and balsam fir.	Potential habitat for marsh breeding birds		8m	Yes

Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/No)
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-08	2.07	Unknown	Unit 119 - red maple coniferous mixed swamp	Red maple, black ash and balsam fir dominates the wetland while yellow birch and white cedar are found in the sub canopy. Red-osier dogwood and wild red currant ( <i>Ribes triste</i> ) are common in the understory. Manna grass, sensitive fern, white lettuce ( <i>Prenanthes alba</i> ), and sedges make up the ground layer.	Potential habitat for marsh breeding birds	 27m – turbine 12	27m	Yes
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-09	40	0.19	Unit 40 - Willow swamp thicket	Small pond too small to assess for ELC and OWES dominated by willows and contains meadow species such as spotted joe-pye weed, lance leaved aster and lance leaved goldenrod. Pond is ephemeral and dries up later in the year.	Potential habitat for marsh breeding birds	 47m – turbine 5	47m	Yes
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-10	0.41	Unknown	Unit 121 - willow thicket swamp	Pussy willow dominate the wetland with red maple trees occurring along the edge. The ground layer includes species such as bittersweet nightshade ( <i>Solanum dulcamara</i> ), dark-green bulrush ( <i>Scirpus atrovirens</i> ), marsh cinquefoil ( <i>Comarum palustre</i> ), and marsh fern.	Potential habitat for marsh breeding birds	 71m – turbine 15	71m	Yes

Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/No)
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-11	0.15	Unknown	Unit 38 - Red osier dogwood swamp thicket	Small pond too small to assess for ELC and OWES dominated by red-osier dogwood ( <i>Cornus sericea</i> ) with balsam poplar ( <i>Populus balsamifera</i> ). Pond is ephemeral and dries up later in the year.	Potential habitat for marsh breeding birds	 86m – turbine 5	86m	Yes
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-12	1.84	Unknown	Unit 51 - open water aquatic – Surrounded by sugar maple deciduous forest	The wetland is dominated by un-vegetated open water. A few trees of red maple ( <i>Acer rubrum</i> ) and yellow birch ( <i>Betula alleghaniensis</i> ) and shrubs consisting of red-osier dogwood ( <i>Cornus sericea</i> ssp. <i>sericea</i> ) and pussy willow ( <i>Salix discolor</i> ) occur along the edge or on elevated mounds within the pond.	Potential habitat for marsh breeding birds	 70m – turbine 8	70m	Yes
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-13	1.15	Unknown	Unit 132 - Cultural meadow	The meadow is dominated by spreading dogbane ( <i>Apocynum androsaemifolium</i> ssp. <i>androsaemifolium</i> ) and other abundant ground species which include field hawkweed ( <i>Hieracium caespitosum</i> ), goldenrods, and ribgrass ( <i>Plantago lanceolata</i> ).	Potential habitat for marsh breeding birds	 3m – turbine 7	3m	Yes
Wildlife Habitat (Marsh Bird Breeding) WH-MBB-14	0.87	Unknown	Unit 397 - Mineral Meadow Marsh	No species composition information	Potential habitat for marsh breeding birds	 70m – turbine 8	57m	Yes

Feature Type/ID	Size (ha)	Significance (if known)	Attributes (Vegetation Unit Number & Community Description)	Composition	Functions	Proximity of Feature to Project Location	Minimum distance between Feature & Project Location	Carried forward to EOS (Yes/No)
Wildlife Habitat (Species of Special Concern)	N/A	Unknown	All potential Species of Special Concern with potential to occur in the Study Area were carried forward to EOS with the exception of Short-eared owl for which no potential habitat was found in or within 120m of the Project Location (See Table 6 for further rationale).		Potential habitat for species of Special Concern.	All areas in or within 120m of the Project Location will be screened for Species of Special Concern	n/a	Yes
Generalized Candidate SWH	N/A	Treat as Significant	N/A	N/A	N/A	N/A	<120m	Yes

**Notes:** i All data extracted from EAST DURHAM WIND ENERGY CENTRE Bat Monitoring Report and Environmental Impact Study, NRSI 2012.

Where distance between project location and features is indicated to be 0m, the project component is located within the feature boundary; whereas, where distance is indicated as >0m, the project component proposed is not in the feature but directly adjacent to it.

## 4.0 EVALUATION OF SIGNIFICANCE

The REA process requires the applicant to determine if any natural features identified in or within 120 metres of the project location are significant or provincially significant to further determine whether development prohibitions and setbacks apply (O. Reg. 359/09, Section 38). Under Part IV, Section 27 of O. Reg. 359/09, an evaluation of significance, using procedures established or accepted by MNR, is required when the project location is proposed within 120 metres of a natural feature (or, 50 metres of an earth science ANSI). If a feature is evaluated and determined to be neither significant nor provincially significant, the feature is not subject to development prohibitions. In cases where a feature is determined to be significant and the project location is proposed within a setback, the applicant is required to conduct an Environmental Impact Study (EIS) to identify the potential negative environmental effects that may result from the proposed renewable energy project and describe how those potential effects will be addressed through mitigation and monitoring.

For some natural features (e.g. a wetland feature located outside of the project location but within the 120 metre setback) MNR has deemed it reasonable for the applicant to treat the feature as significant provided the applicant follows procedures established by MNR to assess attributes of the feature necessary for preparation of the Evaluation of Significance Report and completion of an EIS.

Table 8 indicates features for which an evaluation of significance was previously completed and obtained through records review.

**Table 8: Summary of Evaluations of Significance (EOS) received through Records Review.**

Feature Type	Vegetation Community within 120m of Project Location and Included in the Feature	Project Component & Distance from Feature	Source of Evaluation Information	EOS Criteria & Procedures Used (if known)	Evaluation Result
Beaver Meadow PSW			MNR	OWES	Provincially significant
Topcliff Swamp PSW	449	Underground electrical collection in road right of way = 83m.	MNR	OWES	Provincially significant
Deer Yarding Area	226, 230, 277, 278, 281, 287, 359, 424, 448, 405, 408, 438, 441	Underground electrical collection line on Concession 4 Road = 16m; Underground electrical collection line on County Rd. 23 = 103m	MNR	MNR field investigations	Significant Wildlife Habitat

## 4.1 METHODS

The following subsections summarize the criteria and procedures used to evaluate the significance of wetland, woodland, and valleyland features as well as candidate significant wildlife habitat carried forward from records review and site investigation. Table 10 summarizes the Evaluation of Significance methods used for wetland, woodland and valleyland features.

### 4.1.1 Wetlands

A total of 13 wetland features were identified as in or within 120 m of the project location through the records review and site investigation phases of the NHA and subsequently carried forward into the Evaluation of Significance phase. Two methodologies for the evaluation of wetlands have been established by MNR for renewable energy projects; a full evaluation conducted using the MNR's Ontario Wetland Evaluation System (OMNR, 2022); and, where the wetland is within the 120 m setback but not within the project locations itself, an evaluation according to Appendix C of the Natural Heritage Guide for Renewable Energy Projects (NHAG) (OMNR, 2011a). When Appendix C is applied for the evaluation of a wetland, the feature must be treated as provincially significant.

Wetlands assessed through field investigation over the 2011 and 2012 field seasons included a total of 13 features (WE-01 to WE-13). Most wetlands were field verified; however, in cases where access to the property was not granted the feature was assessed from the road or nearest accessible property boundary. Most of the wetland features were evaluated using Appendix C of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a). The application of Appendix C is described in more detail in Section 4.1.1.2. The exceptions to this were WE-06 and the wetland communities determined to be part of the Beaver Meadow PSW. In the case of WE-09, a full OWES evaluation was conducted (see Appendix F for details). In the case of wetland features identified within the Beaver Meadow PSW and Topcliff Swamp PSW, a status of provincial significance had previously been established by MNR; therefore, no further evaluation of significance was required.

#### 4.1.1.1 Ontario Wetland Evaluation System (OWES)

The OWES protocol was developed by the MNR to support the planning act. OWES ranks wetland features relative to one another based on a scoring system that uses four categories. Wetlands are identified, assessed and evaluated by trained individuals as features that are important from a biological, hydrological, social and special features perspective. Wetlands that score 200 points or more in the special features or biological sections; or, a total of 600 points or more overall are considered provincially significant and afforded protection through the Planning Act and Conservation Authority regulations. MNR is the approval agency for wetland evaluations, however anyone that has received MNR sanctioned OWES training can evaluate a wetland and submit the evaluation to MNR for consideration. The full OWES evaluation conducted for WE-06 is included in Appendix F..

#### 4.1.1.2 *Unevaluated Wetlands Treated as Significant*

The Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) describes a process by which applicants proposing renewable energy projects within 120 meters of an unevaluated wetland (but not within the wetland itself) can choose to treat the wetland as provincially significant (and conduct an EIS), provided the criteria and procedures found in the Wetland Characteristics and Ecological Functions Assessment for Renewable Energy Projects (Appendix C) are followed. This procedure was followed for 10 of the wetland features identified to be within 120m of the Project Location, as documented in Table 11. All of the wetlands features evaluated in this manner were treated as significant.

#### 4.1.2 Woodlands

The identification of woodlands in records review began with the County of Grey GIS data layer for woodlands. The location and boundary of woodlands was then verified and refined during ELC field surveys (for properties that were accessible and located within 120m of the Project Location) or interpretation of aerial photographs (where property access was not granted). As noted in Section 3.2.1 of this report, changes to records review where woodlands were concerned in or within 120m of the Project Location were minimal. For the purpose of evaluation of significance the GIS data layer of all wooded areas was used because it was most comprehensive (i.e., extended beyond 120m from the Project Location) and evaluation of woodlands of this size require a macro view of the landscape. When distance from the Project Location to woodland features was measured all measurements were done using the ELC data determined by LGL as this was done at a local, more detailed scale through field survey.

The 5 woodland features identified in or within 120m of the project location through records review and site investigation (Figure 13) were carried forward and evaluated according to the criteria outlined in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a). As described therein, any woodland feature that meets the minimum threshold for cover (>60% crown cover, or >10% crown cover where a minimum density criterion for trees of a particular size are also met) must be evaluated. Those that met the minimum standard for cover were further assessed using the criteria outlined in Table 8 of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a). There are 3 main criteria outlined in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a), and a woodland that meets any one of those is considered to be significant. The criteria, a description of how they were applied to the Project, and the sources used in the evaluation are provided in Table 9. The criteria as they appear in Table 9 have been tailored to the Study Area for the Project; specifically to reflect a woodland canopy cover of 33% as has been established for the Municipality of West Grey by Midhurst District MNR (Kevin Reese, personal communication, 2012).



**Table 9: Woodland Evaluation Criteria for Evaluation of Significance**

	<b>Criterion</b>	<b>Standards to be Met (Specific to the Project)</b>	<b>Methods Used in the Evaluation</b>
1	Woodland Size	<ul style="list-style-type: none"> <li>Woodland must be 50 ha in area with an average minimum width of 60 m measured to crown edges.</li> </ul>	<ul style="list-style-type: none"> <li>Interpretation of aerial photographs</li> <li>Use of County of Grey GIS provided for woodlands</li> <li>GIS calculation for distance and area</li> </ul>
2	a. Woodland Interior	<ul style="list-style-type: none"> <li>Interior habitat (that &gt; 100m from edge of feature) that measures at least 8 ha in size.</li> </ul>	<ul style="list-style-type: none"> <li>Interpretation of aerial photographs</li> <li>ELC mapping produced through site investigation</li> <li>GIS calculation for distance and area</li> </ul>
	b. Proximity to other Significant Woodlands or Habitats	<ul style="list-style-type: none"> <li>Portion of woodland is located within 30m from a significant natural feature or fish habitat and the entire woodland is at least 10 ha in size.</li> </ul>	<ul style="list-style-type: none"> <li>Interpretation of aerial photographs</li> <li>ELC mapping produced through site investigation</li> <li>GIS calculation for distance and area</li> <li>Results from evaluation of significance for wildlife habitat as reported in Section 4.1.4</li> <li>Site Investigation results from the Water Body Report completed for the East Durham Wind Energy Centre</li> </ul>
	c. Linkages	<ul style="list-style-type: none"> <li>Portion of woodland is located between 2 other significant features that are within 120 m and the woodland is at least 10 ha in size.</li> </ul>	<ul style="list-style-type: none"> <li>Interpretation of aerial photographs</li> <li>ELC mapping produced through site investigation</li> <li>GIS calculation for distance and area</li> </ul>
	d. Water Protection	<ul style="list-style-type: none"> <li>Located within 50 m of a sensitive groundwater discharge, recharge, or headwater area, watercourse or fish habitat and at least 4 ha in size.</li> </ul>	<ul style="list-style-type: none"> <li>Interpretation of aerial photographs</li> <li>ELC mapping produced through site investigation</li> <li>GIS calculation</li> </ul>
	e. Woodland Diversity Representation (Composition)	<ul style="list-style-type: none"> <li>A woodland at least 10 ha in size that is dominated either singly or in composition by native naturally occurring sugar maple, black maple, silver maple, red maple, yellow birch, hickory, beech, black ash, walnut, tamarack, spruce, pine, oak, basswood or hemlock.</li> </ul>	<ul style="list-style-type: none"> <li>Interpretation of aerial photographs</li> <li>ELC mapping produced through site investigation</li> <li>GIS calculation</li> </ul>
3	Uncommon Characteristics Criteria	<ul style="list-style-type: none"> <li>Woodland with:                             <ul style="list-style-type: none"> <li>a provincially ranked S1, S2 or S3 (according to NHIC) vegetation community and at least 0.5 ha in size;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Interpretation of aerial photographs</li> <li>ELC mapping produced through site investigation</li> <li>GIS calculation</li> </ul>

	Criterion	Standards to be Met (Specific to the Project)	Methods Used in the Evaluation
		<ul style="list-style-type: none"> <li>• habitat at least 0.5 ha in size that contains uncommon or restricted woodland plants that occur naturally (as detailed in <i>Table 8: Significant Woodland Evaluation Criteria and Standards, Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a)</i>).</li> <li>• characteristics of older woodlands or woodlands with larger tree size structure in native species (as detailed in <i>Table 8: Significant Woodland Evaluation Criteria and Standards, Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a)</i>).</li> </ul>	

A woodland meeting any one of the evaluation criteria is considered to be significant provided it also meets the minimum width requirement. The width requirement applied is based on the woodland cover within the lower- tier municipality which was determined as 33% for the Municipality of West Grey through consultation with Midhurst District MNR (Kevin Reese, personal communication, 2012). In this case, the criterion size threshold was determined as 50 ha and the minimum width of the woodland as 60m using the standards outlined in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a).

#### 4.1.3 Valleylands

The form and function of the 7 valleyland features identified to be in or within 120m of the Project Location are evaluated in Table 13. There are 3 main criteria outlined in Table 9 of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) for the evaluation of valley features, and a valleyland that meets any one of those is considered to be significant, and carried forward to the Environmental Impact Study.

**Table 10: Summary of Evaluation of Significance Methods for Wetland, Woodland and Valleyland Features**

<b>Feature ID (as shown in Figures 12, 13 and 14)</b>	<b>Minimum Distance From Project Location</b>	<b>Evaluation of Significance Criteria &amp; Procedures Used</b>	<b>Dates, Times &amp; Duration of Evaluation</b>	<b>Names of Evaluators (full qualifications in Appendix C)</b>
Wetland 1 WE-01	33m	NHAG: Appendix C Wetland Characteristics and Ecological Functions Assessment	July 18, 2012 10:30 – 17:00 8.5 hours	Jennifer Noël (OWES evaluator)
Wetland 2 WE-02	>0m	NHAG: Appendix C Wetland Characteristics and Ecological Functions Assessment	July 18, 2012 10:30 – 17:00 8.5 hours	
Wetland 3 WE-03	7m	NHAG: Appendix C Wetland Characteristics and Ecological Functions Assessment	July 19, 2012 08:00 – 16:00 8 hours	
Wetland 4 WE-04	62m	NHAG: Appendix C Wetland Characteristics and Ecological Functions Assessment	July 24, 2012 10:30 – 15:00 6.5 hours	
Wetland 5 WE-05	40m	NHAG: Appendix C Wetland Characteristics and Ecological Functions Assessment	August 8, 2012 10:30 – 18:00 7.5 hours	
Wetland 6 WE-06	>0m	OWES Significance and Ecological Functions Assessment	Feb. 29, 2012 09:30 – 16:00 6.5 hours March 1, 2012 09:00 – 15:00 6 hours March 22, 2012 10:00 – 18:00 8 hours May 16, 2012 08:00-14:30 6.5 hours May 15, 2012 10:00-17:45 7.5 hours	
Wetland 7 WE-07	8m	NHAG: Appendix C Wetland Characteristics and Ecological Functions Assessment	July 18, 2012 10:30 – 17:00 8.5 hours	
Wetland 8 WE-08	21m	NHAG: Appendix C Wetland Characteristics and Ecological Functions Assessment	July 18, 2012 10:30 – 17:00 8.5 hours	
Wetland 9 WE-09	>0m	NHAG: Appendix C Wetland Characteristics and Ecological Functions Assessment	July 19, 2012 08:00 – 16:00 8 hours July 24, 2012 10:30 – 15:00 6.5 hours August 8, 2012 10:30 – 18:00 7.5 hours	

<b>Feature ID (as shown in Figures 12, 13 and 14)</b>	<b>Minimum Distance From Project Location</b>	<b>Evaluation of Significance Criteria &amp; Procedures Used</b>	<b>Dates, Times &amp; Duration of Evaluation</b>	<b>Names of Evaluators (full qualifications in Appendix C)</b>
Woodland 1 WO-01	75m	NHAG: Section 6.2.2.1 Evaluation Criteria for Determining Significant Woodlands	May 12, 2011 10:30 – 17:00 25.5 hours Aug. 31, 2011 10:30 – 18:00 7.5 hours	Jennifer Noël Victoria Kennedy Martin O'Halloran Allison Featherstone
Woodland 2 WO-02	0m	NHAG: Section 6.2.2.1 Evaluation Criteria for Determining Significant Woodlands	Sept. 1, 2011 08:00 – 17:00 9 hours	
Woodland 3 WO-03	0m	NHAG: Section 6.2.2.1 Evaluation Criteria for Determining Significant Woodlands	Feb. 29, 2012 09:30 – 16:00 6.5 hours	
Woodland 4 WO-04	0m	NHAG: Section 6.2.2.1 Evaluation Criteria for Determining Significant Woodlands	March 1, 2012 09:00 – 15:00 6 hours March 22, 2012 10:00 – 18:00 16 hours	
Woodland 5 WO-05	0m	NHAG: Section 6.2.2.1 Evaluation Criteria for Determining Significant Woodlands	May 15, 2012 10:00-17:45 15.5 hours May 16, 2012 08:00-14:30 13 hours June 26, 2012 10:30 – 17:00 17 hours June 27, 2012 07:00 – 16:00 18 hours July 11, 2012 10:30 – 18:00 15 hours July 12, 2012 08:00 - 15:30 15 hours July 18, 2012 10:30 – 17:00 17 hours July 19, 2012 08:00 – 16:00 16 hours July 24, 2012 10:30 – 15:00 13 hours August 8, 2012 10:30 – 18:00 15 hours August 9, 2012 08:00 – 15:30 15 hours	

<b>Feature ID (as shown in Figures 12, 13 and 14)</b>	<b>Minimum Distance From Project Location</b>	<b>Evaluation of Significance Criteria &amp; Procedures Used</b>	<b>Dates, Times &amp; Duration of Evaluation</b>	<b>Names of Evaluators (full qualifications in Appendix C)</b>
Valleyland 1 VA-01	0m	NHAG: Section 6.2.3.1 Evaluation Criteria for Determining Significant Valleylands	May 15, 2012 10:00-17:45 15.5 hours May 16, 2012 08:00-14:30 13 hours June 14, 2012 06:15-13:00 20.25 hours June 15, 2012 06:20-13:00 13.3 hours June 22, 2012 06:00-9:30 10.5 hours June 26, 2012 10:30 – 17:00 17 hours June 27, 2012 07:00 – 16:00 18 hours June 29, 2012 6:10-10:50 9.25 hours July 5, 2012 06:15 – 09:30 6.5 hours July 13, 2012 06:00 – 11:15 10.5 hours August 1, 2012 06:30 – 10:45 8.5 hours	Lynette Renzetti Erin Blenkhorn Martin O'Halloran Allison Featherstone
Valleyland 2 VA-02	0m	NHAG: Section 6.2.3.1 Evaluation Criteria for Determining Significant Valleylands		
Valleyland 3 VA-03	0m	NHAG: Section 6.2.3.1 Evaluation Criteria for Determining Significant Valleylands		
Valleyland 4 VA-04	77m	NHAG: Section 6.2.3.1 Evaluation Criteria for Determining Significant Valleylands		
Valleyland 5 VA-05	32m	NHAG: Section 6.2.3.1 Evaluation Criteria for Determining Significant Valleylands		
Valleyland 6 VA-06	0m	NHAG: Section 6.2.3.1 Evaluation Criteria for Determining Significant Valleylands		
Valleyland 7 VA-07	36m	NHAG: Section 6.2.3.1 Evaluation Criteria for Determining Significant Valleylands		

NHAG: Natural Heritage Assessment Guide, OMNR, 2011a

#### 4.1.4 Wildlife Habitat

During Site Investigation three types of wildlife habitat were identified in or within 120m of the Project Location: Significant Wildlife Habitat (SWH), Candidate Significant Wildlife Habitat (Candidate SWH), and Generalized Candidate Significant Wildlife Habitat (Generalized Candidate SWH) (Table 8). Not all of these types of habitat required additional study during the Evaluation of Significance phase of the NHA. For example, types of wildlife habitat that were previously determined to be significant did not require additional investigation. A Deer Yarding Area (WH-DYA-01) was the only type of previously identified SWH carried into the Evaluation of Significance. Several types of Generalized Candidate SWH were identified through the use of Table 16 in Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Project (OMNR, 2011) during Site Investigation. In the case of habitat identified as Generalized Candidate SWH (but not carried into the EOS as Candidate SWH), the significance of the habitat was assumed and no additional investigations were conducted during the Evaluation of Significance (EOS) phase. The types of Generalized Candidate SWH identified in Site Investigation and treated as significant include:

- Waterfowl Stopover and Staging (Aquatic); Colonial-Nesting Bird Breeding Habitat (ground);
- Seeps and Springs;
- Amphibian Breeding Habitat (wetlands);
- Shrub/Early Successional Bird Breeding Habitat/Declining Guild Shrubland Birds;
- Terrestrial Crayfish; and,
- Deer Movement Corridors.

Where Candidate SWH of any type was identified, further investigation was conducted using the protocols described in Table 14 in order to evaluate the significance of the feature. All dates and details regarding specific locations, weather conditions, and identification of the personnel that conducted the investigations are included in Table 5. Appendix C details the qualifications of the individuals that carried out the field surveys.

The types of Candidate SWH carried forward to Evaluation of Significance and further assessed in Table 15 include the following:

- Bat Maternity Colonies;
- Turtle Wintering Areas;
- Colonial Nesting Bird Breeding Habitat (tree/shrub);
- Waterfowl Nesting Areas;
- Bald Eagle and Osprey Nesting, Foraging and Perching Habitat;
- Turtle Nesting Areas;
- Amphibian Breeding Habitat (woodland);

- Marsh Bird Breeding Habitat; and,
- Special Concern and Rare Wildlife Species.

## 4.2 RESULTS OF EVALUATION OF SIGNIFICANCE

Features found to be located in or within 120m of the Project Location that are identified in the following subsections as significant include: those previously established as significant (e.g. provincially significant wetlands); those evaluated using the criteria outlined in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) and the Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule as significant; and those treated as significant (e.g. generalized candidate SWH) through the application of Appendices C and D of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a).

### 4.2.1 Wetlands

All of the candidate wetlands identified in Figure 12 were first screened for size according to OWES protocol and only those determined to be greater than 2ha, or less than 2ha but with a specialized function were assessed in the Evaluation of Significance phase. The following wetland features did not meet either the minimum size or the specialized function criteria: WE-10 and WE-11. For this reason, these features do not appear in the evaluation summary (Table 11).

Table 11 summarizes the results of the wetland characteristics and ecological functions assessment. Locations of wetland features referred to in the table are provided in Figure 23. The majority of the wetland features assessed were either swamp or marsh types generally associated with poor drainage and were also associated with depressions adjacent to forests and agricultural fields. The exceptions to this were WE-06 and polygons associated with the Beaver Meadow PSW and Topcliff Swamp PSW. WE-06, located within the northern portion of the study area, contained wetlands and wet features in very close proximity to what was proposed as the Project Location. Given there was potential for project components to be moved into this feature, a full evaluation was conducted using the OWES manual to assess its significance and inform the project layout. The property containing this feature is actively used as agriculture for hay and as pasture for cattle. The wetland boundary determined for this complex does not include areas under active agricultural use where the area no longer functions as a wetland. The OWES conducted for wetland feature WE-06 resulted in a total score of 717, and therefore would be considered a provincially significant wetland feature. The wetland complex contains swamp, marsh, and a fen which is considered unique in the landscape.

All of the features assessed were either determined to be significant (through a previous wetland evaluation conducted by MNR or a full OWES evaluation completed by LGL), or treated as significant as outlined in Section 6.2 Methods and Procedures for Evaluation of Significance of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a). As such, the wetlands identified as significant, or treated as significant as described in Table 11, and displayed in Figure 23, require the preparation of an Environmental Impact Study to document potential negative environmental effects that may occur as a result of the proposed Project and to describe how the effects will be addressed through mitigation and monitoring.



**Table 11: Evaluation of Significance Results for Wetland Features**

ID	Size (ha)	Biological						Hydrological				Special Features			Significance
		Wetland Type	Site Type	Vegetation Communities	Proximity to Other Wetlands	Interspersion (# of intersections and description of "edges" of communities)	Open Water Types	Flood Attenuation (Total)	Water Quality Improvement (Total)	Shoreline Erosion Control	Groundwater Recharge (Total)	Species Rarity (Total)	Significant Features and Habitats (Total)	Fish Habitat (Total)	
Wetland 1 (WE-01)	5.41	Swamp	Palustrine	<b>105 (hS1)</b> h <i>Acer rubrum</i> ; be <i>Sium suave</i>	Between 300 m and 1 km no hydrological connection through surface water.	35, low interspersion; simple circular wetland with little edge present	Type 6 (76-96% open water)	7 ha catchment	Low, < 50% forested and natural vegetation, Swamp with < 50 % coverage of organic soils, no evidence of discharge	N/A	palustrine with sand, loam, gravel, tillsoils	None known or observed	Significant amphibian woodland breeding habitat Small catchment area for flood attenuation. Water quality/quantity improvements.	Absent	Treated as significant
Wetland 2 (WE-02)	29.79	Swamp Marsh	Palustrine	<b>106(tsS1)</b> ts willow, contains a small dug pond <b>108 (tsS2)</b> ts willow; re <i>Iris versicolor</i> ; gc <i>Eupatorium perfoliatum</i> <b>130 (cS3)</b> c <i>Larix laricina</i> , <i>Thuja occidentalis</i> ; ts willows; gc <i>Euthamia graminifolia</i> , <i>Equisetum arvense</i> , <i>Solidago rugosa</i> , <i>Lycopus uniflorus</i> ; re <i>Iris versicolor</i> <b>234 (hS4)</b> h <i>Ulmus americana</i> , <i>Populus balsamifera</i> , <i>Populus tremuloides</i> ; ts cornus sericea, <i>Viburnum lentago</i> ; ne <i>Phalaris arundinacea</i> ; gc <i>Solidago rugosa</i> , <i>Euthamia graminifolia</i> , <i>Eupatorium maculatum</i> , <i>Aster lanceolatus</i> <b>241 (neM1)</b> ne <i>Carex limosa</i> , sedges, <i>Leersia oryzoides</i> , <i>Phalaris arundinacea</i> <b>248 (hS5)</b> h <i>Populus balsamifera</i> ; gc <i>Mentha piperita</i> , <i>Eupatorium maculatum</i> , <i>Euthamia graminifolia</i> , <i>Aster lanceolatus</i> , <i>Solidago rugosa</i> <b>250 (hS6)</b> h <i>Ulmus Americana</i> , <i>Acer rubrum</i> ; ts willows; ne <i>Phalaris arundinacea</i> <b>457(cS7)</b> c conifers	Between 280 and 500m, no hydrological connection through surface water.	57, low interspersion; variability in community boundary and wetland edge	Type 1 (<5% open water)	95 ha catchment	Moderate to high >50% agricultural landscape; high proportion of live trees; swamp with <50% coverage of organic soils; evidence of discharge	N/A	palustrine with sand, loam, gravel, till soils	None known or observed	Seeps present, ground water discharge area. Water quality/quantity improvements.  Not significant wildlife habitat	Absent	Treated as significant

ID	Size (ha)	Biological						Hydrological				Special Features			Significance
		Wetland Type	Site Type	Vegetation Communities	Proximity to Other Wetlands	Interspersion (# of intersections and description of "edges" of communities)	Open Water Types	Flood Attenuation (Total)	Water Quality Improvement (Total)	Shoreline Erosion Control	Groundwater Recharge (Total)	Species Rarity (Total)	Significant Features and Habitats (Total)	Fish Habitat (Total)	
Wetland 3 (WE-03)	8.98	Marsh Swamp	Palustrine	<b>91 (hS1)</b> – Deciduous swamp <b>92 (cS2)</b> - Balsam fir with eastern white occasional cedar, red maple, and black ash associates <b>95 (hS3)</b> h <i>Populus balsamifera</i> ; ts willows <b>97 (neM1)</b> ne <i>Phalaris arundinacea</i> <b>100 (hS4)</b> h <i>Populus balsamifera</i> , <i>Acer rubrum</i> <b>101 (neM2)</b> ne <i>Phalaris arundinacea</i>	Between 320 and 900 m, no hydrological connection through surface water.	35, low interspersion, single wetland with relatively simple almost circular boundaries	Type 1 (<5% open water)	46 ha catchment	Low, < 50% forested and natural vegetation, Swamp with < 50 % coverage of organic soils, no evidence of discharge	N/A	palustrine with sand, loam, gravel, till soils	None known or observed	Not identified as significant wildlife habitat. Does not contain plant species at risk. Low contribution to water quality.	Absent	Treated as significant
Wetland 4 (WE-04)	1.937	Marsh	Palustrine	<b>48 (reM1)</b> re <i>Typha latifolia</i> , h <i>Populus balsamifera</i>	Between 260 and 500 m,	52, low interspersion	Type 2 (5-25 % open water)	48 ha catchment	Low, < 50% forested and natural vegetation, Swamp with < 50 % coverage of organic soils, no evidence of discharge	N/A	palustrine with sand, loam, gravel, till soils	None known or observed	Not identified as significant wildlife habitat. Low contribution to water quality,	Absent	Treated as significant
Wetland 5 (WE-05)	6.2761	Swamp	Riverine	These wetlands were assessed from the road. <b>278 (neM1)</b> ne <i>Angelica pupurea</i> , <i>Caltha palustris</i> , <i>Eupatorium maculatum</i> , <b>425(hS1)</b> h <i>Populus balsamifera</i> and <i>Salix</i> sp.	Between 300 m of another wetland but no hydrological connection through surface water.	47, Low interspersion	Type 1 (<5% open water)	55 ha catchment, provide little to no flood attenuation	Moderate to high >50% agricultural landscape; high proportion of live trees; swamp with <50% coverage of organic soils; evidence of discharge	Within a significant valley. High	Riverine predominantly over sand, loam, gravel soils	None known or observed	Adjacent to deer wintering yard Provides direct and indirect fish habitat Contained within a significant valley. Provides a wildlife corridor.	Fish documented in Saugeen River	Treated as significant
Wetland 6 (WE-06)	44	Marsh, Swamp Fen	Palustrine	These wetland communities have been included as part of the Black Wetland Complex community. Some wetlands were assessed from the roadside and others were field verified. 115 (hS13), 117 (hS20), 118 (hS17), 119(cS18), 120(tsS19), 121 (tsS16), 134(hS15), 242(cS14), 271(cS21), 272cS11), 273(neF1), 281(hS1), 285(hS3), 286(), 287(tsS5), 288(neM1), 289(reM1), 293(ShS6), 297(tsS10), 298 (cS8), 410(cS9), 441(tsS1), 444 (tsS7), 445 (suM3), 446 (neM4)	Between 600 and 750 m, hydrologically connected by surface water	High	Type 2 (5-25% open water)	542 ha catchment	Moderate to high >50% agricultural landscape; high proportion of live trees; swamp with <50% coverage of organic soils; evidence of discharge	N/A	palustrine with sand, loam, gravel, till soils	Snapping turtle	Snapping turtle habitat. Seeps. Ground water discharge area. High contribution to water quality/quantity	Low Marsh habitat present, less than 1 ha of entire wetland	Significant (full OWES (included in Appendix F)

ID	Size (ha)	Biological						Hydrological				Special Features			Significance
		Wetland Type	Site Type	Vegetation Communities	Proximity to Other Wetlands	Interspersion (# of intersections and description of "edges" of communities)	Open Water Types	Flood Attenuation (Total)	Water Quality Improvement (Total)	Shoreline Erosion Control	Groundwater Recharge (Total)	Species Rarity (Total)	Significant Features and Habitats (Total)	Fish Habitat (Total)	
Wetland 7 (WE-07)	3.086	Marsh Swamp	Palustrine	<b>123 (gcM1)</b> gc <i>Eupatorium maculatum</i> , <i>Solidago</i> sp., <i>Aster</i> sp.; <i>Phalaris arundinacea</i> , <i>Phleum pretense</i> ; ne <i>Carex vulpinoidea</i> ; h <i>Acer rubrum</i> , <i>Fraxinus pennsylvanica</i> <b>124 (hS1)</b> h <i>Fraxinus nigra</i> , <i>Acer rubrum</i> ; c <i>Abies balsamea</i> ; ls <i>Cornus sericea</i> , <i>Spiraea alba</i> ; gc <i>Eupatorium maculatum</i> , <i>Ranunculus</i> sp., <i>Onoclea Sensibilis</i> ; ne <i>Glyceria striata</i> , <i>Carex</i> sp.	Between 350 and 450 m, no hydrological connection through surface water to WE-09, hydrologically connected to other wetlands	42, low interspersion	Type 1 (<5% open water)	21 ha catchment	Moderate to high >50% agricultural landscape; high proportion of live trees; swamp with <50% coverage of organic soils; evidence of discharge	N/A	palustrine with sand, loam and gravel soils	Butternut	Seeps present, ground water discharge area Habitat of endangered species.	Absent	Treated as significant
Wetland 8 (WE-08)	0.8657	Marsh	Palustrine	This wetland was assessed from airphoto and fence line 397 (neM1) forb meadow marsh	Within 750 m of other wetlands however, no hydrological connection through surface water.	Low interspersion, small wetland with minimal edges	Type 1 (<5% open water)	4.4 ha catchment	landscape; high proportion of live trees; swamp with <50% coverage of organic soils; evidence of discharge	N/A	palustrine predominantly over sand, loam and gravel soils	N/A	Significant amphibian breeding habitat (woodland)	Absent	Treated as significant
Wetland 9 (WE-09)	24.790	Swamp	Riverine	This wetland was assessed from the road. <b>11 (cS1)</b> c <i>Larix laricina</i> , <i>Abies balsamifera</i> , <i>Thuja occidentalis</i> ; h <i>Acer rubrum</i> , <i>Ulmus americana</i> <b>33 (cS2)</b> c <i>Larix laricina</i> , <i>Abies balsamifera</i> , <i>Thuja occidentalis</i> ; h <i>Acer rubrum</i> , <i>Ulmus americana</i>	hydrological connection through surface water within 0.5 km	32, low interspersion, wetland along tributary which provides minimal edges	Type 1 (<5% open water)	266 ha catchment provide little to no flood attenuation	Moderate to high >50% agricultural landscape; high proportion of live trees; swamp with <50% coverage of organic soils; evidence of discharge	High	Riverine predominantly over sand, loam, gravel soils	None known or observed	Provides direct and indirect fish habitat Contained within a significant valley. Provides a wildlife corridor. Not significant wildlife habitat.	Present	Treated as significant

**Note:** \*information regarding the wetland area, status and type, and site type were obtained from Wetlands Evaluation Record obtained through MNR Owen Sound Area Office

#### 4.2.2 Woodlands

A total of 5 candidate significant woodland features were identified through site investigation and carried forward for evaluation of significance. Using the criteria for woodlands outlined in Table 9 in Section 4.1.2 of this report, as obtained from the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a), these features were evaluated for significance. Four of the candidate significant woodlands evaluated were determined to be significant: WO-02, WO-03, WO-04, and WO-05 (Figure 24). Table 12 summarizes the evaluation results and provides additional detail regarding the size and location of each feature. Figures 24a to 24j display the distance of each feature from the Project Location. Potential negative impacts and proposed mitigation and monitoring are described for each of these significant features within the Environmental Impact Study that follows in Section 5.0.

**Table 12: Evaluation of Significance for Woodland Features**

Woodland Feature ID	ELC unit	Size (ha)	Evaluation based on woodland canopy cover of 33% determined for Municipality of West Grey by Midhurst District MNR														Feature is Significant (Yes/No)
			Criteria 1		Criteria 2 (a)		Criteria 2 (b)		Criteria 2 (c)		Criteria 2 (d)		Criteria 2 (e)		Criteria 3		
			Woodland Size		Woodland Interior		Proximity to Other Significant Woodlands/Habitats		Linkages		Water Protection		Woodland Diversity Representation (Composition)		Uncommon Characteristics		
			Must be at least 50 ha in size.		Interior habitat (>100m from edge) must be at least 8 ha in size.		Located within 30 m of a significant natural feature or fish habitat and at least 10 ha in size.		Woodland must be located between 2 other significant features (that are within 120 m) and at least 10 ha in size.		Must be located within 50 m of a sensitive groundwater discharge, recharge, headwater, watercourse or fish habitat and be at least 4 ha in size.		Must be dominated singly or in combination by native naturally occurring Ms, Mb, Msi, Mr, By, H, Ba, Ab, Wb, Ta, Sp, Pi, Oa, Ba, He, and at least 10 ha in size.		Must have: a rare vegetation community (S1, S2, S3) and be more than 0.5 ha in size; OR, habitat of a rare, uncommon, or restricted woodland plant species with 10 individual stems; OR, 100 m of leaf coverage and be more than 0.5 ha in size; OR, characteristics of older woodlands with larger tree size structure in native species; AND, more than 4 ha in size.		
			Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met		
Yes/No	Reason	Yes/No	Reason	Yes/No	Reason	Yes/No	Reason	Yes/No	Reason	Yes/No	Reason	Yes/No	Reason				
WO-01	102 FOD5 103 SWD5-1	6.44	No	<50 ha in size	No	Interior habitat is 0.004 ha (<8ha).	No	Woodland feature is less than 10ha in size.	No	Woodland feature is less than 10ha in size.	No	Not located within 50m of a sensitive area or fish habitat.	No	Woodland feature is less than 10ha in size.	No	No rare vegetation communities, rare plant species or old growth trees documented within this feature. (See community rankings and full ELC description in Appendix D)	No
WO-02	29(FOD5), 30(CUW1), 31(FOD5-8), 32(CUP3-2), 33(SWC4), 34(FOC2-2), 36(FOD5-8), 37(CUP3), 38(SWT2-5), 47(FOD5), 53(SWC4-1), 62(SWC3-1), 64(SWC3-2), 90(FOD5), 92(SWC1), 94(FOC2-2), 95(SWD4/SWT2-2), 98(FOC2-2), 117(SWD3-1), 118(SWD3-1), 19(SWM2-1), 120(SWT2-2/SWD3-1), 121(SWT2-2), 122(FOD5-7), 123(MAM2-10), 124(SWD5-1), 125(FOM5), 126(FOD5), 131(CUW1), 132(CUM1-1), 134(SWD3-1), 28(CUP3-9), 230(FOD5), 231(CUP3-2), 232(CUP3-9), 233(FOD4), 76(CUP3-3), 277(FOC2-2), 79(CUP3-3), 280(CUP3-8), 281(SWD4), 282(CUP3-2), 283(FOC2-2), 284(FOC2-2), 285(SWM1), 86(SWC4), 287(SWT3-2), 90(FOC2-2), 291(CUW1), 292(FOC2-2), 293(SWD4), 294(SWT2-2), 95(CUP3-2/3), 298(SWC3-1), 99(CUT1), 350(CUP3-2), 378(FOC2-2), 386(FOM), 387(FOC2-2), 90(FOD5-7), 391(FOM), 393(CUP3-2), 394(CUP3-2), 398(CUP3-2), 403(FOD5), 404(FOC2-2), 405(FOC2-2), 406(FOC2-3), 408(FOC2-2), 409(CUP3-2/3), 410(SWC3-1), 425(SWD4), 426(FOC2-2), 437(FOC2-2), 438(FOC2-2), 441(SWT2), 442(FOC2-2), 444(SWT2-2)	4715.04	Yes	>50ha in size	Yes	Interior habitat is 1394.14ha (> 8 ha in size).	Yes	The Saugeen River and its tributaries run through the woodland feature. Both significant natural features and fish habitat are present.	Yes	WO-02 is located within 120m of significant woodlands WO-03, WO-04 and WO-05.	Yes	WO-02 contains seepage areas identified as SS-01, SS-03, SS-04, and SS-06 within 120m of the project location and has the potential to contain or include seepage areas within 50m of its boundary.	Yes	Sugar maple is the dominant tree species found within WO-02. Tamarack, black ash, and red maple are also common species within the more moist communities of this woodland.	No	No rare vegetation communities, rare plant species or old growth trees documented within this feature. (See community rankings and full ELC description in Appendix D)	Yes
WO-03	104 FOD5 107 CUP3-5 108 SWT3-2 128 CUP3-1 219 FOC2-2 234 SWD4/MAM2-10 250 SWD4-2 252 FOC2-2 253 SWT2-2 254 SWD4-3 255 FOC2-2	1359.75	Yes	>50ha in size	Yes	Interior habitat is 310.30ha (> 8 ha in size).	Yes	The Saugeen River and its tributaries are included in the woodland feature. Both significant natural features and fish habitat are present.	Yes	WO-03 is located within 120m of significant woodlands (WO-02 and WO-05).	Yes	WO-03 contains a seepage area identified as SS-02 within 120m of the project location and has the potential to contain or include seepage areas within 50m of its boundary.	Yes	Sugar maple is the dominant deciduous species in this area. Tamarack, spruce, and pine are also very abundant within this woodland.	No	No rare vegetation communities, rare plant species or old growth trees documented within this feature. (See community rankings and full ELC description in Appendix D)	Yes

Woodland Feature ID	ELC unit	Size (ha)	Evaluation based on woodland canopy cover of 33% determined for Municipality of West Grey by Midhurst District MNR														Feature is Significant (Yes/No)
			Criteria 1		Criteria 2 (a)		Criteria 2 (b)		Criteria 2 (c)		Criteria 2 (d)		Criteria 2 (e)		Criteria 3		
			Woodland Size		Woodland Interior		Proximity to Other Significant Woodlands/Habitats		Linkages		Water Protection		Woodland Diversity Representation (Composition)		Uncommon Characteristics		
			Must be at least 50 ha in size.		Interior habitat (>100m from edge) must be at least 8 ha in size.		Located within 30 m of a significant natural feature or fish habitat and at least 10 ha in size.		Woodland must be located between 2 other significant features (that are within 120 m) and at least 10 ha in size.		Must be located within 50 m of a sensitive groundwater discharge, recharge, headwater, watercourse or fish habitat and be at least 4 ha in size.		Must be dominated singly or in combination by native naturally occurring Ms, Mb, Msi, Mr, By, H, Ba, Ab, Wb, Ta, Sp, Pi, Oa, Ba, He, and at least 10 ha in size.		Must have: a rare vegetation community (S1, S2, S3) and be more than 0.5 ha in size; OR, habitat of a rare, uncommon, or restricted woodland plant species with 10 individual stems; OR, 100 m of leaf coverage and be more than 0.5 ha in size; OR, characteristics of older woodlands with larger tree size structure in native species; AND, more than 4 ha in size.		
			Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met		Criteria Met		
Yes/No	Reason	Yes/No	Reason	Yes/No	Reason	Yes/No	Reason	Yes/No	Reason	Yes/No	Reason	Yes/No	Reason	Yes/No	Reason		
256 SWD3-1 259 FOC2-2 263 FOD5 385 FOM 396 FOC2-2 400 SWD3-1 402 FOC2-2 411 SWD3-1 423 CUM1-1 435 FOD5																	
WO-04	21 FOC2-2 22 FOD5 23 CUW1 24 CUP3 25 FOD5-2 26 CUP3-9 28 FOD5 418 FOD5	2319.54	Yes	>50ha in size	Yes	Interior habitat is 573.79ha (> 8 ha in size).	Yes	Fish observed in tributaries of Saugeen River located south of proposed Turbine 10. This tributary flows through WO-04. Additional Saugeen tributaries that were not accessible for field studies are documented as fish habitat (Water Assessment and Water Body Report Records Review, OMNR 2012c).	Yes	WO-04 is located within 120m of significant woodlands (WO-02 and WO-05).	Yes	WO-04 contains no seepage areas that are within 120m of the project location; however, much of this woodlot was not directly surveyed in the field and has the potential to contain seepage areas.	Yes	Sugar maple dominates this woodland. Red maple and beech are common associates as well.	No	No rare vegetation communities, rare plant species or old growth trees documented within this feature(See community rankings and full ELC description in Appendix D)	Yes
WO-05	68 FOC2-2 69 SWC1 71 FOC2-2 82 CUP3-3 83 FOM2 84 CUP3-8 85 SWC4-1 86 FOC2-2 136 SWT2-2 137 CUM1-1 264 CUM1-1 265 CUW1 268 SWC3-2 269 SWD4-3 417 FOC2 422 FOD5	113.31	Yes	>50ha in size	Yes	Interior habitat is 20.92ha (> 8 ha in size).	Yes	The Saugeen River and its tributaries are included in the woodland feature. Both significant natural features and fish habitat are present.	Yes	WO-05 is located within 120m of significant woodlands WO-02, WO-03 and WO-04).	Yes	WO-05 contains a seepage area identified as SS-05 within 120m of the project location and has the potential to contain or include seepage areas within 50m of its boundary. Not all boundaries of the feature were accessible for in field study.	Yes	This woodland is not dominated by any one species, but is a combination of naturally occurring native species like sugar maple, red maple, pine, tamarack, spruce, hemlock, yellow birch, and beech. Some areas are planted, but the majority of the woodland is naturally occurring.	No	No rare vegetation communities, rare plant species or old growth trees documented within this feature. (See community rankings and full ELC description in Appendix D)	Yes

### 4.2.3 Valleylands

A total of 7 candidate significant valleyland features were identified through site investigation and carried forward for evaluation of significance. Using the criteria for valleylands, as obtained from Section 6.2.3 of the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a), these features were evaluated for significance. All of the candidate significant valleylands evaluated were determined to be significant: VA-01, VA-02, VA-03, VA-04, and VA-05, VA-06, and VA-07 (Figure 25). Table 13 summarizes the evaluation results and provides additional detail regarding the size and location of the features. Figure 25 also includes detailed mapping to display the distance of each feature from the Project Location. VA-01, VA-03 and VA-07 are associated with the main channel of the Saugeen River, while VA-02, VA-04, VA-05 and VA-06 are associated with a tributary of the Saugeen River identified through Records Review as Durham Creek. In the case of three of the Significant valleylands (VA-01, VA-02 and VA-06) underground collection is proposed to cross the features. The method of construction employed for such crossings will be directional drilling, where natural vegetation cover exists, as is further explained in the Environmental Impact Study that follows in Section 5.0. In the case of the VA-04, VA-05 and VA-07 the project component proposed within 120m of these features are turbines and associated access roads with underground collection lines; setbacks to the features range from 32m to 77m from the construction disturbance limit of components. In the case of VA-03 the limits of turbine and associated access roads with underground collection lines are proposed within the feature and require the stable top of bank to be confirmed through further technical study of the feature. All of the significant valley features identified are in or within 120m of the Project Location and were carried forward into the Environmental Impact Study that follows in Section 5.0.

**Table 13: Evaluation of Significance of Valleyland Features**

Valleyland Feature ID	Distance From Project Location (Figure 25)	Criteria				Significant and Carried Forward to EIS? (yes/no)
		Landform Related Functions and Attributes	Ecological Features		Restored Ecological Functions	
		Surface Water Function	Degree of Naturalness	Linkage function		
VA-01	Om – collection line is proposed to cross Saugeen River Valley (on existing bridge structure or through directional drilling).	The total catchment area of the Upper Main Saugeen River is 28,100 ha. Wetlands are not associated with the portion of the valley defined here.	Greater than 25% natural cover exists in the form of coniferous forest (FOC2-2). Riparian cover is limited at the existing road crossing and does not meet the criteria of 30m in width; however within 50 m of the crossing the riparian vegetation exceeds 30 m in width.	Riparian vegetation is comprised primarily of white cedar coniferous forest that does not meet 100m standard for significance; however, valley does provide Deer Yarding habitat and function as a linkage for that species and other wildlife.	Valleyland does not show evidence of extensive alteration, nor are any restoration projects known for the area.	Yes - degree of naturalness, surface water function, and linkage function all meet standard for significance.
VA-02	Om – underground collection line is proposed within existing road right of way that crosses the valley feature.	The total catchment area of Durham Creek is >50ha. Wetlands are associated with the valleyland.	Greater than 25% natural cover. Riparian vegetation greater than 30m in width is present.	Riparian vegetation is comprised primarily of tamarack and balsam fir greater than 100m in width. The valley likely functions as linkage corridor for wildlife as it is part of a large contiguous woodland.	Valleyland does not show evidence of extensive alteration, nor are any restoration projects known for the area.	Yes - degree of naturalness, surface water function, and linkage function all meet standard for significance.
VA-03	Om – the limits of construction disturbance for Turbine 7 and its associated access road and underground collection are proposed within the valley feature.	The total catchment area of the Upper Main Saugeen River is 28,100 ha. Wetlands are not associated with the portion of the valley defined here.	Greater than 25% natural cover. Riparian vegetation greater than 30m in width is present.	Riparian vegetation is comprised primarily of sugar maple (FOD5) and white cedar (FOC2-2). The valley functions as linkage corridor for wildlife as it is part of large contiguous woodland and in close proximity to a Deer Yarding Area. .	Valleyland does not show evidence of extensive alteration, nor are any restoration projects known for the area.	Yes - degree of naturalness, surface water function, and linkage function all meet standard for significance.



Valleyland Feature ID	Distance From Project Location (Figure 25)	Criteria				Significant and Carried Forward to EIS? (yes/no)
		Landform Related Functions and Attributes	Ecological Features		Restored Ecological Functions	
		Surface Water Function	Degree of Naturalness	Linkage function		
VA-04	77m	The total catchment area of Durham Creek is >50ha. Wetlands are associated with the valleyland.	Greater than 25% natural cover. Riparian vegetation greater than 30m in width is present.	Riparian vegetation is comprised primarily of tamarack and balsam fir greater than 100m in width. The valley likely functions as linkage corridor for wildlife as it is associated with large contiguous woodland.	Valleyland does not show evidence of extensive alteration, nor are any restoration projects known for the area.	Yes - degree of naturalness, surface water function, and linkage function all meet standard for significance.
VA-05	32m	This valley is associated with a tributary of Durham Creek with a catchment of >50ha. This portion of the valley is bordered by cultural plantation, agricultural fields and a sugar maple forest.	Greater than 25% natural cover. Riparian cover on the south east side of valley is limited (agricultural field); however, riparian cover on other valley edges is >30m wide.	Riparian vegetation is comprised primarily of a mix of sugar maple (FOD5-2), Norway Spruce (CUP3-9), agricultural field, and a coniferous cultural woodland (CUW1) comprised of a mixture of Scotch pine, eastern white cedar, white spruce, tamarack and white pine. Riparian cover is not greater than 100m in width in all areas; however, the valley likely functions as linkage corridor for wildlife as it is associated with large contiguous woodland.	Valleyland does not show evidence of extensive alteration. No restoration projects known for the area.	Yes - degree of naturalness, surface water function, and linkage function all meet standard for significance.

Valleyland Feature ID	Distance From Project Location (Figure 25)	Criteria				Significant and Carried Forward to EIS? (yes/no)
		Landform Related Functions and Attributes	Ecological Features		Restored Ecological Functions	
		Surface Water Function	Degree of Naturalness	Linkage function		
VA-06	0m – underground collection line is proposed within existing road right of way that crosses the valley feature.	This valley is associated with a tributary of Durham Creek. Based on a comparative analysis of catchment sizes for other watercourses represented in the study area, the catchment of this valley feature was determined to be >50ha. This portion of the valley is highly altered as a result of road construction, such that it has been realigned to follow a roadside ditch. On the south side of County Rd. 4 and beyond the valley takes on a more natural composition. Wetlands are associated with this portion of the valley.	Overall < 25% natural cover. Riparian cover along most of the valley is very limited as the water feature is bordered by road and agricultural fields. Riparian cover <30m wide.	Riparian vegetation is <100m in width and comprised primarily of Eastern white cedar and Balsam fir on the south side of County Rd. 4 with grasses and occasional dogwood making up the bulk of the riparian vegetation on the north side of the road. No linkage function is evident.	Valleyland does show evidence of extensive alteration; no restoration projects known for the area.	Yes – surface water function meets standard for significance in that feature performs a water conveyance function from a catchment area of >50ha.
VA-07	36m	The total catchment area of the Upper Main Saugeen River is 28,100 ha. Wetlands are not associated with the portion of the valley defined here.	Greater than 25% natural cover. Riparian vegetation greater than 30m in width is present.	Riparian vegetation is comprised primarily of sugar maple (FOD5) and maple cultural woodland (CUW1). The valley functions as linkage corridor for wildlife as it is part of large contiguous woodland and within a Deer Yarding Area. .	Valleyland does not show evidence of extensive alteration, nor are any restoration projects known for the area.	Yes - degree of naturalness, surface water function, and linkage function all meet standard for significance.

#### **4.2.4 Wildlife Habitat**

Preliminary investigation of the East Durham Wind Energy Centre site began in 2009, with additional study throughout the 2011 and 2012 field season as was necessary due to ongoing changes to the Project layout. The 2009 data that remained applicable to the Project Location determined in 2012 was specific to breeding bird surveys and limited to one property as detailed in Table 5. Additional study was conducted in 2011 and 2012 to evaluate the significance of any features in or within 120m of the Project Location. Table 14 summarizes the results of the evaluations and indicates which habitats were determined to be significant and carried forward into the Environmental Impact Study.

**Table 14: Evaluation of Significance Results for Wildlife Habitat**

Type of Candidate Significant Wildlife Habitat	Feature ID	Summary of Evaluation Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted during EOS	Results of EOS and Rationale for Carrying Forward	EIS Required? (yes/no)		
					SWH	Generalized Candidate SWH	
Seasonal Concentration Areas of Animals	Bat Maternity Colonies*	Figure 2 (NRSI, 2012 in Appendix I): WH –BMA-001 WH –BMA-005 WH –BMA-006 WH –BMA-007	Big Brown Bat Little Brown Myotis Silver-haired Bat Northern Myotis Maternity colonies considered SWH are found in forested Ecosites.  All ELC Ecosites in ELC Community Series: FOD FOM	Evening visual and acoustic bat surveys were conducted as outlined in the Bats and Bat Habitats: Guidelines for Wind Power Projects (OMNR 2011b) for the Candidate features identified on the dates and under the conditions outlined in Table 5.  No bats recorded entering or exiting cavities in WH-BMA-001 during 2012 visual and acoustic surveys. This habitat was determined not to be significant.  The following features were not accessed during the appropriate timing window for surveys during the 2012 season: WH –BMA-005 WH –BMA-006 WH –BMA-007  Significance of these features was assumed, and a habitat use study as described in the EIS is to be conducted prior to any construction activity.	Yes Habitat treated as Significant: WH –BMA-005 WH –BMA-006 WH –BMA-007 As shown in Figure 2 (NRSI, 2012 in Appendix I):	Yes, within 120m of the project layout containing project components other than turbines.	
	Turtle Wintering Area	Candidate SWH in Figure 20: 51 (WH –TW-01) 105 (WH –TW-02) 414 (WH –TW-03) 415 (WH –TW-04) 416 (WH-TW-05)	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.  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). Congregation of turtles is more common where wintering areas are limited and therefore significant.	Basking turtle surveys were conducted at the features identified as candidate SWH of this type on the dates specified in Table 5.  <b>51 (WH –TW-01):</b> 1 basking Snapping turtle observed May 15 and June 14, 2012); 1 Snapping turtle shell found (May 1, 2011) up to 9 basking Midland Painted Turtles observed during a single survey (June 14 and July 24, 2012). This feature was confirmed as significant wildlife habitat of this type. <b>105 (WH –TW-02):</b> 1 Midland Painted Turtle observed basking (May 15 and June 15, 2012). This feature was determined not to qualify as significant wildlife habitat of this type. <b>414 (WH-TW-03):</b> an unidentified turtle reported by landowner, not confirmed. This feature was determined not to qualify as significant wildlife habitat of this type. <b>415 (WH –TW-04):</b> no basking turtles observed; however, landowner reports Snapping turtle use of pond. This feature was confirmed as significant wildlife habitat of this type <b>416 (WH –TW-005):</b> landowner reports Midland painted turtle and Snapping turtle using dugout pond habitat. This feature was confirmed as significant wildlife habitat of this type.	Yes WH –TW-01, WH –TW-04 WH-TW-05 as shown in Figure 26	Yes, within 120m of underground/overhead collection lines.	
	Colonial-Nesting Bird Breeding Habitat (tree/shrub)	Candidate SWH in Figure 16: 81/ 269 (WH-CNTS-01); 103 (WH-CNTS-02); 105 (WH-CNTS-03); 111/113 (WH-CNTS-04); 115 (WH-CNTS-05); 117 (WH-CNTS-06); 118/119 (WH-CNTS-07); 120 (WH-CBTS-08); 124 (WH-CNTS-09); 134 (WH-CNTS-10); 234 (WH-CNTS-11); 248/250 (WH-CNTS-12).	<ul style="list-style-type: none"> <li>Ecosites: SWM2, SWM3, SWM5, SWM6, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7, FET1</li> <li>Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used.</li> <li>Most nests in trees are 11 to 15 m from ground, near the top of the tree.</li> </ul>	<ul style="list-style-type: none"> <li>Analysis of air photos to locate areas with treed wetlands such as deciduous swamp.</li> <li>Search for evidence of use during nesting season (e.g. presence of nests in trees, eggshells, guano) by herons/egrets during site investigation of suitable ecosites.</li> <li>Breeding bird surveys to document use of suitable ecosites within 120m of turbines and road components during site investigation.</li> </ul>	Field investigations in support of the EOS within 120m of turbine and road components did not result in any evidence of this type of SWH.	No	Yes, within 120m of underground/overhead collection lines.


Type of Candidate Significant Wildlife Habitat		Feature ID	Summary of Evaluation Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted during EOS	Results of EOS and Rationale for Carrying Forward	EIS Required? (yes/no)	
						SWH	Generalized Candidate SWH
<b>Rare Vegetation Communities or Specialized Habitat for Wildlife</b>	<b>Waterfowl Nesting Area</b>	Candidate SWH in Figure 18: WH-WN-01, WH-WN-02, WH-WN-03, WH-WN-04, WH-WN-05, WH-WN-06, WH-WN-07, WH-WN-08	All upland habitat located adjacent to ELC ecosites: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3, SWD4; Upland area needs to be at least 120m wide.	Review of orthoimagery to identify potential habitat; Conduct ELC of vegetation units; Review information obtained through records review. Field investigations were conducted in the features identified during wildlife surveys in 2011 (April 28, May 12, June 2/15, Sept. 1), and 2012 (March 1/7/22, May 15/16/24/30, June 14/22/26/27/29, July 5/24) to document evidence of waterfowl nesting. Breeding bird surveys in 2009 (June 18, July 5), 2011 (June 9 and 10) and 2012 (May 30/31 and June 22/23).	Studies were conducted where the feature polygons extended to within 120m of turbines and roads and were accessible for survey. No evidence of waterfowl nesting as per the criteria schedule was documented in accessible habitats. Of the criteria species listed only wood duck (2 nest boxes), Mallard (1 pair), and Hooded Merganser (1 individual) were documented; however, not in the threshold numbers indicated in the criteria schedule.  In the case of WH-WN-08 the feature was not accessible because of denied property access. This feature was treated as significant and addressed in the EIS.	Yes Significant Wildlife Habitat determined: WH-WN-08 As shown in Figure 31	Yes, within 120m of underground/ overhead collection lines.
	<b>Bald Eagle and Osprey Nesting, Foraging and Perching Habitat</b>	Candidate SWH in Figure 19: 31 (WH -BEO-01), 36 (WH -BEO-02), 47(WH -BEO-03)	ELC Ecosite CODES of FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	Field surveys to determine ELC. Area searches for nests or presence of Bald Eagle and Osprey were conducted in the features identified during wildlife surveys in 2011 (April 28, May 12, June 2/15, Sept. 1), and 2012 (March 1/7/22, May 15/16/24/30, June 14/22/26/27/29, July 5/24). Breeding bird surveys in 2009 (June 18, July 5), 2011 (June 9 and 10) and 2012 (May 30/31 and June 22/23).	Osprey and Bald Eagle are large, conspicuous birds that typically nest high in trees where their view and flight path are unobstructed. Neither nest sites, nor the species themselves were documented in any of the field surveys conducted. No significant wildlife habitat of this type was found within 120m of turbine or road locations; however Generalized Candidate SWH was carried forward as potential habitat exists within 120m of other project components.	No	Yes, within 120m of underground/ overhead collection lines.
	<b>Turtle Nesting Areas</b>	Candidate SWH in Figure 20: 214 (WH-TN-01) 415 (WH-TN-02) 416 (WH-TN-03)	Studies confirm: Presence of 5 or more nesting Midland Painted Turtles, or; One or more Northern Map Turtle or Snapping Turtle nesting. 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 dependant on slope, riparian vegetation and adjacent land use is the SWH.  Travel routes from wetland to nesting area are to be considered within the SWH. Field investigations should be conducted in prime nesting season typically late spring to early summer.	Area searches for turtle nesting sites were conducted during general wildlife visits to the features in 2012 (March 8, May 15, June 15/22/26/29 and July 5/13).	No evidence of nesting turtles was found during any field visits to features within 120m of access roads; however Generalized Candidate SWH was carried forward as potential habitat exists within 120m of other project components.	No	Yes, within 120m of underground/ overhead collection lines.
	<b>Amphibian Breeding Habitat (woodland)</b>	Candidate SWH in Figure 21: 36(WH-ABWO-01), 38(WH-ABWO-02), 40(WH-ABWO-03), 51(WH-ABWO-04), 55(WH-ABWO-05),	Species including: Eastern newt, Blue-spotted salamander, Spotted salamander, Gray treefrog, Spring peeper,	Observational study for evidence of breeding amphibians (presence of larval egg masses, eggs, juveniles, or adults) during the spring of 2011 (see Table 5 for details); and, Aural surveys for breeding frogs conducted in 2011 and 2012(see Table 5 for details).	36(WH-ABWO-01): no frogs calling in unit 36 during 2011 surveys, a potential vernal pool was identified as WH-ABWO-01 through orthophotography; however, the area was not found to hold water beyond July; nor was there evidence of any standing water;	Yes, see Figure 28 where full polygons have been established that pull in woodland habitat	Yes, within 120m of underground/ overhead collection lines.



Type of Candidate Significant Wildlife Habitat	Feature ID	Summary of Evaluation Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted during EOS	Results of EOS and Rationale for Carrying Forward	EIS Required? (yes/no)	
					SWH	Generalized Candidate SWH
	56(WH-ABWO-06), 54/61/62/63(WH-ABWO-07), 397(WH-ABWO-08), 392(WH-ABWO-09); 136/269/81 (WH-ABWO-10), 415/416(WH-ABWO-11), 121/134(WH-ABWO-12), 118/119(WH-ABWO-13), 120(WH-ABWO-14), Pond in ELC 124(WH-ABWO-15), 117(WH-ABWO-16), 115(WH-ABWO-17), 234/241/248/106/250 (WH-ABWO-18), 414(WH-ABWO-19), 111(WH-ABWO-20), 222/103/243(WH-ABWO-21), 105(WH-ABWO-22)	Western chorus frog, Wood frog;  Ecosites include FOC, FOM, FOD, SWC, SWM, SWD;  Presence of breeding population of 1 or more of the listed species with at least 20 individuals (adults, juveniles, eggs/larval masses);  The habitat is the woodland (ELC polygons) and wetland (ELC polygons) combined. A travel corridor connecting the woodland and wetland polygons is to be included within the habitat.		38(WH-ABWO-02): no frogs calling in 2011 surveys, no vernal pools within this feature and within 120m of the project location that held water beyond July in order to conduct a survey for egg/larval masses;  40(WH-ABWO-03): no frogs calling in 2011 surveys, no vernal pools within this feature and within 120m of the project location that held water beyond July in order to conduct a survey for egg/larval masses, no amphibians observed during general wildlife surveys;  <b>51(WH-ABWO-04 reassigned as part of SWH- ABWO-01 in Figure 28):</b> May 1, 2011: Green, Leopard and Wood frogs observed, Egg masses (likely Wood frog) observed. May 12, 2011: 4 ambystomid egg masses observed, pond is large and not fully accessible for visual inspection. LGL biologist identified potential for more than 20 egg masses to be present, based on extrapolation of smaller area study. Fish present but only appear to be small sticklebacks and not limiting to amphibian breeding. This feature was confirmed as significant wildlife habitat of this type;  55(WH-ABWO-05): no frogs calling in 2012 survey, pond was dry towards late July, no egg masses observed in this pond in 2011;  <b>56(WH-ABWO-06 reassigned as part of SWH- ABWO-01 in Figure 28):</b> Gray treefrog level 3 calling during 2012survey, appears to be a permanent hydroperiod based on 2012 August surveys with abundant water in pond. This feature was confirmed as significant wildlife habitat of this type;  54/61/62/63(WH-ABWO-07): unit 63 level 1 calling during frog monitoring survey in 2012, no other frogs heard in other units, limited areas of ponded water and mostly just saturated soils with limited opportunity for amphibian breeding;  <b>397(WH-ABWO-08 reassigned as SWH-ABWO-04 in Figure 28):</b> Gray treefrog level 3 calling during 2012survey. This feature was confirmed as significant wildlife habitat of this type;  392(WH-ABWO-09): frogs calling at level 1 in 2011 and no frogs documented in 2012 survey;	and movement corridors. SWH-ABWO-01 SWH-ABWO-02 SWH-ABWO-03 SWH-ABWO-04 As shown in Figure 28	

Type of Candidate Significant Wildlife Habitat	Feature ID	Summary of Evaluation Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted during EOS	Results of EOS and Rationale for Carrying Forward	EIS Required? (yes/no)	
					SWH	Generalized Candidate SWH
				<p>136/269/81 (WH-ABWO-10): no frogs calling in 2011 or 2012 survey;</p> <p>415/416(WH-ABWO-11): frogs calling only as individuals (level 1) during 2012survey;</p> <p><b>121/134(WH-ABWO-12 reassigned as part of SWH-ABWO-03 in Figure 28):</b> spring peeper calling at L3 during 2012survey in unit 121. This feature was confirmed as significant wildlife habitat of this type;</p> <p>118/119(WH-ABWO-13): no frogs calling in 2012survey;</p> <p>120(WH-ABWO-14): frogs calling only as individuals (level 1) during 2012 survey;</p> <p>Pond at edge of ELC 124(WH-ABWO-15): no frogs calling in 2012survey;</p> <p><b>117(WH-ABWO-16 reassigned as part of SWH-ABWO-03 in Figure 28):</b> Spring peeper level 3 calling, Gray treefrog level 1 calling during 2012 survey. This feature was confirmed as significant wildlife habitat of this type;</p> <p>115(WH-ABWO-17): no frogs calling in 2012 survey, limited amounts of open water, largely just saturated soils observed during general wildlife surveys;</p> <p>234/241/248/106/250 (WH-ABWO-18): frogs documented in unit 106 include Northern leopard frog foraging along edge, limited areas of open water, largely just saturated soils present, Gray treefrog (level 1) and Green frog (level 1) on May 15, 2012. This feature did not meet the threshold numbers of listed species and was not confirmed as SWH of this type;</p> <p>414(WH-ABWO-19): the only listed species documented in this feature was Gray treefrog calling at level 1 (&lt;20 individuals). This feature was not confirmed as significant wildlife habitat of this type, as it did not meet the threshold numbers for listed species.</p> <p>111(WH-ABWO-20): no evidence of frog use or open water areas noted in this community, limited to saturated soils;</p>		

Type of Candidate Significant Wildlife Habitat		Feature ID	Summary of Evaluation Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted during EOS	Results of EOS and Rationale for Carrying Forward	EIS Required? (yes/no)	
						SWH	Generalized Candidate SWH
					222/103/243(WH-ABWO-21): northern leopard frog observed on edge of unit 103 (May 15 and June 15, 2012) but no standing water observed, no frogs heard at 2012 night surveys in May 2012.  <b>105(WH-ABWO-22 reassigned as SWH-ABWO-02 in Figure 28):</b> American toad and Spring peeper documented calling at level 2, and Green frog and Leopard frog calling at level 1 during 2012 survey. No egg masses observed, however, the water and banks were not conducive to egg mass surveys. This feature was confirmed as significant wildlife habitat of this type as evidence of 20 or more of the listed species for breeding were documented.		
<b>Habitat for Species of Special Concern</b>	<b>Marsh Bird Breeding Habitat</b>	Candidate SWH in Figure 22:  Green heron ecosite types: 136, 137, 268, 269, 392 (WH-MBB-01), 33(WH-MBB-02), 117(WH-MBB-03), 234(WH-MBB-04), 103(WH-MBB-05), 120(WH-MBB-06), 123, 124 (WH-MBB-07), 119(WH-MBB-08), 40(WH-MBB-09), 121(WH-MBB-10), 38(WH-MBB-11), 51(WH-MBB-12), 132(WH-MBB-13),  All other ecosite types: 397(WH-MBB-14),	Species including: American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Sedge Wren, Common Loon, Sandhill Crane, Green Heron, Trumpeter Swan  <b>Special Concern:</b> Black Tern, Yellow Rail  ELC Ecosites including: MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, FEO1, BOO1  For Green Heron: All SW, MA and CUM1 sites.  Threshold numbers of species identified in criteria: Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; <b>or</b> breeding by any combination of 5 or more of the listed species; Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH.	Field surveys to determine ELC. Area searches for general wildlife surveys as outlined in Table 5. Breeding bird surveys in 2009, 2011 and 2012 as outlined in Table 5. Surveys of water bodies conducted as part of the East Durham Wind Energy Centre Water Body Report in 2012 (LGL, 2012).	Green heron ecosite types: 136,137,268,269,392(WH-MBB-01): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 33(WH-MBB-02): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 117(WH-MBB-03): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 234(WH-MBB-04): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 103(WH-MBB-05): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 120(WH-MBB-06): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 123, 124(WH-MBB-07): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 119(WH-MBB-08): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 40(WH-MBB-09): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 121(WH-MBB-10): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys. 38(WH-MBB-11): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys.	Yes Significant Wildlife Habitat determined: WH-MBB-12 As shown in Figure 29	Yes, within 120m of underground/ overhead collection lines.



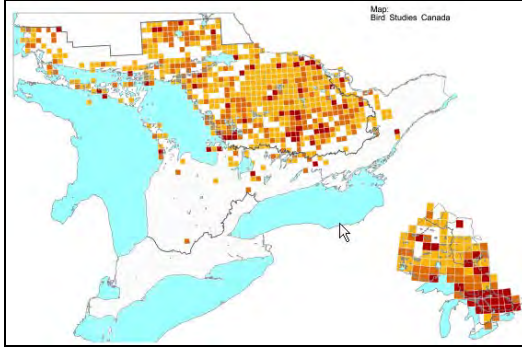
Type of Candidate Significant Wildlife Habitat	Feature ID	Summary of Evaluation Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted during EOS	Results of EOS and Rationale for Carrying Forward	EIS Required? (yes/no)		
					SWH	Generalized Candidate SWH	
				<p><b>51(WH-MBB-12):</b> <b>July 24, 2012: Young Green Heron observed at edges of pond, assumed to be the product of 2012 breeding season. This feature was confirmed as significant wildlife habitat of this type.</b></p> <p>132(WH-MBB-13): No evidence of Green Heron found during Breeding Birds surveys or general wildlife surveys.</p> <p>All other ecosite types: 397(WH-MBB-14): No evidence of criteria species found during Breeding Birds surveys or general wildlife surveys.</p>			
	<b>Terrestrial Crayfish</b>	None identified.	<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</p>	Candidate Significant Wildlife Habitat of this type was scoped according to Appendix D Table 16 of the NHAG (OMNR 2011a) in Site Investigation.	Habitat of this type was determined to be within 120m of the Project Location and was therefore carried forward as Generalized SWH.	None identified.	Yes, potential for habitat within 120m of project layout.
	<b>Special Concern and Rare Wildlife Species</b>	All areas in or within 120m of the project location are Candidate SWH.	<p>Based on information obtain in records review, the SC or rare wildlife species list for the project area include:</p> <p>Canada Warbler Common Nighthawk Golden-winged Warbler Red-headed Woodpecker Clamp-tipped Emerald Harlequin Darner Monarch Northern Long-eared Bat Small-footed (Least) Bat Hart's Tongue Fern Moss Scarlett Beebalm Milksnake Eastern Ribbonsnake Snapping Turtle</p> <p>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.</p> <p>Habitat form and function needs to be assessed from the assessment of vegetation types and an area of</p>	<p>Areas in or within 120m of the project location was screened for Species of Special Concern during breeding bird surveys, wildlife and vegetation field investigations in 2009, 2011 and 2012 as outlined in Table 5.</p> <p>A summary of the habitat available in or within 120m of the Project Location is outlined for each of the species listed in Table 16. A description of field studies conducted and evaluation of significance results are also included therein.</p>	<p>Significant wildlife habitat was identified in or within 120m of the Project Location as the following:</p> <p>Generalized Candidate SWH</p> <p>Significant Wildlife Habitat for Snapping Turtle: ELC unit 51 (WH-SSC-ST-01) ELC unit 416 (WH-SSC-ST-02) ELC unit 415 (WH-SSC-ST-03)</p> <p>Each of these is further explained in Table 15 below.</p>  <p>WH-SSC-ST-01 is located 70m from Turbine 8</p>	Yes, SWH for Snapping Turtle	Yes, potential for habitat within 120m of underground/overhead collection.



Type of Candidate Significant Wildlife Habitat	Feature ID	Summary of Evaluation Criteria (Significant Wildlife Habitat Draft Ecoregion 6E Criterion Schedule, OMNR, 2012).	Description of Investigations Conducted during EOS	Results of EOS and Rationale for Carrying Forward	EIS Required? (yes/no)	
					SWH	Generalized Candidate SWH
		significant habitat that protects the rare or special concern species identified. 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.		 <p>WH-SSC-ST-02 is located 60m from underground collection.</p>  <p>WH-SSC-ST-03 is located 99m from underground collection.</p>		

NOTE: \*work done by Natural Resource Solutions Inc. and reported on in the East Durham Wind Energy Centre Bat Monitoring Report and Environmental Impact Study (NRSI, 2012).

**Table 15: Evaluation of Significance for habitat of Species of Special Concern**

Species	Habitat Preference	Applicable habitat within 120m of project location	Studies conducted to document species	Evaluation of Significance Results	Carried Forward to EIS? (yes/no)	
					SWH (within 120m of proposed turbines and roads)	Generalized Candidate SWH (within 120m of underground collection)
Canada Warbler	The Canada warbler prefers wet deciduous, coniferous, or mixed forest habitats that have a well-developed, thick understory. These birds nest close to the ground in patches of ferns or in woody debris, therefore, areas with dense understory and groundcover is utilized most for breeding. They feed on insects found within these forest layers. These birds may also be found in shrubby riparian zones, as well as early successional patches that may open up within forests. (SARA Public Registry) Interior forest species, dense, mixed coniferous deciduous forest with closed canopy, usually requires at least 30 ha (OMNR, 2000)	FOC, FOD, FOM communities that have dense understory and wet patches. SWT, SWC, or SWD could also have appropriate habitat provided there is a balance of treed and shrubby areas.	Multiple breeding bird surveys conducted in 2009 (2 days of surveys), 2011 (2 days of surveys), and 2012 (4 days of surveys). ELC and vegetation surveys also included incidental bird observations.	No observations of this species within 120m of proposed turbine or road components. The breeding range overlaps with the study area and appropriate habitat may occur elsewhere in the project area.	No habitat identified within 120m of turbine and access road locations.	yes, potential habitat within 120m of underground electrical collection.
Common Nighthawk	Common nighthawk is an aerial forager that hunts insects over a wide variety of habitats, in particular those with open or semi-open areas such as farmland, open woodlands, clear cuts, burns, rocky outcrops, bogs ferns, prairies, gravel pits and urban rooftops. The breeding habitat of the Common Nighthawk includes open habitats, such as sand dunes, beaches, recently logged areas, recently burned-over areas, forest clearings, short-grass prairies, pastures, open forests, peat bogs, marshes, lakeshores, gravel roads, river banks, rocky outcrops, rock barrens, railways, mine tailings, quarries, urban parks, military bases, airports, mines and commercial blueberry fields (COSEWIC Status Report, Savignac, C. 2007).	All areas in or within 120m of project location are potential habitat.	Surveys for crepuscular birds were conducted in 2011 and 2012 during the full moon as described in Table 5.	No records in either the first or second Breeding Bird Atlas for the study area (zone 17NJ29). Common Nighthawk was not documented within 120m of proposed turbine or road components during crepuscular bird surveys in 2011 or 2012.	No habitat identified within 120m of turbine and access road locations.	Yes, potential habitat within 120m of underground electrical collection.
Golden-winged Warbler	Early successional, shrubby regeneration areas with scattered trees and surrounded by more mature forest tends to be typical breeding habitat for the golden-winged warbler. They nest near the ground in low-lying bushes and herbaceous clumps of plants. Community types range from upland the marshes and wet forest. They can also be found in recently disturbed areas like hydro corridors, recently logged areas, and forest edges. (SARA Public Registry)	Cultural woodlands or thickets having adequate shrubbery and that border onto more mature forest.	Multiple breeding bird surveys conducted in 2009 (2 days of surveys), 2011 (2 days of surveys), and 2012 (4 days of surveys). ELC and vegetation surveys also included incidental bird observations.	No records in either the first or second Breeding Bird Atlas for the study area (zone 17NJ29). Species was not documented during wildlife or breeding bird surveys within 120m of proposed turbine and roads. Suitable habitat does exist within the study area.	No	Yes, potential habitat within 120m of underground electrical collection.

Species	Habitat Preference	Applicable habitat within 120m of project location	Studies conducted to document species	Evaluation of Significance Results	Carried Forward to EIS? (yes/no)	
					SWH (within 120m of proposed turbines and roads)	Generalized Candidate SWH (within 120m of underground collection)
Olive Sided Flycatcher	<p>Coniferous or mixed forests adjacent to rivers or wetlands; breeding range extends from central to northern Ontario.</p> 	<p>The study area is at the very southern edge of its breeding range in Ontario. One would have to travel 100+ km farther north to the Bruce Peninsula north of Wiarton or north of Lake Simcoe to get to the southern edge of the species range where the species is found in almost every atlas square and where there is confirmed breeding.</p>	<p>Breeding bird surveys in 2009, 2011 and 2012.</p>	<p>This species was documented within an ELC unit &gt;120m from the project location during the 2009 breeding bird survey. The field crew conducting the survey (D. Martin, Appendix C) determined it to be a late migrant as it is often seen into the first week of June and can be found as late as mid-June still on migration [Breeding Bird Atlas account]. The bird was not observed on the July 5 survey. Field staff were aware of the siting on the first survey and made an effort to find it; however, it was not found and therefore documented as a late migrant that did not stay around to breed. Although the habitat is suitable for this species [expansive bogs, riparian zones, cutovers, burns, beaver ponds, small lakes all with standing dead trees for perch hunting] it is likely so remote from the central part of its range that the bird was not able to attract a mate and so moved on. The species was not documented in either the 2011 or 2012 breeding bird surveys conducted.</p>	No	No
Red-headed Woodpecker	<p>Habitat is highly variable and may include open oak and beech forests, grassland, pasture, riparian forests and edges, or anthropocentric features like roadsides, golf courses, and cemeteries. Areas that have a high density of dead trees and snags are likely to encourage the presence of these birds. (SARA Public Registry)</p>	<p>Deciduous forests that have a high density of dead trees. Cultural woodlands having pasture and dead trees throughout.</p>	<p>Multiple breeding bird surveys conducted in 2009 (2 days of surveys), 2011 (2 days of surveys), and 2012 (4 days of surveys). ELC and vegetation surveys also included incidental bird observations.</p>	<p>No records in either the first or second Breeding Bird Atlas for the study area (zone 17NJ29). Species was not documented during wildlife or breeding bird surveys within 120m of proposed turbine and roads. Some suitable habitat exists, though no forest communities were dominated by oak or beech. Many pasture and grassland areas were bare of trees (dead or alive).</p>	No	Yes, potential habitat within 120m of underground electrical collection.
Clamp-tipped Emerald	<p>This dragonfly species breeds in streams, lakes, headwater seeps and bogs. As an adult it is mostly seen away from water, often in small feeding swarms (Beatty et. al., 2010, NHIC database, accessed August 2012).</p>	<p>Seeps and bogs, Saugeen River and its tributaries.</p>	<p>Multiple investigations of natural features that were completed in 2009-2012. This includes over 30 days of field investigations where general wildlife observations were documented.</p>	<p>No swarms of adult dragonfly were noted. Potential breeding habitat is present within 120m of the project location; however, NHIC records for the County are historical. No in- water surveys were conducted for benthos during the NHA process; however, no Corduliidae were documented in the 2006 data obtained from the SVCA for a benthos monitoring station in the Saugeen River just downstream of the Study Area (pers. comm. M. Nicol, 2012)</p>	No	Yes, potential habitat within 120m of underground electrical collection.

Species	Habitat Preference	Applicable habitat within 120m of project location	Studies conducted to document species	Evaluation of Significance Results	Carried Forward to EIS? (yes/no)	
					SWH (within 120m of proposed turbines and roads)	Generalized Candidate SWH (within 120m of underground collection)
		 <p>NHIC species range map for <i>Somatochlora tenebrosa</i> <i>Records in County of Grey are historical (from literature pre 1984).</i></p>				
Harlequin Darner	Bogs and swamps (particularly cypress, alder, or cedar) are preferred habitat for breeding. (bugguide.net)	<p>Cedar or coniferous swamps.</p>  <p>NHIC species range map for <i>Gomphaeschna furcillata</i> <i>Records in County of Grey are historical (from literature pre 1984).</i></p>	Multiple investigations of natural features that were completed in 2009-2012. This includes over 30 days of field investigations where general wildlife observations were documented.	No swarms of adult dragonfly were noted. Potential breeding habitat is present within 120m of the project location; however, NHIC records for the County are historical. No in- water surveys were conducted for benthos during the NHA process; however, 1 individual from the Aeshnidae family was documented in the 2006 data obtained from the SVCA for a benthos monitoring station in the Saugeen River just downstream of the Study Area (pers. comm. M. Nicol, 2012). This family of dragonflies encompasses a large number of species that have potential to inhabit the study area; this specimen was not identified to species level.	No	Yes, potential habitat within 120m of underground electrical collection.
Monarch	These butterflies can be found in any habitat that also contains their preferred food source; milkweed ( <i>Asclepias</i> sp.). This tends to be areas like old fields, roadsides, gardens, or meadows. (SARA Public Registry)	Cultural meadows, old fields (not currently being used for agriculture), open cultural woodlands.	Multiple investigations of natural features that were completed in 2009-2012. This includes over 30 days of field investigations where general wildlife observations were documented.	This species was observed in the study area and the preferred food source of milkweed species was documented in 30 different ELC communities. No large milkweed groupings were documented within 120m of proposed turbine and roads. No large numbers of monarch were recorded; and, where individuals were found (e.g. ELC unit 27) these units were located more than 120m from proposed turbines and roads.	No	Yes, potential habitat within 120m of underground electrical collection.

Species	Habitat Preference	Applicable habitat within 120m of project location	Studies conducted to document species	Evaluation of Significance Results	Carried Forward to EIS? (yes/no)	
					SWH (within 120m of proposed turbines and roads)	Generalized Candidate SWH (within 120m of underground collection)
Northern Long-eared Bat	These bats roost within a variety of tree species found within mid-aged to mature forests. Trees that are further within the interior of the forest are also preferred as these bats tend to avoid open areas away from forests. The tree species does not appear to be a major factor when choosing roosting locations, though deciduous trees seem to be preferred. They may also use trees that are dead or alive, provided they have appropriate cavity or crevice features. (Alberta Conservation Association, 2009). <a href="http://www.srd.alberta.ca/Fishwildlife/SpeciesAtRisk/DetailedStatus/Mammals/documents/Status-NLongEaredBatMyotis-inAlberta-May2009.pdf">http://www.srd.alberta.ca/Fishwildlife/SpeciesAtRisk/DetailedStatus/Mammals/documents/Status-NLongEaredBatMyotis-inAlberta-May2009.pdf</a>	Large, contiguous deciduous or mixed forests with water source within the interior.	There were 9 days completed for identifying significant bat habitat, as well as one evening spent completing visual and acoustic bat monitoring (NRSI, 2012).	Appropriate roosting habitat exists within the study area; however, no direct observations were noted in 2012 within 120m from proposed turbines and roads.	No	Yes, potential habitat within 120m of underground electrical collection.
Small-footed (Least) Bat	These bats tend to occur at higher elevations (240-1125m) in eastern forests, both coniferous and deciduous, as well as in rock bluffs or man-made features like buildings, and tunnels. Hibernation occurs in caves and mines only. (University of Michigan Museum of Zoology, 2008). <a href="http://pbadupws.nrc.gov/docs/ML0802/ML080280220.pdf">http://pbadupws.nrc.gov/docs/ML0802/ML080280220.pdf</a>	The majority of the study area is above 400m, therefore any larger forests, particularly those near man-made features could be considered.	There were 9 days completed for identifying significant bat habitat, as well as one evening spent completing visual and acoustic bat monitoring (NRSI, 2012).	Appropriate roosting habitat exists within the study area; however, no direct observations were noted in 2012 within 120m from proposed turbines and roads.	No	Yes, potential habitat within 120m of underground electrical collection.
Hart's Tongue Fern	This fern is typically found in rocky areas that are on limestone outcrops within maple-beech forests. Areas that are moist and mossy may also play a role in plant reproduction. (ROM, 2009)	There are few rocky outcroppings within the study area, but many of the larger deciduous forests are dominated by sugar maple, with some beech.	Twenty field days completed by lead botanist, including the completion of ELC and botanical inventories.	Species was not documented on site, and potential habitat is limited.	No	Yes, potential habitat within 120m of underground electrical collection.
Moss ( <i>Pottia intermedia</i> )	This moss is more common in prairie ecozones. (Saskatchewan Conservation Data Centre, 2010). <a href="http://www.biodiversity.sk.ca/Docs/THE%20MOSSSES%20OF%20SASKATCHEWAN5.pdf">http://www.biodiversity.sk.ca/Docs/THE%20MOSSSES%20OF%20SASKATCHEWAN5.pdf</a>	No prairie communities were found within the study area.	Multiple investigations of natural features that were completed between 2009 and 2012. This includes over 30 days of field investigations where general and intensive botanical observations were documented.	Not documented during field investigation. Presence is unlikely.	No	Yes, potential habitat within 120m of underground electrical collection.
Scarlett Beebalm	Often times an escapee from cultivation, but the natural range of this plant is much more restricted. This species prefers moist areas, including stream banks, meadows, and open woodlands. (University of Texas - Wildflower.org).	Riparian floodplains and moist meadows (ELC 278).	Multiple investigations of natural features that were completed in 2009-2012. This includes over 30 days of field investigations where general and intensive botanical observations were documented.	Not documented on site (or in ELC unit 278). Habitat does exist. Possibility of escaped cultivated plants.	No	Yes, potential habitat within 120m of underground electrical collection.

Species	Habitat Preference	Applicable habitat within 120m of project location	Studies conducted to document species	Evaluation of Significance Results	Carried Forward to EIS? (yes/no)	
					SWH (within 120m of proposed turbines and roads)	Generalized Candidate SWH (within 120m of underground collection)
Virginia Water Horehound	Wet ground. Riparian, shorelines and wetlands (OMNR, 2000). Moist woods and shorelines (Biodiversity explorer)	Potential habitat in marsh, swamps and shoreline edges in or within 120 m of the Project Location.	Multiple investigations of natural features that were completed in 2009-2012. This includes over 30 days of field investigations where general and intensive botanical observations were documented.	This species was not documented during the vegetation surveys conducted within 120m of turbines and access roads, nor was it documented in road right-of-ways. Potential for habitat to exist within 120m of underground/overhead electrical collection on properties where access to conduct surveys was not permitted.	No	Yes, potential habitat within 120m of underground electrical collection.
Milksnake	This species of snake can occur in a wide variety of habitats ranging anywhere from rural areas and around man-made structures, to forests, prairies, pasture, and rocky outcrops. Common themes in preferred habitat appear to be proximity to a water source, as well as appropriate basking areas. (SARA Public Registry).	Agriculture, residential, forests, cultural meadows and woodlands.	Multiple investigations of natural features that were completed in 2009-2012. This includes over 30 days of field investigations where general wildlife observations were documented.	Historical record from a landowner (>20 years). No individuals were documented within 120m of proposed roads and turbines during 2009-2012 field investigations. However, potential habitat is present within the study area, milksnake is considered to be a habitat generalist, and difficult to document based on its habitat use; therefore, habitat for Milksnake was carried forward as Generalized Candidate SWH.	No	Yes, potential habitat within 120m of underground electrical collection.
Eastern Ribbonsnake	This snake is frequently found in aquatic to semi-aquatic habitats. This may include ponds, streams, marshes, swamps, or other wetland features that provide vegetated edges. This reptile can also swim. Appropriate upland basking and nesting sites are also key features for this species. (SARA Public Registry).	Any of the wetland communities, or areas around the Saugeen River could be potential habitat.	Multiple investigations of natural features that were completed between 2009 and 2012. This includes over 30 days of field investigations where general wildlife observations were documented.	Species was not confirmed within 120m of proposed roads and turbines during 2009-2012. However, potential habitat is present within the study area and a potential sighting was documented by Dave Martin but remained unconfirmed. The species is considered difficult to document based on its habitat use; therefore, habitat for Eastern Ribbonsnake was carried forward as Generalized Candidate SWH.	No	Yes, potential habitat within 120m of underground electrical collection.
Snapping Turtle	This turtle is often found in many types of freshwater bodies, including ponds with soft mud bottom, slow-moving streams, persistent wetland areas, as well as man-made features like golf course ponds or irrigation channels. (SARA Public Registry).	Pond features (natural or man-made), persistent wetlands, or swamps.	Multiple investigations of natural features that were completed in 2009-2012. This includes over 30 days of field investigations where general wildlife observations were documented.	Several observations of this species were made, including within ELC communities #51 (OAO – natural feature, observations of snapping turtles on multiple occasions here), 415 (OAO) and 416 (OAO – man-made, landowner information).	Yes	Yes, potential habitat within 120m of underground electrical collection.

### 4.3 SUMMARY OF FEATURES CARRIED FORWARD TO THE ENVIRONMENTAL IMPACT STUDY

Features evaluated as significant or treated as significant are summarized in Table 16. All of these features were further addressed in the Environmental Impact Study (EIS) as required according to the REA Regulation in order to identify potential negative environmental effects and provide detail for the proposed mitigation methods and monitoring plans.

The features carried forward include the following:

- Significant Wetlands (2 PSWs, 1 significant (LGL OWES evaluation), 10 treated as significant);
- 4 Significant Woodlands;
- 7 Significant Valleylands; and,
- Significant Wildlife Habitat for:
  - Bat Maternity Colonies -3 SWHs (treated as significant)
  - Turtle Wintering Area – 3 SWHs
  - Deer Yarding Area – 1 SWH
  - Amphibian Breeding (woodland) – 4 SWHs
  - Marsh Breeding Bird -1 SWH
  - Waterfowl Nesting - 1 SWH (treated as significant)
  - Habitat for Species of Special Concern - 3 SWHs for Snapping Turtle and Generalized SWH

All of the above listed types of SWH , with the exception of Deer Yarding, were also carried forward and addressed within the EIS as Generalized Candidate SWH for areas within 120m of underground/overhead collection line.



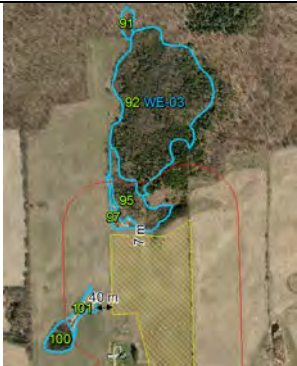
In addition, the following types of habitat were addressed exclusively as Generalized SWH, treated as significant, and addressed within the Environmental Impact Study:



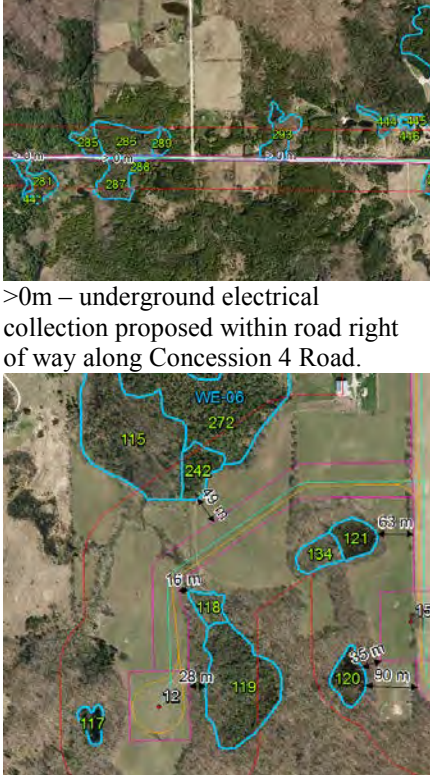
- Waterfowl Stopover and Staging (Aquatic);
- Colonial-Nesting Bird Breeding Habitat (ground);
- Colonial-Nesting Bird Breeding Habitat (tree/shrub);
- Seeps and Springs;
- Amphibian Breeding Habitat (wetlands);
- Shrub/Early Successional Bird Breeding Habitat/Declining Guild Shrubland Birds;
- Terrestrial Crayfish;
- Deer Movement Corridors;
- Bald Eagle and Osprey Nesting, Foraging and Perching Habitat; and,
- Turtle Nesting Areas.

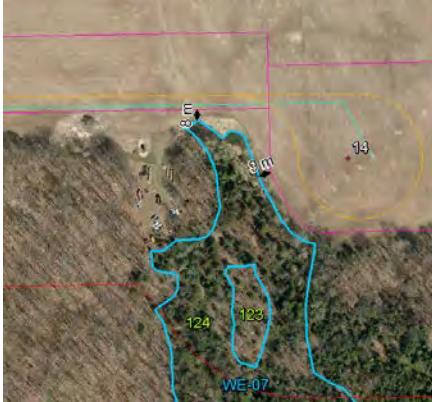

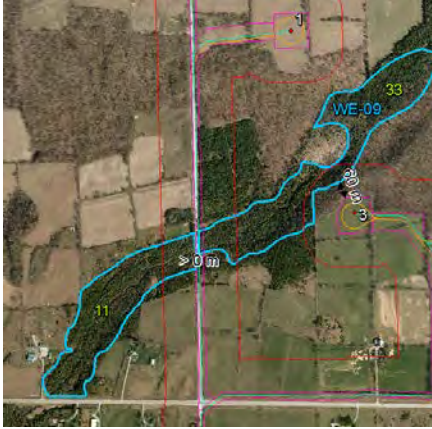





**Table 16: Summary of Significant Features Evaluated or Treated as Significant.**


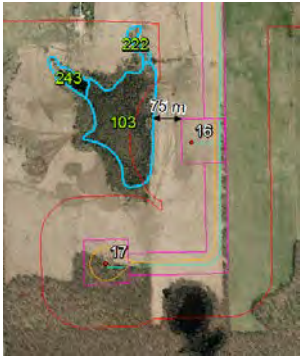


Note: larger mapping for Significant Wetlands (Figure 23), Significant Woodlands (Figure 24 and 24a-24j), Significant Valleylands (Figure 25), and Significant Wildlife Habitat (Figures 26 -30) are presented at the end of the report text.

Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Wetland 1 WE-01	 <p>93m – turbine 17                      33m - access road/ underground electrical collection to turbine 17</p>	Treated as Significant	Yes
Wetland 2 WE-02	 <p>8m – access road and underground electrical collection to turbine 13                      110m – turbine 13                      &gt;0m - - underground electrical collection proposed for installation within road right of way along Southline Rd.</p>	Treated as Significant	Yes
Wetland 3 WE-03	 <p>7m – construction laydown area</p>	Treated as Significant	Yes

Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Wetland 4 WE-04	 <p>62m – underground electrical collection proposed within road right of way along County Road 4.</p>	Treated as Significant	Yes
Wetland 5 WE-05	 <p>40m and 65m – underground electrical collection proposed within road right of way along Concession 4 Road and County Road 23.</p>	Treated as Significant	Yes
Wetland 6 WE-06	 <p>&gt;0m – underground electrical collection proposed within road right of way along Concession 4 Road.</p> <p>16m – access road and underground electrical collection to turbine 12.                  28m – turbine 12</p>	Full OWES evaluation included in Appendix F. Result - significant wetland.	Yes





Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Wetland 7 WE-07	 <p>8m – turbine 14</p>	Treated as Significant	Yes
Wetland 8 WE-08	 <p>57m – turbine 8                  21m –access road and underground collection to turbine 8</p>	Treated as Significant (due to significant function as SWH for amphibian woodland breeding).	Yes
Wetland 9 WE-09	 <p>60m – turbine 3                  &gt;0m – underground electrical collection proposed for installation within road right of way along Southline Rd.</p>	Treated as Significant	Yes

Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Beaver Meadow PSW (WE-12)	 <p>&gt;0m – underground electrical collection within road right of way on Boot Jack Ranch Road.</p>  <p>&gt;0m – underground electrical collection within road right of way on Boot Jack Ranch and Southline.</p>  <p>&gt;0m – underground electrical collection within road right of way on County Road 4.                      57m – turbine 8                      6m – Access road and underground collection to turbine 8.</p>	MNR wetland evaluation and subsequent amendment of boundaries by OWES trained biologist (LGL) determined this feature to be a provincially significant wetland (PSW).	Yes

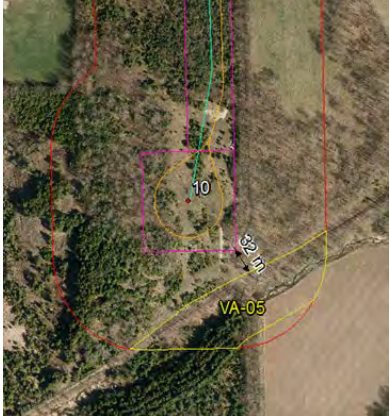


Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
	 <p>10m – Turbine 11                      47m – access road and underground electrical collection to turbine 11</p>  <p>75m – turbine 16</p>  <p>36m – underground electrical collection in road right of way along County Road 4.                      &gt;0m - underground electrical collection in road right of way along County Road 4.</p>		
Topcliff Swamp PSW (WE-13)	 <p>83m - underground collection proposed within road right of way.</p>	MNR wetland evaluation determined this feature to be a provincially significant wetland (PSW).	Yes

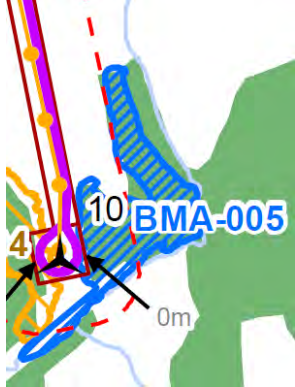

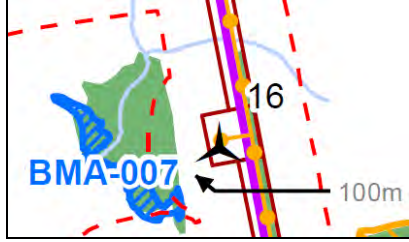


Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Woodland 2 WO-02	<p><b>Shown on Figure 24a:</b>                      Distance to Turbine 1 is 17m;                      Distance to access road and underground electrical collection to Turbine 1 =0m;                      Distance to MET tower =102m;                      Distance to underground electrical collection in road right of way along Baptist Church Rd. = 0m.</p> <p><b>Shown on Figure 24b:</b>                      Distance to Turbine 2 =98m;                      Distance to access road and underground electrical collection for Turbine 2 &gt;0m;                      Distance to underground electrical collection in road right of way =0m.</p> <p><b>Shown on Figure 24c:</b>                      Distance to Turbine 3 &gt;0m;                      Distance to Turbine 4 =17m;                      Distance to Turbine 5 =50m;                      Distance to access road and underground electrical collection for Turbine 3 &gt;0m;                      Distance to access road/collection/road to Turbine 5 = 17m.</p> <p><b>Shown on Figure 24d:</b>                      Distance to Turbine 7 = 3m;                      Distance to underground electrical collection and/access road to Turbine 7 = 10m;                      Distance to Turbine 6 =65m;                      Distance to underground electrical collection and access road to Turbine 6 &gt;0m;                      Distance to electrical collection within road right of way along County Rd. 23 = 0m.</p> <p><b>Shown on Figure 24e:</b>                      Distance to Turbine 8 = 5m;                      Distance to underground electrical /collection and access road to Turbine 8 = 0m;                      Distance to electrical collection within road right of way &gt;0m.</p>	<p>This woodland was determined to be significant under Criteria 1 through 2(e) as provided in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) and described in Table 12 of this report.</p>	<p>Yes</p>



Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
	<p><b>Shown on Figure 24h:</b> Distance to Turbine 15 = 6m; Distance to Turbine 14 &gt; 0m; Distance to Turbine 12 &gt; 0m; Distance to underground electrical collection and access road to Turbine 14 = 1m; Distance to underground electrical collection and access road to Turbine 15 = 39m; Distance to underground electrical collection and access road to Turbine 12 &gt; 0m; Distance to electrical collection within the road right of way along concession 4 road is 0m.</p> <p><b>Shown in Figure 24k:</b> Distance to construction laydown area = 7m</p>		
Woodland 3 WO-03	<p><b>Shown on Figure 24j:</b> Distance to Turbine 17 and associated underground electrical collection and access road = 0m with a direct intrusion and removal of woodland habitat identified as 0.97ha;</p> <p><b>Shown on Figure 24i:</b> Distance to Turbine 13 = 89m; Distance to underground electrical collection and access road to Turbine 13 = 8m. Distance to underground electrical collection in road right of way along Southline is 0m.</p>	This woodland was determined to be significant under Criteria 1 through 2(e) as provided in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) and described in Table 12 of this report.	Yes
Woodland 4 WO-04	<p><b>Shown on Figure 24f:</b> Distance to Turbine 10 = 0m with a direct intrusion and removal of significant woodland (0.42ha); Distance to underground electrical collection and access road to Turbine 10 = 3m.</p>	This woodland was determined to be significant under Criteria 1 through 2(e) as provided in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) and described in Table 12 of this report.	Yes
Woodland 5 WO-05	<p><b>Shown on Figure 24g:</b> Distance to Turbine 11 = 10m; Distance to underground electrical collection and access road to Turbine 11 &gt; 0m.</p>	This woodland was determined to be significant under Criteria 1 through 2(e) as provided in the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR, 2011a) and described in Table 12 of this report.	Yes


Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Valleyland 1 VA-01	 <p>Electrical collection is proposed to cross the valley feature.</p>	This valleyland was determined to be significant according to its degree of naturalness, surface water function, and linkage function which all met the standard for significance as further described in Table 13.	Yes
Valleyland 2 VA-02	 <p>Electrical collection is proposed to cross the valley feature.</p>	This valleyland was determined to be significant according to its degree of naturalness, surface water function, and linkage function which all met the standard for significance as further described in Table 13.	Yes
Valleyland 3 VA-03	 <p>0m from construction disturbance to Turbine 7 and associated electrical underground collection and access road.</p>	This valleyland was determined to be significant according to its degree of naturalness, surface water function, and linkage function which all met the standard for significance as further described in Table 13.	Yes
Valleyland 4 VA-04	 <p>77m – Turbine 3 and associated electrical underground collection and access road.</p>	This valleyland was determined to be significant according to its degree of naturalness, surface water function, and linkage function which all met the standard for significance as further described in Table 13.	Yes






Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Valleyland 5 VA-05	 <p>32m - Turbine 3 and associated electrical underground collection and access road.</p>	This valleyland was determined to be significant according to its degree of naturalness, surface water function, and linkage function which all met the standard for significance as further described in Table 13.	Yes
Valleyland 6 VA-06	 <p>Electrical collection is proposed to cross the valley feature.</p>	This valleyland was determined to be significant according to its surface water function which met the standard for significance as further described in Table 13.	Yes
Valleyland 7 VA-07	 <p>36m – underground electrical collection</p>	This valleyland was determined to be significant according to its degree of naturalness, surface water function, and linkage function which all met the standard for significance as further described in Table 13.	Yes

Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Wildlife Habitat (Bat Maternity Colony) WH-BMA-005 <sup>i</sup>	 <p>0m – Turbine 10</p>	Treated as Significant (no property access)  See NRSI report (Appendix I) for full reporting of results.	Yes
Significant Wildlife Habitat (Bat Maternity Colony) WH-BMA-006 <sup>i</sup>	 <p>11m – Turbine 11</p>	Treated as Significant (no property access).  See NRSI report (Appendix I) for full reporting of results.	Yes
Significant Wildlife Habitat (Bat Maternity Colony) WH-BMA-007 <sup>i</sup>	 <p>100m – Turbine 16</p>	Treated as Significant (pre-construction surveys to be completed).  See NRSI report (Appendix I) for full reporting of results.	Yes
Significant Wildlife Habitat (Turtle Wintering) WH-TW-01	 <p>70m- turbine 8</p>	1 basking Snapping turtle observed May 15 and June 14, 2012); 1 Snapping turtle shell found (May 1, 2011) up to 9 basking Midland Painted Turtles observed during a single survey (June 14 and July 24, 2012). This feature was confirmed as significant wildlife habitat of this type.	Yes
Significant Wildlife Habitat (Turtle Wintering) WH-TW-04	 <p>99m from underground collection along Concession 4 Road</p>	No basking turtles observed; however, landowner reports Snapping turtle use of pond. This feature was confirmed as significant wildlife habitat of this type	yes

Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Wildlife Habitat (Turtle Wintering) WH-TW-05	 <p>62m from underground collection along Concession 4 Road</p>	Landowner reports Midland painted turtle and Snapping turtle using dugout pond habitat. This feature was confirmed as significant wildlife habitat of this type.	yes
Significant Wildlife Habitat (Deer Yarding Area) WH-DYA-01	 <p>16m – underground collection on Concession 4 Road; 103m – underground collection on County Rd. 23</p>	This feature was determined to be SWH by MNR.	Yes
Significant Wildlife Habitat (Waterfowl Nesting Area) WH-WN-08	See Figure 31 for distances and location of feature. Feature is 6m from Turbine 11 and associated access road/underground electrical collection	Treated as Significant (no property access provided).	Yes
Significant Wildlife Habitat (Amphibian Breeding Habitat – woodland) WH-ABWO-01	See Figure 28 for distances and location of features. Feature is >0m from underground collection and access road to turbine 6.	Woodland amphibian breeding habitat is significant where there is a high diversity of species present. Call count results: Gray treefrog level 3 calling during 2012 survey. Area search results: Wood frogs observed, Egg masses (likely Wood frog) observed, 4 ambystomid egg masses observed, however pond is large and was not fully accessible for visual inspection. LGL biologist identified potential for more than 20 egg masses to be present, based on extrapolation of smaller area study.	Yes

Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
Significant Wildlife Habitat (Amphibian Breeding Habitat – woodland) WH-ABWO-02	See Figure 28 for distances and location of features. Feature is 0m from turbine 17, as construction of this project component constitutes an intrusion into the significant wildlife habitat identified as SWH-ABWO-02.	Woodland amphibian breeding habitat is significant where there is a high diversity of species present. Call count results: Spring peeper documented calling at level 2 Area search results: No egg masses observed, however, the water and banks were not conducive to egg mass surveys.  This feature was confirmed as significant wildlife habitat of this type as evidence of 20 or more of the listed species for breeding were documented.	Yes
Significant Wildlife Habitat (Amphibian Breeding Habitat – woodland) WH-ABWO-03	See Figure 28 for distances and location of features. Feature is >0m from turbine 12, 1m from underground collection and access road to turbine 15 and 1m from underground collection and access road to turbine 12.	Woodland amphibian breeding habitat is significant where there is a high diversity of species present. Call count results: spring peeper calling at Level 3, Gray treefrog level 1 during 2012 survey. This feature was confirmed as significant wildlife habitat of this type;	Yes
Significant Wildlife Habitat (Amphibian Breeding Habitat – woodland) WH-ABWO-04	See Figure 28 for distances and location of features. Feature is 1m from underground collection and access road to turbine 13.	Woodland amphibian breeding habitat is significant where there is a high diversity of species present. Call count results:	Yes
Significant Wildlife Habitat (Marsh Bird Breeding) WH-MBB-12	 <p>70m – turbine 8</p>	WH-MBB-12: During wildlife surveys on July 24, 2012 a young Green Heron was observed at edges of pond, assumed to be the product of 2012 breeding season. This feature was confirmed as significant wildlife habitat of this type.	Yes
Significant Wildlife Habitat (Species of Special Concern)	As shown in Figure 30. WH-SSC-ST-01	WH-SSC-ST-01: 1 basking Snapping turtle observed May 15 and June 14, 2012; 1 Snapping turtle shell found (May 1, 2011). This feature was confirmed as significant wildlife habitat of this type.	Yes

Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
	 <p>70m from turbine 8 and associated access road and underground collection.</p> <p>WH-SSC-ST-02</p>  <p>60m from underground electrical collection along Concession 4 Road.</p> <p>WH-SSC-ST-03</p>  <p>99m from underground electrical collection along Concession 4 Road.</p>	<p>WH-SSC-ST-02: No basking turtles observed; however, landowner reports Snapping turtle use of pond. This feature is in very close proximity to WH-SSC-ST-03. This feature was confirmed as significant wildlife habitat of this type</p> <p>WH-SSC-ST-03: No basking turtles observed; however, landowner reports Snapping turtle use of pond. This feature is in very close proximity to WH-SSC-ST-03. This feature was confirmed as significant wildlife habitat of this type</p>	
Generalized SWH	As displayed in Figure 32	<p>Generalized SWH of the following types is located within 120m of the project location:</p> <ul style="list-style-type: none"> <li>• Waterfowl Stopover and Staging (Aquatic);</li> <li>• Colonial-Nesting Bird Breeding Habitat (ground);</li> <li>• Colonial-Nesting Bird Breeding Habitat (tree/shrub);</li> <li>• Seeps and Springs;</li> </ul>	Yes

Feature Type/ID	Proximity of Feature to Project Location	Evaluation Results	EIS required? (Yes/ No)
		<ul style="list-style-type: none"> <li>• Amphibian Breeding Habitat (wetlands);</li> <li>• Shrub/Early Successional Bird Breeding Habitat/Declining Guild Shrubland Birds;</li> <li>• Terrestrial Crayfish;</li> <li>• Deer Movement Corridors;</li> <li>• Bald Eagle and Osprey Nesting, Foraging and Perching Habitat; and,</li> <li>• Turtle Nesting Areas</li> </ul>	

## **5.0 ENVIRONMENTAL IMPACT STUDY**

### **5.1 REA REQUIREMENTS**

Part V, Section 28 of the REA Regulation requires an EIS be prepared that identified negative environmental effects as a result of the proposed project activities. It is also intended to detail the proposed mitigation methods and a monitoring plan.

The EIS report must:

- Identify and assess negative environmental effects of the project on a natural feature, provincial park or conservation reserve;
- Identify mitigation measures for negative effects on a natural feature, provincial park or conservation reserve;
- Describe how the environmental effects monitoring plan addresses the negative effects; and,
- Describe how the construction plan report addresses any negative environmental effects.

### **5.2 PROJECT DESCRIPTION**

Details of the project location and components are found in Section 1.1. At this stage in the EIS, information has been gathered regarding the natural features in the project area, and an understanding of the environmental sensitivities and constraints, and their associated attributes and functions, has been detailed through the report. The current design of the project reflects an interactive approach whereby environmental information has been provided to the project team and many modifications to the project design has resulted. Evaluations of significance for wetlands, wildlife habitat, valleylands and woodlands have been completed and Provincially significant natural heritage features have been identified within 120m of the project components.

### **5.3 CONSTRUCTION ACTIVITIES**

Details of construction activities in this section are taken from Genivar (Draft Feb. 2012) Draft Project Description Report for the East Durham Wind Energy Centre Project.

#### **5.3.1 Materials**

The wind turbine technology proposed for this Project is the 1.6-100 MW GE model wind turbine. The turbines are 3-bladed, upwind, horizontal-axis wind turbines that are state of the art technology. The turbines have a 100 m diameter with a swept area of 7,854 m<sup>2</sup>; each blade is connected to the main shaft via the hub. The turbine is mounted on an 80 m tubular steel tower which contains an internal ladder provided for maintenance access. The turbine will be constructed on a foundation that is approximately 400 m<sup>2</sup>. The foundation consists of poured concrete and steel rebar to provide added strength.

The nacelle (located at the top of the tower) houses the main components of the wind turbine such as the rotor shaft, gear box, couplings, control panel, bearing brackets and the generator. The nacelle is equipped with sound-proofing, is ventilated and the interior is illuminated with electric lights. Some of the wind turbines will have external lighting in accordance with the requirements of Transport Canada (TC).

### 5.3.2 Surveying

Surveys will be required to locate the turbines, crane pads, access roads, electrical lines and the substation. Geotechnical sampling will also be required, typically conducted using a truck mounted drill rig.

### 5.3.3 Construction Laydown

A 6 hectare (15 acre) site will be constructed for the temporary storage of construction material and as a site for the construction office trailers. Following clearing and grubbing of any vegetation, the topsoil at the temporary laydown area will be removed and approximately 600 mm of clean compacted crushed gravel will be imported as needed. The excavated topsoil will be re-used on site as feasible. A temporary electrical service line will be connected to the existing distribution line adjacent to the laydown area for the purpose of providing power to the construction office trailers. Typical equipment for the construction of the laydown area includes trucks, graders, and bulldozers. It is anticipated it will take 1 week to construct the laydown area by a crew of six people (Genivar Draft Feb. 2012).

### 5.3.4 Turbine Construction

A 122m by 122m square for each turbine requires clearing in order to provide sufficient area for the laydown of the wind turbine components and the assembly activities. During the time of construction, the square (122m by 122m) must be cleared, levelled and accessible. Typically topsoil is removed and fill is placed as required, and specific to the geotechnical conditions at each turbine site. Adjacent to the turbine pad, the crane pad will typically be constructed at the same time to a size of 15m by 35m. Approximately 600mm of clean compacted crushed gravel will be imported as required for the crane pads. Once the turbine has been erected, the crane pad will be restored to prior use. These activities require equipment such as trucks, graders and bulldozers; a crew of 4 to 6 people; and last for 1 to 2 days. Turbine components will arrive on-site via flatbed trucks, and two cranes may be used to install the equipment. The assembly will occur over several days (4 to 5 days), require a crew of approximately 15 to 20 people. Light vehicles will be used to transport personnel to and from the sites. Cranes may move by trackmount or require disassembly to transport around the project site. It is anticipated that areas around the turbine will be restored to previous agricultural use during turbine operation and after decommissioning.



### 5.3.5 Electrical Collection

Underground cabling is comprised of 24V cables and fibre optics lines will be buried between each turbine and the collection system. Above ground electrical junction boxes will be utilized where necessary to connect sections of underground cabling. Excavated soils will be sidecast then re-used as backfill. Power conductors will be at a depth of 0.9m below grade. Farming practices are not anticipated to be affected by collection cables due to their depth and location beneath access roads. Trenchers or diggers may be used depending on soil conditions. A crew of six people is anticipated, with construction length varying by length of line.

Where woodlands, wetlands or watercourses are encountered along the proposed collection route, horizontal direction drilling may be employed to minimize or avoid impacts to these features. Entry and exit pits will be required, as well as erosion control at the drill locations. Two to 3 support trucks and a crew of workers will be required. Drilling is done utilizing drilling equipment, bentonite and/or a polymer mix to inject into the drill hole.

### 5.3.6 Electrical Connection Line

An above ground electrical line may be required to connect the transformer to the Hydro One distribution system. This would employ standard poles within the municipal road right of ways.

### 5.3.7 Transformer Substation

The electrical substation will be located on private property and is estimated at 0.4ha in size. It will include equipment such as an isolation switch, a circuit breaker, a step-up power transformer, switch gear, instrument transformers, ground and metering equipment. It will be fenced and have signage. An electrical service line will be connected to the local distribution line in order to provide electrical power to the substation control house. It may take up to 4 months to construction, and will require topsoil stripping and stockpiling. Topsoil will be reused as feasible on site. Equipment is expected to include a small crane, forklifts and concrete trucks with a crew of 25-40 people.

### 5.3.8 Permanent Meteorological Tower

One permanent meteorological tower is proposed, a monopole structure of 60 metres in height. It is anticipated it will take two days to install by a crew of 6 people, using winches to secure the pole. No significant soil clearing or vegetation removal is anticipated.

### 5.3.9 Reclamation

Waste and debris generation will be minimized and recycling or reuse of materials will be done where feasible. Best management practices will be utilized during construction to avoid spills, including spill preparation in the event of an accidental spill. Stripped topsoil will be replaced, and re-contoured and re-seeded with native species as appropriate. Erosion controls will be removed when soils have stabilized and erosion risk is removed.

## 5.4 OPERATIONS ACTIVITIES

The wind farm will require full time technical and administrative staff to maintain and operate the facility. It is expected that four to six full time workers will be required to keep the facility operating properly. The primary workers will be wind technicians who carry out maintenance on the turbines, along with a site supervisor. The wind turbines should be operating when the wind speed is within the operating range for the turbine and there are no component malfunctions. Each turbine has a comprehensive control system that monitors the subsystems within the turbine and the local wind conditions to determine whether the conditions are suitable for operation. If an event occurs which is considered to be outside the normal operating range of the turbine (such as low hydraulic pressures, unusual vibrations or high generator temperatures), the wind turbine will immediately take itself out of service and report the condition to the SCADA system. A communication line connects each turbine to the operations centre, which closely monitors and, as required, controls the operation of each turbine.

Maintenance activities will include route six-month tasks, which include taking the turbine out of service and having 2 to 3 technicians service the turbine. Lubricants, mechanical components and oil filters are routine maintenance items. Materials such as surplus lubricants will not be stored on site, Spill prevention procedures will be adhered to.

Unplanned maintenance may be required in the event of component failures. A crew of at least 2 is required to service turbines. Large equipment may be required should major components require replacement. This may require the construction of a temporary access road to accommodate large equipment such as cranes, similar to during construction. This is considered a low likelihood with only a small percentage of turbines needing to be accessed with large equipment during their operating life.

Electrical system maintenance, including collector lines and substation, may include preventative maintenance activities. Routine activities may include condition assessment, monitoring of the secondary containment system, and potentially vegetation clearing around the transformer lines to ensure safe operation.

## 5.5 DECOMMISSIONING ACTIVITIES

If the facility is to be decommissioned and the turbine is to be removed at the end of its life, the impacts will be similar to the construction phase, but in reverse sequence. The procedures will include:

1. The creation of temporary work areas. In order to provide sufficient area for the lay-down of the disassembled wind turbine components and loading onto trucks, a 122 m by 122 m square must be cleared, levelled and made accessible. The topsoil will be removed and some material may need to be added.
2. The creation of crane pads. The crane pads will typically be 15 m x 35 m in size and will be located within the temporary work area around each wind turbine. The topsoil at the crane pad will be removed and approximately 600 mm of compacted crushed gravel will be added. Once the turbine disassembly is complete, the gravel area around each turbine will be removed and the area will be restored to prior use using stockpiled topsoil.
3. The use of cranes to remove the blades, hub and tower segments.
4. The use of trucks for the removal of turbines, towers and associated equipment.
5. The removal of the top 1 m of the turbine foundations and replacement with clean fill and stockpiled topsoil. The fill and topsoil will be contoured to allow cultivation in the case of agricultural lands.
6. Road bedding material will be removed and replaced with clean subsoil and topsoil for reuse by the landowner for agricultural purposes. It is proposed to leave culverts in place following the operations phase.
7. Cutting underground electrical lines, burying the ends to 1 m below grade, and leaving the lines in place. Above-ground lines and poles will be removed and the holes will be filled with clean fill.
8. The substation will be demolished. This will be decommissioned in a manner appropriate to and in accordance with the standards of the day. All materials will be recycled, where possible, or disposed off-site at an approved and appropriate facility.

## 5.6 POTENTIAL NEGATIVE EFFECTS AND PROPOSED MITIGATION

Potential environmental effects are generally categorized into the construction and decommissioning phase and the operations phase, where the general activities are described in the previous section. The potential negatives affects (as well as the proposed mitigation, monitoring and contingency measures) on significant wetlands, woodlands and valleyland associated with the project phases are summarized in Table 17. The potential negative effects on significant wildlife habitat are summarized in Table 18, where proposed mitigation, monitoring and contingency measures are also outlined. Further, in Table 19, the same is identified for wetlands treated as significant, but not assessed under the OWES evaluation methods.

### 5.6.1 Potential Negative Effects Associated with the Construction/Decommissioning and Operational Phases of Turbines and Access Roads

Project roads and turbines are proposed for placement in agricultural areas, outside of the identified natural features (with the exception of Turbines 10 and 17 that encroach on features identified as significant). Due to the constraints of the project area, some road disturbance limits are proposed in close proximity to features. Road/turbine construction may be associated with the following:

- Increased dust accumulation on adjacent features;
- Intrusion into features (intentional or accidental);
- Silt or sediment transported overland into adjacent features;
- Alteration to surface water drainage patterns or obstruction of lateral flows;
- Accidental spills from fuels or chemicals used by construction machinery;
- Increased erosion or sedimentation as a result of clearing or grubbing;
- Disturbance or mortality of wildlife; and,
- Alteration or barriers to wildlife movement.

Each of the above potential effects associated with the construction and decommissioning phases is considered in Tables 17 and 18 including proposed mitigation and monitoring efforts specific to the type of significant feature identified as in or within 120m of the Project Location.

Operation effects are generally related to the disturbance and incidental mortality of wildlife from operational vehicle movement required for maintenance purposes; and, the potential for collisions of birds and bats with operational turbines. Details regarding the operational effects of turbines and access roads, as well as the proposed mitigation and monitoring efforts associated with each are included in Tables 18 and 19. As well, a detailed post-construction monitoring plan is required in accordance with the current MNR guidance documents Bird and Bird Habitats Guidelines for Windpower Projects Appendix B. This plan reflects the monitoring commitments made in the following subsections and is included in the Draft Construction Plan Report created for the Project (Genivar Inc., 2012b).

### 5.6.2 Potential Negative Effects Associated with the Construction/Decommissioning and Operations of Underground Electrical Collection

Electrical collection cables where associated with roads and turbines, are contained within the road and turbine footprints, and do not present additional impacts or effects. The electrical collection outside of these areas is proposed for within the existing road right of way, and in many areas, the collection must cross features that are considered significant (woodlands, wetlands, valleylands and wildlife habitat). East Durham Wind, Inc. has committed to crossing these features using non-intrusive methods such as directional drilling in order to prevent impacts to the natural features. Potential negative effects, along with proposed mitigation and monitoring efforts, as they relate to the process of directional drilling of the underground electrical collection lines are considered in Tables 17 and 18.

Operational effects relating to the underground electrical collection lines are not anticipated; and, unless replacement of collection lines is required, no additional impacts are anticipated post-installation.

### 5.6.3 Significant Wetlands or Wetlands Treated As Significant

In the case of wetlands identified as significant or treated as significant, East Durham Wind, Inc. has committed to keeping construction disturbance at minimum 5m from the feature boundaries. For the electrical collection lines, there are many areas where significant wetlands are proposed to be crossed within the existing road right of way, and East Durham Wind, Inc. has committed to crossing these areas using directional drilling. In all areas, further opportunities to refine the construction limits to increase setbacks will need to be determined as part of field fit determination of construction limits, during the construction phase. It is recommended that an Environmental Monitor inspect construction limit fencing and erosion and sediment control measures prior to site grading or grubbing of vegetation.

### 5.6.4 Significant Woodlands, Valleylands and Wildlife Habitat

In most areas, distances between the features and the proposed construction disturbance is minimal (0m to 5m as per GIS calculations), and in some areas (Turbine 10 and 17) direct intrusion is proposed. It is important to note, that feature boundaries at the edges of agricultural fields are very clear at the limits of existing active agricultural use, such as ploughing or row crops. It is LGL's interpretation that a >0m setback, where applied to these features, reflects the limits of active agricultural activities, or a dripline of a woodland feature. As a result, timing windows for wildlife are key to avoiding disturbance to the function of features where SWH coincides in addition to robust and well-maintained erosion and sediment control plans monitored by experienced Environmental Monitors who have the authority to halt work or increase protections, where warranted. It is recommended that an Environmental Monitor inspect construction limit fencing as well as erosion and sediment control measures prior to site grading or grubbing of vegetation.

Some vegetation removal will be required within a portion of the significant woodlands identified as WO-03 (Turbine 17) and WO-04 (Turbine 10). The amount of vegetation removed from WO-03 is 0.97ha which represents 0.07% of the total area of the woodland, based on the size of the cleared area and the overall woodland size, as identified in Figure 24. As a result, interior habitat will be reduced from 310.31 ha to 309.97 ha. In the case of WO-04, the amount of vegetation proposed for removal is 0.42ha, which represents 0.02% of the total area of the woodland, based on the size of the cleared area and the overall woodland size, as identified in Figure 24. The proposed vegetation removal will not impact the amount of interior habitat contained within WO-04. Overall, the degree of vegetation removal will have a negligible effect on the woodlands, and will not impact the overall designation of significance on these features as the amount of interior forest habitat will continue to meet the criteria for significance (i.e., woodlands greater than 50 ha in size, with at least 8ha of woodland interior). The overall approach to significant woodlands located along road right of ways where construction of underground electrical collection lines are proposed is to minimize vegetation removal.

In order to compensate for the loss of woodland, the proponent will restore approximately 1.39ha of woodland in consultation with MNR staff. A woodland restoration plan will be completed and submitted to MNR, and included as a condition within the REA to be issued by the Ministry of the Environment, with following criteria included:

- the proponent enter into an agreement with qualified professionals or a recognized planting delivery agent (e.g., Conservation Authority) to develop and deliver the woodland restoration plan;
- a woodland restoration plan provides specific details, including maps, on planting, tending, monitoring and reporting for 5 years after planting;
- a minimum of 1.39ha to be added to a woodland located within the Municipality of West Grey or adjoining municipalities that is at least 30 ha in size;
- a planting mixture of at least three native tree species appropriately selected for the woodland where the planting will occur. No single species are to make up more than 70%, no genus more than 80% and no two species more than 90% on each hectare;
- sufficient planting rate and replacement of mortality to achieve a free-to-grow density of at least 1000 appropriate native trees per hectare (young woodland definition);
- survival monitoring is to occur within years 1, 2 and 5 following the planting. The target survival rate at the end of year 5 is 60%. If this target is not met, the proponent will fund refill plantings designed by qualified professional or a recognized planting delivery agent to ensure that the target survival is met; and,
- the owner of the woodland where the planting will occur will enter into a contract with the proponent/planting delivery agent specifying that the trees are not be cut for at least 15 years.

Overall, the Project is located in a landscape that contains a high density of natural features such that setbacks from features identified as significant are somewhat limited. Limited setbacks also reflect the need to balance landowner requests to minimize impacts of the Project to the use of agricultural lands. Construction disturbance limits represent a worse-case scenario for approvals purposes, and it is anticipated that field-fit solutions or site specific reductions in construction disturbance may be achieved during establishment of the construction limits in the field at the time of construction.

The negative effects associated with each project component as it relates to features identified as significant, as well as the recommended mitigation, monitoring and contingency measures are further described in Tables 17 and 18 below..

**Table 17: Summary of Potential Negative Effects, Proposed Mitigation Measures and Residual Effects for Significant Features**

Feature ID & Distance between Feature and Project Components	Project Phase & Activity within 120m of the Feature	Potential Negative Effects to the Feature	Mitigation Measures	Monitoring Commitments and Contingency Plans
<p><b>Wetland 1</b> <b>WE-01</b> 93m – turbine 17 33m - access road/ underground collection to turbine 17</p> <p><b>Wetland 2</b> <b>WE-02</b> 8m – access road /underground electrical collection to turbine 13 110m – turbine 13 &gt;0m – underground electrical collection proposed for installation within road right of way along Southline Rd.</p> <p><b>Wetland 3</b> <b>WE-03</b> 7m – construction laydown area</p> <p><b>Wetland 4</b> <b>WE-04</b> 62m – – underground electrical collection proposed within road right of way along County Road 4.</p> <p><b>Wetland 5</b> <b>WE-05</b> 40m – underground electrical collection proposed within road right of way along Concession 4 Road and County Road 23.</p> <p><b>Wetland 6</b> <b>WE-06</b> &gt;0m – underground electrical collection proposed within road right of way along Concession 4 Road. 16m – access road and underground electrical collection to turbine 12. 28m – turbine 12</p> <p><b>Wetland 7</b> <b>WE-07</b> 8m – turbine 14</p> <p><b>Wetland 8</b> <b>WE-08</b> 57m – turbine 8 21m –access road and underground collection to turbine 8</p> <p><b>Wetland 9</b> <b>(WE-09)</b> 60m – turbine 3 &gt;0m – underground electrical collection proposed for installation within road right of way along Southline Rd.</p> <p><b>Wetland 12 - Beaver Meadow PSW</b> <b>(WE-12)</b> &gt;0m – underground electrical collection within road right of way on Boot Jack Ranch, Southline and County Road 4.</p>	<p>Construction, Decommissioning and Operation of all project components within 120m of a significant wetland feature.</p>	<ol style="list-style-type: none"> <li>1. Increased dust accumulation on peripheral wetland vegetation, causing damage to wetland plants resulting from construction of access roads where the minimum 5 m setback from dripline will be applied to Significant Wetland Features.</li> <li>2. Intrusion resulting in damage to vegetation.</li> <li>3. Potential for silt/sediment to enter into aquatic feature. Increased erosion and sedimentation resulting from clearing and grubbing, excavation, backfilling and stockpiling.</li> <li>4. Potential to change surface water drainage patterns or obstruct lateral flows to wetlands or aquatic features as a result of access road construction, operation and maintenance causing indirect effects on habitat.</li> <li>5. Soil/water contamination resulting from accidental spills and from oils, gasoline, grease and other materials (e.g., turbine lubricant, maintenance personnel) resulting from turbine operation and maintenance, substation operation and maintenance.</li> <li>6. Unplanned intrusions into significant wetlands in event of equipment malfunction due to directional drilling and risk of sedimentation or erosion into significant wetlands when directionally drilling.</li> <li>7. Potential introduction of invasive species into Significant Wetlands communities resulting from access road operation and maintenance.</li> <li>8. Incidental mortality/roadkill of amphibians from operational vehicle movement and disturbance from routine maintenance.</li> <li>9. Increase in impervious surfaces from presence of turbine foundation and access roads, resulting in increased water temperatures, and surface runoff.</li> <li>10. No potential negative effects anticipated from operation of underground collection.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use of water as a dust suppressant along areas where construction is located within 5 m of a significant wetland.</li> <li>2. Install protective fencing around constructible area to prevent accidental intrusion into the feature. In the event that trees are damaged during construction, the damaged trees should be pruned immediately through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.</li> <li>3. Develop and implement an erosion and sediment control plan before commencement of construction; Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy duty silt fencing, straw bales). Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated).</li> <li>4. Schedule grading within 30 m of a watercourse or wetland to avoid times of high runoff volumes (spring and fall), wherever possible. Temporarily suspend work if high runoff volume is noted or excessive flows of sediment discharges occur until mitigation measures are in place. Ensure no grade changes within catchment area of ponds that would affect hydroperiods. Ensure Best Management Practices are used to maintain current drainage patterns. If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>5. Control quantity and quality of stormwater discharge using best management practices, and implement infiltration techniques to the extent possible (e.g., use of a permeable surface for access roads, replanting of vegetation). Develop and implement an emergency spills plan outlining steps to contain any chemicals and avoid contamination of adjacent wetland features. As part of this plan, “frac-out” provisions will be provided. Control soil / water contamination through Best Management Practices. Ensure machinery arrives on site in a clean, washed condition and is maintained free of fluid leaks. Develop a spill response plan outlining steps to contain any spills during maintenance activities to avoid contamination of wetland features. Train staff on associated procedures and maintain emergency spill kits on site. Dispose of any waste material from maintenance activities by authorized and approved off-site vendors. Site maintenance, vehicle washing and refuelling stations where contaminants are handled at least 30 m away from natural features including water bodies and significant woodlands, wetlands, and wildlife habitat. Implement vehicle and equipment cleaning procedures and practices to minimize or eliminate the discharge of pollutants from vehicle / equipment cleaning operations to</li> </ol>	<p><b>1. Monitoring:</b> Daily monitoring of areas where active construction is occurring within 5 m of a significant wetland by Environmental Monitor. <b>Contingency Measures:</b> If dust accumulation on wetland plants occurs, spray down plants with water and construction area.</p> <p><b>2. Monitoring:</b> Undertake item inspections before and after rainfall events to ensure that protective fencing is intact and that there is no damage caused during construction. <b>Contingency Measures:</b> The fencing will be inspected prior to any construction activities occurring at the site each day and all construction staff will be reminded that activities are not to occur outside of the fencing.</p> <p><b>3. Monitoring:</b></p> <ul style="list-style-type: none"> <li>• Monitor on-site conditions (i.e., erosion and sediment control, spills, flooding, etc.) where construction occurs within 30 m of a feature on the following basis: <ul style="list-style-type: none"> <li>▪ Weekly during active construction periods;</li> <li>▪ Prior to, during and post forecasted large rainfall events (&gt;20 millimetres in 24 hours) or significant snowmelt events (i.e., spring freshet);</li> <li>▪ Daily during extended rain or snowmelt periods;</li> <li>▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer.</li> </ul> </li> </ul> <p><b>Contingency Measures:</b></p> <ul style="list-style-type: none"> <li>▪ Suspend work if excessive flows of sediment discharges occur until additional mitigation measures are in place.</li> </ul> <p><b>4. Monitoring:</b></p> <ul style="list-style-type: none"> <li>• Daily monitoring of areas where active construction is occurring within 5 m of a significant wetland by Environmental Monitor.</li> </ul> <p><b>Contingency Measures:</b> If surface water drainage alterations are detected, undertake corrective measures to restore drainage patterns.</p> <p><b>5. Monitoring:</b></p> <ul style="list-style-type: none"> <li>• Conduct daily inspections of construction equipment for leaks / spills.</li> <li>• Conduct regular site inspections and monitoring of turbines by a designated</li> </ul>

Feature ID & Distance between Feature and Project Components	Project Phase & Activity within 120m of the Feature	Potential Negative Effects to the Feature	Mitigation Measures	Monitoring Commitments and Contingency Plans
<p>57m – Turbine 8 6m – Access road /underground electrical collection to Turbine 8. 10m – Turbine 11 47m – access road/underground electrical collection Turbine 11. 75m – Turbine 16</p> <p><b>Wetland 13 - Topcliff Swamp PSW (WE-13)</b> 83m - underground electrical collection in road right of way along Boot Jack Ranch and Southline roads.</p>			<p>watercourses or natural areas. Store any stockpiled materials away from natural features to prevent deleterious substances from inadvertently discharging to the environment. Implement infiltration techniques to the maximum extent possible.</p> <p>6. Maintain 30 m setback from significant wetlands and woodlands, where possible or a minimum 5 m setback (measured from the dripline of trees or wetland edge if trees are absent). Adhere to all setback requirements from significant wetlands. Install sediment and erosion control fencing along edge of wetland if within 30 m as per Ontario Provincial Standard Specifications (OPSD 219.130). Where feasible, wetland crossings will be within existing right-of-ways adjacent to wetland areas. Where features cannot be avoided, crossings will be completed via horizontal directional drilling as per O. Reg. 359/09. Locate entrance and exit pits at least 30 m from feature edge where feasible. Install protective fencing around vegetation to prevent accidental damage. Ensure drill depth is at an appropriate depth below wetland to reduce the risk of a “frac-out”. Restore drilling sites to pre-construction conditions once construction is complete.</p> <p>7. A restoration plan should be implemented to re-vegetate the 5 m buffer between the turbine and wetland. This should include the 1 year application of an approved herbicide to eradicate invasive species followed by the cultivation and seeding of the area with a native seed mix as well as the planting of native shrubs along the edge consistent with existing wetland vegetation composition.</p> <p>8. Maintain low speed limits of vehicles on access roads. Ensure speed limits (30km/h) for maintenance vehicles are posted and adhered to; Advise operations staff to avoid driving roads or undertaking maintenance activities in proximity to these features at night between April 1<sup>st</sup> and June 30<sup>th</sup>, and any rainy nights from spring to early autumn, wherever possible.</p> <p>9. Minimize paved surfaces and design roads to promote infiltration.</p>	<p>on-site Environmental Monitor.</p> <ul style="list-style-type: none"> <li>Implement contingency measures in the event of a spill.</li> </ul> <p><b>Contingency Measures:</b></p> <ul style="list-style-type: none"> <li>In the event of a spill, immediately stop all work until the spill is cleaned up;</li> <li>Install a spill collection pad for refuelling and maintenance;</li> <li>Notify MOE’s Spills Action Centre of any leaks or spills;</li> <li>Assess and remediate affected soils and water by using spill kit kept on site;</li> <li>For spills near wetlands, analyze water samples for general chemistry (e.g., temperature, pH, dissolved oxygen, and conductivity), suspended solids, turbidity, nutrients and total metals (e.g., copper, iron, zinc and aluminum).</li> <li>In the event that a spill occurs, the details of the spill will be reported back to MOE, including a description of any assessment and remediation undertaken</li> <li>Monitor daily to ensure proper cleanup is completed.</li> </ul> <p><b>6. Monitoring:</b></p> <ul style="list-style-type: none"> <li>Inspect locations within 30 m of wetlands following completion of access roads to ensure no grade changes.</li> </ul> <p><b>Contingency Measures:</b></p> <ul style="list-style-type: none"> <li>If surface water drainage alterations are detected, undertake corrective measures to restore drainage patterns.</li> </ul> <p><b>7. Monitoring:</b></p> <ul style="list-style-type: none"> <li>Where vegetation removal is required, a restoration plan/edge management plan will be developed.</li> <li>Monitoring of the plan for up to two years post-construction.</li> </ul> <p><b>Contingency Measures:</b></p> <p>Should invasive species control and/or seed mix and/or plantings not survive, additional invasive species control and/or seeding and/or plantings will be undertaken.</p> <p><b>8. Monitoring:</b></p> <p>Environmental monitor should inspect for areas of roadkill.</p> <p><b>Contingency:</b></p> <p>If areas of roadkill are noted restrict activity to daytime hours only.</p> <p><b>9. Monitoring:</b></p> <ul style="list-style-type: none"> <li>Inspect locations within 30 m of wetlands following completion of access roads to ensure no grade changes.</li> </ul> <p><b>Contingency Measures:</b></p> <ul style="list-style-type: none"> <li>If surface water drainage alterations are</li> </ul>



Feature ID & Distance between Feature and Project Components	Project Phase & Activity within 120m of the Feature	Potential Negative Effects to the Feature	Mitigation Measures	Monitoring Commitments and Contingency Plans
<p><b>Residual Effects to Wetland Features:</b> Risk of sedimentation and spills will be avoided through mitigation. No removal of wetland habitat or encroachment into wetlands is anticipated; and, with effective application of the mitigation measures and monitoring during the construction and operation phases the significance of residual effects relating to wetlands is considered low.</p>				
<p><b>Woodland 2</b> <b>WO-02</b> <b>Shown on Figure 24a:</b> Distance to Turbine 1 is 17m; Distance to access road and underground electrical collection to Turbine 1 =0m; Distance to MET tower =102m; Distance to underground electrical collection in road right of way along Baptist Church Rd. = 0m.</p> <p><b>Shown on Figure 24b:</b> Distance to Turbine 2 =98m; Distance to access road and underground electrical collection for Turbine 2 &gt;0m; Distance to underground electrical collection in road right of way =0m.</p> <p><b>Shown on Figure 24c:</b> Distance to Turbine 3 &gt;0m; Distance to Turbine 4 =17m; Distance to Turbine 5 =50m; Distance to access road and underground electrical collection for Turbine 3 &gt;0m; Distance to access road/collection/road to Turbine 5 = 17m.</p> <p><b>Shown on Figure 24d:</b> Distance to Turbine 7 = 3m; Distance to underground electrical collection and/access road to Turbine 7 = 10m; Distance to Turbine 6 =65m; Distance to underground electrical collection and access road to Turbine 6 &gt;0m; Distance to electrical collection within road right of way along County Rd. 23 = 0m.</p> <p><b>Shown on Figure 24e:</b> Distance to Turbine 8 = 5m; Distance to underground electrical /collection and access road to Turbine 8 = 0m; Distance to electrical collection within road right of way &gt;0m.</p> <p><b>Shown on Figure 24h:</b> Distance to Turbine 15 = 6m; Distance to Turbine 14 &gt; 0m; Distance to Turbine 12 &gt; 0m; Distance to underground electrical collection/access road to Turbine 14 = 1m; Distance to underground electrical collection/access road to Turbine 15 = 39m; Distance to underground electrical collection and access road to Turbine 12 &gt; 0m; Distance to electrical collection within the road right of way along concession 4 road is 0m.</p>	<p>Construction Decommissioning, and operation of Turbines, Access Roads, Overhead transmission and Underground Collection (applies to all woodlands where these components are within 120m).</p>	<ol style="list-style-type: none"> <li>1. Loss of vegetation associated with significant woodlands as a result of tree removal or significant pruning at woodlot edges;</li> <li>2. Accidental damage due to unintentional vehicle intrusions into woodland;</li> <li>3. Increased erosion and sedimentation resulting from clearing and grubbing, excavation, backfilling and stockpiling in proximity to woodlands or within woodlands;</li> <li>4. Alteration of overland or lateral flows to woodlands;</li> <li>5. Disturbance to woodland function as habitat for local and resident wildlife (non-SWH function);</li> <li>6. Soil/water contamination resulting from accidental spills</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove trees by hand-held equipment and drag them out of the natural area to minimize soil disturbance. Limit edge tree disturbance (measured from the dripline) and pruning through field fit alterations to construction limits. Lighter vehicles and lighter machinery should be used in and around the natural area. Any vehicles used within the natural area should have wide-based tires. Tracked vehicles should be avoided. Re-vegetate disturbed areas as soon as possible after construction activities are complete using species native to Ontario in naturally vegetated areas. Maintain speed limits of vehicles near over-wintering pond. Removal of tree limbs on adjacent trees being retained should be carried out under supervision of an Arborist or Forester. In order to compensate for the loss of woodland, the proponent will restore approximately 1.39ha of woodland in consultation with MNR staff. A woodland restoration plan will be completed and submitted to MNR, and included as a condition within the REA to be issued by the Ministry of the Environment, with following criteria included: <ul style="list-style-type: none"> <li>• the proponent enter into an agreement with qualified professionals or a recognized planting delivery agent (e.g., Conservation Authority) to develop and deliver the woodland restoration plan;</li> <li>• a woodland restoration plan provides specific details, including maps, on planting, tending, monitoring and reporting for 5 years after planting;</li> <li>• a minimum of 1.39ha to be added to a woodland located within the Municipality of West Grey or adjoining municipalities that is at least 30 ha in size;</li> <li>• a planting mixture of at least three native tree species appropriately selected for the woodland where the planting will occur. No single species are to make up more than 70%, no genus more than 80% and no two species more than 90% on each hectare;</li> <li>• sufficient planting rate and replacement of mortality to achieve a free-to-grow density of at least 1000 appropriate native trees per hectare (young woodland definition);</li> </ul> Clearly stake area to be cleared using silt fencing or something similar. Fell trees with a chainsaw toward the construction area to reduce damage to adjacent vegetation being retained. </li> <li>2. Limit size of machines entering significant woodlands to minimize soil compaction. Fence construction limits and ensure limits of construction are adhered to. Damaged tree roots should be cut clean as soon as possible and exposed roots covered in approved topsoil. This work to be carried out under supervision of an Arborist or Forester.</li> </ol>	<p>Where removal of forest is proposed:</p> <p><b>1. Monitoring (may extend into operational phase):</b></p> <ul style="list-style-type: none"> <li>• Conduct post-planting inspection of planted compensation area to determine success of establishment (may be undertaken by partner organization).</li> <li>• survival monitoring is to occur within years 1, 2 and 5 following the planting. The target survival rate at the end of year 5 is 60%. If this target is not met, the proponent will fund refill plantings designed by qualified professional or a recognized planting delivery agent to ensure that the target survival is met; and,</li> <li>• the owner of the woodland where the planting will occur will enter into a contract with the proponent/planting delivery agent specifying that the trees are not be cut for at least 15 years.</li> </ul> <p><b>Contingency Measures:</b></p> <ul style="list-style-type: none"> <li>• If plantation is not establishing for any number of reasons, conduct silvicultural intervention including, but not limited to: fill planting, cleaning, re-planting or thinning (may be undertaken by partner organization).</li> <li>• If new edge is not establishing for any number of reasons, conduct silvicultural intervention including but not limited to: fill planting, cleaning, re-planting or thinning.</li> </ul> <p><b>3-4. Monitoring:</b></p> <ul style="list-style-type: none"> <li>• Monitor on-site conditions (i.e., erosion and sediment control, spills, flooding, etc.) where construction occurs within 30 m of a feature on the following basis: <ul style="list-style-type: none"> <li>▪ Weekly during active construction periods;</li> <li>▪ Prior to, during and post forecasted large rainfall events (&gt;20 millimetres in 24 hours) or significant snowmelt events (i.e., spring freshet);</li> <li>▪ Daily during extended rain or snowmelt periods;</li> <li>▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer.</li> </ul> </li> </ul> <p><b>Contingency Measures:</b></p> <ul style="list-style-type: none"> <li>▪ Suspend work if excessive flows of sediment discharges occur until</li> </ul>

Feature ID & Distance between Feature and Project Components	Project Phase & Activity within 120m of the Feature	Potential Negative Effects to the Feature	Mitigation Measures	Monitoring Commitments and Contingency Plans
<p><b>Shown in Figure 24k:</b> Distance to construction laydown area = 7m</p>			<p>3. Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy duty silt fencing, straw bales.</p>	<p>additional mitigation measures are in place.</p>
<p><b>Woodland 3 WO-03</b> <b>Shown on Figure 24j:</b> Distance to Turbine 17 and associated underground electrical collection and access road = 0m with a direct intrusion and removal of woodland habitat identified as 0.97ha;</p> <p><b>Shown on Figure 24i:</b> Distance to Turbine 13 =89m; Distance to underground electrical collection and access road to Turbine 13 = 8m. Distance to underground electrical collection in road right of way along Southline is 0m.</p>			<p>4. Ensure no grade changes within catchment area of ponds or forests that would affect hydroperiods. If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</p>	<p><b>6. Monitoring:</b></p> <ul style="list-style-type: none"> <li>• Conduct daily inspections of construction equipment for leaks / spills.</li> <li>• Conduct regular site inspections and monitoring of turbines by a designated on-site Environmental Monitor.</li> <li>• Implement contingency measures in the event of a spill.</li> </ul>
<p><b>Woodland 4 WO-04</b> <b>Shown on Figure 24f:</b> Distance to Turbine 10 = 0m with a direct intrusion and removal of significant woodland (0.42ha); Distance to underground electrical collection and access road to Turbine 10 = 3m.</p>			<p>Perform vegetation clearing outside of the breeding bird season (May 1 to July 31) and outside of sensitive timing windows for Amphibian Woodland Breeding ((April 1<sup>st</sup> – June 30<sup>th</sup>), Bat Maternity ( May 1st - July 31<sup>st</sup>), Turtle Wintering ( May, June, September or October), and Deer Yarding (December 1 – April 15<sup>th</sup>) where clearing is proposed within these types of SWH. If clearing is to occur during the sensitive time periods, nest searches must be conducted by a biologist prior to construction activities.</p>	<p><b>Contingency Measures:</b></p> <ul style="list-style-type: none"> <li>▪ In the event of a spill, immediately stop all work until the spill is cleaned up;</li> <li>▪ Install a spill collection pad for refuelling and maintenance;</li> <li>▪ Notify MOE's Spills Action Centre of any leaks or spills;</li> <li>▪ Assess and remediate affected soils and water by using spill kit kept on site;</li> <li>▪ For spills near wetlands, analyze water samples for general chemistry (e.g., temperature, pH, dissolved oxygen, and conductivity), suspended solids, turbidity, nutrients and total metals (e.g., copper, iron, zinc and aluminum).</li> <li>▪ In the event that a spill occurs, the details of the spill will be reported back to MOE, including a description of any assessment and remediation undertaken</li> <li>▪ Monitor daily to ensure proper cleanup is completed.</li> </ul>
<p><b>Woodland 5 WO-05</b> <b>Shown on Figure 24g:</b> Distance to Turbine 11 = 10m; Distance to underground electrical collection and access road to Turbine 11 &gt; 0m.</p>			<p>5. Control soil / water contamination through Best Management Practices. Develop a spill response plan outlining steps to contain any spills during maintenance activities to avoid contamination of valleyland features. Train staff on associated procedures and maintain emergency spill kits on site. Ensure machinery arrives on site in a clean, washed condition and is maintained free of fluid leaks. Dispose of any waste material from maintenance activities by authorized and approved off-site vendors. Site maintenance, vehicle washing and refuelling stations where contaminants are handled at least 30 m away from natural features including water bodies and significant woodlands, wetlands, and wildlife habitat. Implement vehicle and equipment cleaning procedures and practices to minimize or eliminate the discharge of pollutants from vehicle / equipment cleaning operations to watercourses or natural areas. Store any stockpiled materials away from natural features to prevent deleterious substances from inadvertently discharging to the environment. Only apply herbicides (if required) when wind speeds are low and no significant precipitation is expected (does not apply to agricultural practices). Only use herbicides (if required) approved for use adjacent to water bodies, riparian buffers, or woodland edges (does not apply to agricultural practices).</p>	
<p><b>Residual Effects to Significant Woodland Features:</b> Where no vegetation removal is proposed in significant woodland features no residual effects of construction/operation are anticipated. In areas where removal of vegetation within significant woodlands is proposed removal of vegetation is considered to be minimal (0.071% of the significant woodland (WO-03) at turbine 17 and 0.018% of the significant woodland (WO-04) at Turbine 10). Through supplemental planting and establishment of a woodland of similar size in compensation</p>				
<p>Valleyland 1 VA -01 0m from underground collection line</p> <p>Valleyland 2 VA -02 0m from underground collection line</p>	<p>Construction and Decommissioning and Operation of Turbines, Access Roads, and Underground Collection (applies to all valleylands where these components are within 120m).</p>	<p>1. Soil/water contamination resulting from accidental spills; Soil / water contamination by oils, gasoline, grease and other materials (e.g., turbine lubricant, maintenance personnel) resulting from turbine operation and maintenance, substation operation and maintenance, or transmission line maintenance.</p> <p>2. Changes to surface water hydrology resulting from turbine and road construction near Significant Valleyland Feature.</p>	<p>1. Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a valleyland feature, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy duty silt fencing, straw bales). Control soil / water contamination through Best Management Practices.</p>	<p><b>1. Monitoring:</b></p> <ul style="list-style-type: none"> <li>• Conduct daily inspections of construction equipment for leaks / spills.</li> <li>• Implement contingency measures in the event of a spill.</li> </ul> <p><b>Contingency Measures:</b></p> <ul style="list-style-type: none"> <li>▪ In the event of a spill, immediately stop all work until the spill is cleaned up;</li> </ul>

Feature ID & Distance between Feature and Project Components	Project Phase & Activity within 120m of the Feature	Potential Negative Effects to the Feature	Mitigation Measures	Monitoring Commitments and Contingency Plans
<p>Valleyland 3 VA -03 0m from construction disturbance of turbine, access road, and underground collection line</p> <p>Valleyland 4 VA -04 77m from construction disturbance of turbine, access road, and underground collection line</p> <p>Valleyland 5 VA -05 32m from construction disturbance of turbine, access road, and underground collection line</p> <p>Valleyland 6 VA-06 0m from underground collection line</p> <p>Valleyland 7 VA-07 36m from construction disturbance of turbine, access road, and underground collection line</p>		<p>3. Increase in impervious surfaces from presence of turbine foundation and access roads, resulting in increased water temperatures, increased surface runoff and stream peak flows, and reduced infiltration, base flows and upwelling.</p> <p>4. VA-03 is within the construction disturbance of Turbine 7 and its associated underground collection and road access. Potential effects during construction listed above have the greatest potential in this location because of the proximity of the valleyland. Stable top of bank is to be determined prior to construction of turbine, such that all turbine components are within the tableland.</p>	<p>Develop a spill response plan outlining steps to contain any spills during maintenance activities to avoid contamination of valleyland features. Train staff on associated procedures and maintain emergency spill kits on site. Ensure machinery arrives on site in a clean, washed condition and is maintained free of fluid leaks. Dispose of any waste material from maintenance activities by authorized and approved off-site vendors. Site maintenance, vehicle washing and refuelling stations where contaminants are handled at least 30 m away from natural features including water bodies and significant woodlands, wetlands, and wildlife habitat. Implement vehicle and equipment cleaning procedures and practices to minimize or eliminate the discharge of pollutants from vehicle / equipment cleaning operations to watercourses or natural areas. Store any stockpiled materials away from natural features to prevent deleterious substances from inadvertently discharging to the environment. Only apply herbicides (if required) when wind speeds are low and no significant precipitation is expected (does not apply to agricultural practices). Only use herbicides (if required) approved for use adjacent to water bodies, riparian buffers, or woodland edges (does not apply to agricultural practices).</p> <p>2. Limit changes in land contours. Maintain streams and timing and quantity of flow.</p> <p>3. Adhere to all setback requirements from watercourses. Control quantity and quality of stormwater discharge using best management practices, and implement infiltration techniques to the extent possible (e.g., use of a permeable surface for access roads).</p> <p>4. All components will be located within stable top of bank.</p>	<ul style="list-style-type: none"> <li>▪ Install a spill collection pad for refuelling and maintenance;</li> <li>▪ Notify MOE's Spills Action Centre of any leaks or spills;</li> <li>▪ Assess and remediate affected soils and water by using spill kit kept on site;</li> <li>▪ For spills near wetlands, analyze water samples for general chemistry (e.g., temperature, pH, dissolved oxygen, and conductivity), suspended solids, turbidity, nutrients and total metals (e.g., copper, iron, zinc and aluminum).</li> <li>▪ Monitor daily to ensure proper cleanup is completed.</li> </ul> <p>2. <b>Monitoring:</b></p> <ul style="list-style-type: none"> <li>• Inspect locations following completion of construction to ensure no grade changes.</li> </ul> <p><b>Contingency Measures:</b></p> <ul style="list-style-type: none"> <li>▪ If surface water drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> </ul> <p>3-4 No monitoring or contingency measures required.</p>
<p><b>Residual Effects to Significant Valleyland Features:</b> Construction of project components within 120m of significant valleylands is not anticipated to have residual effects provided that effective mitigation as prescribed for erosion and sedimentation control is carried out. Residual effects during operation of underground collection lines are not anticipated, and those related to turbine and maintenance activities are addressed through mitigation for significant woodlands, wildlife habitat, wetlands and water bodies.</p>				

**Table 18: Summary of Potential Negative Effects and Proposed Mitigation Measures for Significant Wildlife Habitat**

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
Wildlife WH –TW-01 Turtle Wintering	Construction and Decommissioning of Turbine 8 and associated access road. Operation and maintenance of Turbine 8.	70m from Turbine 8 and associated access road.	<p><b>Construction/Decommissioning</b></p> <ul style="list-style-type: none"> <li>Potential for silt/sediment to enter into aquatic feature;</li> <li>Incidental mortality of turtles moving between over-wintering ponds and other areas due to access road or turbine construction.</li> <li>Barrier to turtles as a result of road or turbine construction.</li> <li>Changes to surface water drainage patterns resulting from access road construction causing indirect effects on Turtle Over-wintering Habitat Features.</li> <li>Potential for release of contaminants from construction vehicles.</li> </ul> <p><b>Operation</b></p> <ul style="list-style-type: none"> <li>Possible mortality of turtles moving between over-wintering ponds and other areas due to maintenance adjacent to Turtle Over-wintering Habitat;</li> <li>Attraction of turtles to new road edges.</li> </ul>	<p><b>Construction/Decommissioning</b></p> <ul style="list-style-type: none"> <li>Develop and implement an erosion and sediment control plan before commencement of construction, ensure effective implementation of the plan with additional measures implemented as required for effect prevention of overland transport of silt and sediment.</li> <li>Fence area as far from pond and as close to transmission line as possible during maintenance activities.</li> <li>Education of operations staff to be aware during C/D activities in proximity to this feature in May, June, September or October.</li> <li>No clearing within habitat in May, June, September or October.</li> <li>Maintain speed limits of vehicles near over-wintering pond (30km/h).</li> <li>Construction should occur during daylight hours to avoid collision with wildlife and should not occur during emergence period (March-May).</li> <li>Area searches conducted prior to beginning construction activities.</li> <li>Ensure roads and other structures are at grade to allow movement overtop by turtles.</li> <li>Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>Ensure a plan is in place to address potential fuel or other deleterious substance spills and ensure vehicle refueling and storage of fuels occurs away from sensitive features.</li> </ul> <p><b>Operation</b></p> <ul style="list-style-type: none"> <li>Education of operations staff to be aware during maintenance activities in proximity to this feature in May, June, September or October.</li> <li>Maintain low speed limits of vehicles near over-wintering pond.</li> <li>Ensure materials used for roadway construction do not attract turtles to road edges.</li> </ul>	<p><b>Construction/Decommissioning</b></p> <p><b>Monitoring:</b> Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p> <p><b>Contingency Measures:</b> Notify MOE’s Spills Action Centre for any spills. Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p><b>Monitoring:</b> Inspect locations within 30m of wintering habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Residual Effects</b> Potential disturbance to animals and/or habitat is minimized through mitigation measures. Construction effects and disturbance is expected to be short in duration with risks of residual effects low.</p> <p><b>Operation</b></p> <p>Monitoring: No additional monitoring recommended.</p> <p><b>Residual Effects</b> No residual effects anticipated.</p>
Wildlife WH –TW-04 Turtle Wintering	Installation and operation of electrical collection within the road right of way.	99m from electrical collection in road right of way.	<p><b>Construction/Decommissioning</b></p> <ul style="list-style-type: none"> <li>Potential for silt/sediment to enter into aquatic feature;</li> <li>Incidental mortality of turtles moving between over-wintering ponds and other areas due to access road or turbine construction.</li> </ul>	<p><b>Construction/Decommissioning</b></p> <ul style="list-style-type: none"> <li>Develop and implement an erosion and sediment control plan before commencement of construction, ensure effective implementation of the plan with additional measures implemented as required for effect prevention of overland transport of silt and sediment.</li> <li>Fence area as far from pond and as close to transmission line as possible during maintenance activities.</li> </ul>	<p><b>Construction/Decommissioning</b></p> <p><b>Monitoring:</b> Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
			<ul style="list-style-type: none"> <li>• Barrier to turtles as a result of road or turbine construction.</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on Turtle Over-wintering Habitat Features.</li> <li>• Potential for release of contaminants from construction vehicles.</li> </ul> <p><b>Operation</b></p> <ul style="list-style-type: none"> <li>• Possible mortality of turtles moving between over-wintering ponds and other areas due to maintenance adjacent to Turtle Over-wintering Habitat;</li> <li>• Attraction of turtles to new road edges.</li> </ul>	<ul style="list-style-type: none"> <li>• Education of operations staff to be aware during C/D activities in proximity to this feature in May, June, September or October.</li> <li>• No clearing within habitat in May, June, September or October.</li> <li>• Maintain speed limits of vehicles near over-wintering pond (30km/h).</li> <li>• Construction should occur during daylight hours to avoid collision with wildlife and should not occur during emergence period (March-May).</li> <li>• Area searches conducted prior to beginning construction activities.</li> <li>• Ensure roads and other structures are at grade to allow movement overtop by turtles.</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>• Ensure a plan is in place to address potential fuel or other deleterious substance spills and ensure vehicle refueling and storage of fuels occurs away from sensitive features.</li> </ul> <p><b>Operation</b></p> <ul style="list-style-type: none"> <li>• Education of operations staff to be aware during maintenance activities in proximity to this feature in May, June, September or October.</li> <li>• Maintain low speed limits of vehicles near over-wintering pond.</li> <li>• Ensure materials used for roadway construction do not attract turtles to road edges.</li> </ul>	<p><b>Contingency Measures:</b> Notify MOE's Spills Action Centre for any spills. Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p><b>Monitoring:</b> Inspect locations within 30m of wintering habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Residual Effects</b> Potential disturbance to animals and/or habitat is minimized through mitigation measures. Construction effects and disturbance is expected to be short in duration with risks of residual effects low.</p> <p><b>Operation</b> No additional monitoring recommended.</p> <p><b>Residual Effects</b> No residual effects anticipated.</p>
Wildlife WH –TW-05 Turtle Wintering	Installation and operation of electrical collection within the road right of way.	62m from electrical collection in road right of way.	<p><b>Construction/Decommissioning</b></p> <ul style="list-style-type: none"> <li>• Potential for silt/sediment to enter into aquatic feature;</li> <li>• Incidental mortality of turtles moving between over-wintering ponds and other areas due to access road or turbine construction.</li> <li>• Barrier to turtles as a result of road or turbine construction.</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on Turtle Over-wintering Habitat Features.</li> <li>• Potential for release of contaminants from construction vehicles.</li> </ul>	<p><b>Construction/Decommissioning</b></p> <ul style="list-style-type: none"> <li>• Develop and implement an erosion and sediment control plan before commencement of construction, ensure effective implementation of the plan with additional measures implemented as required for effect prevention of overland transport of silt and sediment.</li> <li>• Fence area as far from pond and as close to transmission line as possible during maintenance activities.</li> <li>• Education of operations staff to be aware during C/D activities in proximity to this feature in May, June, September or October.</li> <li>• No clearing within habitat in May, June, September or October.</li> <li>• Maintain speed limits of vehicles near over-wintering pond (30km/h).</li> <li>• Construction should occur during daylight hours to avoid collision with wildlife and should not occur during emergence period (March-May).</li> <li>• Area searches conducted prior to beginning construction</li> </ul>	<p><b>Construction/Decommissioning</b></p> <p><b>Monitoring:</b> Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p> <p><b>Contingency Measures:</b> Notify MOE's Spills Action Centre for any spills. Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p><b>Monitoring:</b> Inspect locations within 30m of wintering habitat following completion of access roads to ensure no grade changes.</p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
			<p><b>Operation</b></p> <ul style="list-style-type: none"> <li>Possible mortality of turtles moving between over-wintering ponds and other areas due to maintenance adjacent to Turtle Over-wintering Habitat;</li> <li>Attraction of turtles to new road edges.</li> </ul>	<p>activities.</p> <ul style="list-style-type: none"> <li>Ensure roads and other structures are at grade to allow movement overtop by turtles.</li> <li>Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>Ensure a plan is in place to address potential fuel or other deleterious substance spills and ensure vehicle refueling and storage of fuels occurs away from sensitive features.</li> </ul> <p><b>Operation</b></p> <ul style="list-style-type: none"> <li>Education of operations staff to be aware during maintenance activities in proximity to this feature in May, June, September or October.</li> <li>Maintain low speed limits of vehicles near over-wintering pond.</li> <li>Ensure materials used for roadway construction do not attract turtles to road edges.</li> </ul>	<p><b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Residual Effects</b> Potential disturbance to animals and/or habitat is minimized through mitigation measures. Construction effects and disturbance is expected to be short in duration with risks of residual effects low.</p> <p><b>Operations</b></p> <p><b>Monitoring:</b> No additional monitoring recommended.</p> <p><b>Residual Effects</b> No residual effects anticipated.</p>
Wildlife WH –DYA-01 Deer Yarding Area	Construction or decommissioning of collection line.  Operation of collection line.	16m from collection line.	<p><b>Construction/Decommissioning</b></p> <ul style="list-style-type: none"> <li>Collection cable will be either attached to the bridge or directional drilled across watercourses at the Concession 4 at WH-DYA-01;</li> <li>Construction or decommissioning activities may include vehicle movement (trucks/small size drill rig) and personnel moving in and around the watercourse crossings associated with the habitat;</li> <li>It is anticipated that some construction commotion will result with either directional drilling and or attaching the collection cable to the bridge structure;</li> <li>Construction commotion may serve to scare deer away from the area or to alter deer behaviour.</li> <li>Construction commotion may affect deer movement into and out of the deer yard or staging;</li> <li>Activities of humans can have significant effect on deer (late winter is a sensitive time when energy reserves are at the lowest levels);</li> </ul> <p><b>Operation</b></p> <p>No impacts are anticipated during the operational phase. Should service or maintenance require replacement of collection lines, Construction/Decommissioning impacts/mitigation would apply.</p>	<p><b>Construction/Decommissioning</b></p> <ul style="list-style-type: none"> <li>No construction between December 1st and April 15th when the snow depth is greater than 20cm or there is evidence of yarding. In years where environmental conditions are not favorable for yarding, MNR will be contacted to determine if construction activities may proceed within this timing window;</li> <li>Clearly delineate work area using erosion fencing, or similar barrier, to avoid accidental vegetation damage within deer wintering areas;</li> <li>Place deer-crossing signs along access roads that are found within 30m of a deer wintering area to inform motorists of the potential for deer presence, and maintain signs for the life of the project;</li> <li>Control vegetation areas within 30m of access roads to reduce collisions within winter feeding areas;</li> <li>If any vehicle collision with deer is noted along access roads, chain-link fence will be installed between the habitat and any access road within 30m to minimize the potential for vehicle mortalities; and,</li> <li>Vegetation removal should be avoided wherever feasible and especially during winter months;</li> </ul> <p><b>Operation</b></p> <p>No additional mitigation is proposed.</p>	<p><b>Monitoring:</b> No additional monitoring or contingency measures required.</p> <p><b>Residual Effects</b> No residual effects anticipated.</p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
Wildlife SWH – ABWO-01 Amphibian Woodland Breeding	Access Road to Turbine 8  Access Road to Turbines 6 and 7.  Electrical collection route.  Operation of Turbines 6, 7 and 8 and the associated electrical collection route.	5m - Access Road to Turbine 8  0m to construction disturbance limit for the Access Road to Turbines 6 and 7.  0m for the Electrical collection route at County Road 21.	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning:</b></li> <li>• Mortality and/or disturbance to amphibians due to vegetation removal/soil grading</li> <li>• Potential for silt/sediment to enter into aquatic feature;</li> <li>• Potential to cause barrier to animal movement corridors;</li> <li>• Potential to change surface water drainage patterns or obstruct lateral flows to wetlands or aquatic features.</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on habitat.</li> <li>• Potential for release of contaminants from construction vehicles.</li>   <li>• <b>Operation:</b></li> <li>• Disturbance from lighting;</li> <li>• Incidental mortality/roadkill from operational vehicle movement;</li> <li>• Disturbance from routine maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning:</b></li> <li>• Schedule vegetation removal outside of breeding season for amphibians:</li> <li>• <i>Salamanders – March 15 to April 30<sup>th</sup> or as determined through consultation with MNR Midhurst District Offices;</i></li> <li>• <i>Frogs- April 1 to June 30<sup>th</sup> or as determined through consultation with MNR Midhurst District Offices ;</i></li> <li>• Work within 30m of amphibian habitat will not occur after dusk during the breeding season (April-June)</li> <li>• Demarcate areas for construction to ensure activities remain outside of habitat</li> <li>• Develop and implement an erosion and sediment control plan before commencement of construction, ensure effective implementation of the plan with additional measures implemented as required for effect prevention of overland transport of silt and sediment.</li> <li>• Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated with native seed).</li> <li>• Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy duty silt fencing, straw bales).</li> <li>• Avoid construction in areas that would cause a barrier to animal movement between upland and breeding habitat; Avoid intersection of wildlife movement corridors</li> <li>• Schedule grading within 30 m of a watercourse or wetland to avoid times of high runoff volumes (spring and fall), wherever possible. Temporarily suspend work if high runoff volume is noted or excessive flows of sediment discharges occur until mitigation measures are in place;</li> <li>• Ensure all equipment on site is in good working order</li> <li>• Ensure safe storage of petroleum, oils and lubricants</li> <li>• Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants stored on site</li> <li>• Maintain an emergency spill kit on site during all maintenance activities</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>• Ensure a plan is in place to address potential fuel or other deleterious substance spills and ensure vehicle refueling and storage of fuels occurs away from sensitive features.</li> </ul>	<p><b>Construction/Decommissioning</b></p> <p><b>Monitoring:</b> Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p> <p><b>Contingency Measures:</b> Notify MOE's Spills Action Centre for any spills; Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p><b>Monitoring:</b> Inspect locations within 30m of breeding habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency:</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Monitoring:</b> Monitoring of the restoration plan for vegetation for up to two years post-construction.</p> <p><b>Contingency measures:</b> Replace failed plantings, institute controls of invasive species if required.</p> <p><b>Residual Effects of Construction/Decommissioning</b> Potential disturbance to habitat or/mortality of animals is minimized through mitigation measures. Construction effects and disturbance is expected to be short in duration with risks of residual effects low.</p> <p><b>Operations</b></p> <p><b>Monitoring:</b> Where access roads are installed within 30m of amphibian breeding (woodland) habitat, but not within the feature itself, one year of post construction monitoring to be completed in the form of a presence/absence habitat use survey using the Marsh Monitoring Protocol (aural surveys). Where a reduction of 50% to the species/individuals is observed contingency measures as they relate to the operational phase of the access road will be implemented in consultation with MNR.</p> <p><b>Contingency measures:</b> Consult MNR for contingency measure where amphibian species/individuals decline by 50% compared to pre-construction results.</p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
				<ul style="list-style-type: none"> <li>• <b>Operation:</b></li> <li>• Ensure lighting is directional and/or directed away from breeding habitat;</li> <li>• Ensure speed limits (30km/h) for maintenance vehicles are posted and adhered to;</li> <li>• Advise operations staff to avoid driving roads or undertaking maintenance activities in proximity to these features at night between April 1<sup>st</sup> and June 30<sup>th</sup>, and any rainy nights from spring to early autumn, wherever possible.</li> <li>• Maintain low speed limits of vehicles on access roads (30km/h).</li> </ul>	<p><b>Monitoring:</b> Where vegetation removals are proposed, monitoring of vegetation for two years to ensure effective restoration of new habitat edge and effective stabilization of soils.</p> <p><b>Contingency measures:</b> Replace failed plantings and institute controls of invasive species, if required.</p> <p><b>Residual Effects</b> Operational effects are expected to be similar to agricultural use of the lands, and therefore residual effects are not anticipated.</p>
Wildlife SWH – ABWO-02 Amphibian Woodland Breeding	Construction of access road and turbine base to Turbine 17.  Operation of Turbine 17.	0m to construction of access road and turbine base – includes removal of a portion of the SWH-ABWO-02 of 0.97ha of forest cover in WO-03	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning:</b></li> <li>• Mortality and/or disturbance to amphibians due to vegetation removal/soil grading</li> <li>• Potential for silt/sediment to enter into aquatic feature;</li> <li>• Potential to cause barrier to animal movement corridors;</li> <li>• Potential to change surface water drainage patterns or obstruct lateral flows to wetlands or aquatic features.</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on habitat.</li> <li>• Potential for release of contaminants from construction vehicles.</li> <li>• <b>Operation:</b></li> <li>• Disturbance from lighting;</li> <li>• Incidental mortality/roadkill from operational vehicle movement;</li> <li>• Disturbance from routine maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning:</b></li> <li>• Schedule vegetation removal outside of breeding season for amphibians:</li> <li>• <i>Salamanders – March 15 to April 30<sup>th</sup> or as determined through consultation with MNR Midhurst District Offices;</i></li> <li>• <i>Frogs- April 1 to June 30<sup>th</sup> or as determined through consultation with MNR Midhurst District Offices ;</i></li> <li>• Work within 30m of amphibian habitat will not occur after dusk during the breeding season (April-June)</li> <li>• Demarcate areas for construction to ensure activities remain outside of habitat</li> <li>• Develop and implement an erosion and sediment control plan before commencement of construction, ensure effective implementation of the plan with additional measures implemented as required for effect prevention of overland transport of silt and sediment.</li> <li>• Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated with native seed).</li> <li>• Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy duty silt fencing, straw bales).</li> <li>• Install silt fencing that will serve as exclusionary fencing to keep wildlife out of the proposed construction area, and have the area screened for wildlife to be salvaged prior to clearing/soil grading.</li> <li>• Avoid construction in areas that would cause a barrier to animal movement between upland and breeding habitat; Avoid intersection of wildlife movement corridors</li> <li>• Schedule grading within 30 m of a watercourse or wetland to avoid times of high runoff volumes (spring and fall), wherever possible. Temporarily suspend work if high runoff volume is noted or excessive flows of sediment discharges occur until mitigation measures are in place;</li> </ul>	<p><b>Construction/Decommissioning</b></p> <p><b>Monitoring:</b> Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include DAILY site visits during construction within the habitat feature; with other monitoring occurring prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils. An Environmental Monitoring should be available to pre-screen the site prior to clearing, and on an on-call basis during construction should wildlife be encountered in the construction area.</p> <p><b>Contingency Measures:</b> Notify MOE’s Spills Action Centre for any spills; Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p><b>Monitoring:</b> Inspect locations within 30m of breeding habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Monitoring:</b> Where vegetation removal is required, a restoration plan/edge management plan should be developed. Monitoring of the plan for up to two years post-construction.</p> <p><b>Contingency measures:</b> Replace failed plantings, institute controls of invasive species if required. It is anticipated that restoration will occur at the end of the construction phase, and that monitoring will continue through the operations phase.</p>



Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
				<ul style="list-style-type: none"> <li>• Ensure all equipment on site in in good working order</li> <li>• Ensure safe storage of petroleum, oils and lubricants</li> <li>• Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants stored on site</li> <li>• Maintain an emergency spill kit on site during all maintenance activities</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>• Ensure a plan is in place to address potential fuel or other deleterious substance spills and ensure vehicle refueling and storage of fuels occurs away from sensitive features.</li> <li>• <b>Operation:</b></li> <li>• Ensure lighting is directional and/or directed away from breeding habitat;</li> <li>• Ensure speed limits (30km/h) for maintenance vehicles are posted and adhered to;</li> <li>• Advise operations staff to avoid driving roads or undertaking maintenance activities in proximity to these features at night between April 1<sup>st</sup> and June 30<sup>th</sup>, and any rainy nights from spring to early autumn, wherever possible.</li> <li>• Maintain low speed limits of vehicles on access roads (30km/h).</li> </ul>	<p><b>Residual Effects</b> Potential disturbance to habitat or/mortality of animals is minimized through mitigation measures. Construction effects and disturbance is expected to be short in duration with risks of residual effects low.</p> <p><b>Operations</b> <b>Monitoring:</b> Where access roads are installed within amphibian breeding (woodland) habitat, 3 years of post-construction monitoring to be completed in the form of a presence/absence habitat use survey using the Marsh Monitoring Protocol (aural surveys). Where a reduction of 50% to the species/individuals is observed contingency measures as they relate to the operational phase of the access road will be implemented.</p> <p><b>Contingency measures:</b> Consult MNR for contingency measure where amphibian species/individuals decline by 50% compared to pre-construction results.</p> <p><b>Monitoring:</b> Where vegetation removals are proposed, monitoring of vegetation for two years to ensure effective restoration of new habitat edge and effective stabilization of soils.</p> <p><b>Contingency measures:</b> Replace failed plantings and institute controls of invasive species, if required.</p> <p><b>Residual Effects</b> Operational effects are expected to be similar to agricultural use of the lands, and therefore residual effects are not anticipated.</p>
Wildlife SWH – ABWO-03 Amphibian Woodland Breeding	<p>Construction of access road to Turbine 12</p> <p>Construction of access road to Turbine 14.</p> <p>Construction of access road that surround Turbine 12.</p> <p>Operation of Turbines 12 and 14.</p>	<p>1m to the disturbance limit for the construction of access road to Turbine 12</p> <p>1m to the disturbance limit for the construction of access road to Turbine 14.</p> <p>0m to the disturbance limit for the construction of access road that surrounds Turbine 12</p>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning:</b></li> <li>• Mortality and/or disturbance to amphibians due to vegetation removal/soil grading</li> <li>• Potential for silt/sediment to enter into aquatic feature;</li> <li>• Potential to cause barrier to animal movement corridors;</li> <li>• Potential to change surface water drainage patterns or obstruct lateral flows to wetlands or aquatic features.</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on habitat.</li> <li>• Potential for release of contaminants from construction vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning:</b></li> <li>• Schedule vegetation removal outside of breeding season for amphibians:</li> <li>• <i>Salamanders – March 15 to April 30<sup>th</sup> or as determined through consultation with MNR Midhurst District Offices;</i></li> <li>• <i>Frogs- April 1 to June 30<sup>th</sup> or as determined through consultation with MNR Midhurst District Offices ;</i></li> <li>• Work within 30m of amphibian habitat will not occur after dusk during the breeding season (April-June)</li> <li>• Demarcate areas for construction to ensure activities remain outside of habitat</li> <li>• Develop and implement an erosion and sediment control plan before commencement of construction, ensure effective implementation of the plan with additional measures implemented as required for effect prevention of overland transport of silt and sediment.</li> </ul>	<p><b>Construction/Decommissioning</b> <b>Monitoring:</b> Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly site visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p> <p><b>Contingency Measures:</b> Notify MOE’s Spills Action Centre for any spills; Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
			<ul style="list-style-type: none"> <li>• <b>Operation:</b></li> <li>• Disturbance from lighting;</li> <li>• Incidental mortality/roadkill from operational vehicle movement;</li> <li>• Disturbance from routine maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>• Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated with native seed).</li> <li>• Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy duty silt fencing, straw bales).</li> <li>• Avoid construction in areas that would cause a barrier to animal movement between upland and breeding habitat; Avoid intersection of wildlife movement corridors</li> <li>• Schedule grading within 30 m of a watercourse or wetland to avoid times of high runoff volumes (spring and fall), wherever possible. Temporarily suspend work if high runoff volume is noted or excessive flows of sediment discharges occur until mitigation measures are in place;</li> <li>• Ensure all equipment on site is in good working order</li> <li>• Ensure safe storage of petroleum, oils and lubricants</li> <li>• Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants stored on site</li> <li>• Maintain an emergency spill kit on site during all maintenance activities</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>• Ensure a plan is in place to address potential fuel or other deleterious substance spills and ensure vehicle refueling and storage of fuels occurs away from sensitive features.</li> <li>• <b>Operation:</b></li> <li>• Ensure lighting is directional and/or directed away from breeding habitat;</li> <li>• Ensure speed limits (30km/h) for maintenance vehicles are posted and adhered to;</li> <li>• Advise operations staff to avoid driving roads or undertaking maintenance activities in proximity to these features at night between April 1<sup>st</sup> and June 30<sup>th</sup>, and any rainy nights from spring to early autumn, wherever possible.</li> <li>• Maintain low speed limits of vehicles on access roads (30km/h).</li> </ul>	<p><b>Monitoring:</b> Inspect locations within 30m of breeding habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Monitoring:</b> Where vegetation removal is required, a restoration plan/edge management plan will be developed. Monitoring of the plan for up to two years post-construction.</p> <p><b>Contingency measures:</b> Replace failed plantings, institute controls of invasive species if required.</p> <p><b>Residual Effects</b> Potential disturbance to habitat or/mortality of animals is minimized through mitigation measures. Construction effects and disturbance is expected to be short in duration with risks of residual effects low.</p> <p><b>Operations</b> <b>Monitoring:</b> Where access roads are installed within 30m of amphibian breeding (woodland) habitat, but not within the feature itself, one year of post construction monitoring to be completed in the form of a presence/absence habitat use survey using the Marsh Monitoring Protocol (aural surveys). Where a reduction of 50% to the species/individuals is observed contingency measures as they relate to the operational phase of the access road will be implemented.</p> <p><b>Contingency measures:</b> Consult MNR for contingency measure where amphibian species/individuals decline by 50% compared to pre-construction results.</p> <p><b>Monitoring:</b> Where vegetation removals are proposed, monitoring of vegetation for two years to ensure effective restoration of new habitat edge and effective stabilization of soils.</p> <p><b>Contingency measures:</b> Replace failed plantings and institute controls of invasive species, if required.</p> <p><b>Residual Effects</b> Operational effects are expected to be similar to agricultural use of the lands, and therefore residual effects are not anticipated.</p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
Wildlife SWH – ABWO-04 Amphibian Woodland Breeding SWH	Construction of access road to Turbine 8.  Operation of Turbine 8.	1m to the disturbance limits for the construction of access road to Turbine 8.	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning:</b></li> <li>• Mortality and/or disturbance to amphibians due to vegetation removal/soil grading</li> <li>• Potential for silt/sediment to enter into aquatic feature;</li> <li>• Potential to cause barrier to animal movement corridors;</li> <li>• Potential to change surface water drainage patterns or obstruct lateral flows to wetlands or aquatic features.</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on habitat.</li> <li>• Potential for release of contaminants from construction vehicles.</li>   <li>• <b>Operation:</b></li> <li>• Disturbance from lighting;</li> <li>• Incidental mortality/roadkill from operational vehicle movement;</li> <li>• Disturbance from routine maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning:</b></li> <li>• Schedule vegetation removal outside of breeding season for amphibians:</li> <li>• <i>Salamanders – March 15 to April 30<sup>th</sup> or as determined through consultation with MNR Midhurst District Offices;</i></li> <li>• <i>Frogs- April 1 to June 30<sup>th</sup> or as determined through consultation with MNR Midhurst District Offices ;</i></li> <li>• Work within 30m of amphibian habitat will not occur after dusk during the breeding season (April-June)</li> <li>• Demarcate areas for construction to ensure activities remain outside of habitat</li> <li>• Develop and implement an erosion and sediment control plan before commencement of construction, ensure effective implementation of the plan with additional measures implemented as required for effect prevention of overland transport of silt and sediment.</li> <li>• Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated with native seed).</li> <li>• Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy duty silt fencing, straw bales).</li> <li>• Avoid construction in areas that would cause a barrier to animal movement between upland and breeding habitat; Avoid intersection of wildlife movement corridors</li> <li>• Schedule grading within 30 m of a watercourse or wetland to avoid times of high runoff volumes (spring and fall), wherever possible. Temporarily suspend work if high runoff volume is noted or excessive flows of sediment discharges occur until mitigation measures are in place;</li> <li>• Ensure all equipment on site in in good working order</li> <li>• Ensure safe storage of petroleum, oils and lubricants</li> <li>• Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants stored on site</li> <li>• Maintain an emergency spill kit on site during all maintenance activities</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>• Ensure a plan is in place to address potential fuel or other deleterious substance spills and ensure vehicle refueling and storage of fuels occurs away from sensitive features.</li> </ul>	<p><b>Construction/Decommissioning</b></p> <p><b>Monitoring:</b> Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly site visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p> <p><b>Contingency Measures:</b> Notify MOE’s Spills Action Centre for any spills; Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p><b>Monitoring:</b> Inspect locations within 30m of breeding habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Monitoring:</b> Where vegetation removal is required, a restoration plan/edge management plan will be developed. Monitoring of the plan for up to two years post-construction.</p> <p><b>Contingency measures:</b> Replace failed plantings, institute controls of invasive species if required.</p> <p><b>Operations</b></p> <p><b>Monitoring:</b> Where access roads are installed within 30m of amphibian breeding (woodland) habitat, but not within the feature itself, one year of post construction monitoring to be completed in the form of a presence/absence habitat use survey using the Marsh Monitoring Protocol (aural surveys). Where a reduction of 50% to the species/individuals is observed contingency measures as they relate to the operational phase of the access road will be implemented.</p> <p><b>Contingency measures:</b> Consult MNR for contingency measure where amphibian species/individuals decline by 50% compared to pre-construction results.</p> <p><b>Monitoring:</b> Where vegetation removals are proposed, monitoring of vegetation for two years to ensure effective restoration of new habitat edge and effective stabilization of soils.</p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
				<ul style="list-style-type: none"> <li>• <b>Operation:</b></li> <li>• Ensure lighting is directional and/or directed away from breeding habitat;</li> <li>• Ensure speed limits (30km/h) for maintenance vehicles are posted and adhered to;</li> <li>• Advise operations staff to avoid driving roads or undertaking maintenance activities in proximity to these features at night between April 1<sup>st</sup> and June 30<sup>th</sup>, and any rainy nights from spring to early autumn, wherever possible.</li> <li>• Maintain low speed limits of vehicles on access roads (30km/h).</li> </ul>	<p><b>Contingency measures:</b> Replace failed plantings and institute controls of invasive species, if required.</p> <p><b>Residual Effects</b> Operational effects are expected to be similar to agricultural use of the lands, and therefore residual effects are not anticipated.</p>
Wildlife WH-WN-08 Waterfowl Nesting SWH	<p>Construction and decommissioning of Turbine 11 and associated access road and underground electrical collection.</p> <p>Operation of Turbine 11.</p>	6m	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> <li>• Potential for disturbance to breeding activity as a result of construction activities such as noise, vehicular movement and the presence of people;</li> <li>• Potential for silt or sediment to enter the feature as a result of grading;</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on habitat.</li> <li>• Potential for release of contaminants from construction vehicles;</li> <li>• No vegetation removal is proposed for within the feature or within the adjacent contiguous vegetation communities.</li> <li>• <b>Operation</b></li> <li>• Potential for collision with turbine during operation;</li> <li>• Avoidance/Disturbance from lights, sound, routine maintenance to turbine and/or road.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> <li>• Adherence to the timing window for breeding birds (May 1 to July 31) or as based on consultation with MNR and/or Environment Canada) for project activities</li> <li>• If nest searches are required, they will be conducted by a biologist</li> <li>• Develop and implement an erosion and sediment control plan before commencement of construction</li> <li>• Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy duty silt fencing, straw bales).</li> <li>• Demarcate area to ensure there is no encroachment into habitat</li> <li>• Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated with native species).</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>• Ensure a plan is in place to address potential fuel or other deleterious substance spills and ensure vehicle refueling and storage of fuels occurs away from sensitive features.</li> <li>• <b>Operation</b></li> <li>• Utilize a lighting scheme that will minimize bird (or bat) collisions.</li> <li>• Perform maintenance operations outside of sensitive breeding periods for waterfowl.</li> </ul>	<p><b>Construction/Decommissioning Monitoring:</b> Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly site visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p> <p><b>Contingency Measures:</b> Notify MOE's Spills Action Centre for any spills. Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p><b>Monitoring:</b> Inspect locations within 30m of wintering habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Residual Effects</b> Potential for avoidance/disturbance or mortality is minimized during construction by adhering to timing windows for breeding birds. Construction/decommissioning effects are expected to be short and temporary in duration, with low risk of residual effects.</p> <p><b>Operation</b></p> <ul style="list-style-type: none"> <li>• A 3 year Post-construction bird/bat monitoring program to be completed as per MNR guidance document (Bird and Bird Habitats Guidelines for Windpower Projects Appendix B) to include Turbine 11 in subsample for monitoring.</li> <li>• Implement contingency mitigation measures if mortality thresholds are exceeded based on results of post-construction monitoring as described in the EEMP</li> </ul>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
					<p><b>Residual Effects</b> Disturbance may occur from operational noise; however, this feature is buffered by upland woodland . Disturbance levels are anticipated to be similar to existing agricultural activities occurring on the property. Considering this residual effects relating to disturbance are considered to be low. Residual effects during operation may include incidental take/mortality to waterfowl. Post construction bird and bat mortality monitoring will be conducted and where mortality thresholds are reached operational mitigation will be implemented. The significance of this residual effect is considered low as feature is buffered from the turbine by upland forest and no evidence of multiple nest sites was documented.</p>
<p>Wildlife WH –MBB-12 Marsh Bird Breeding SWH</p>	<p>Construction of access road to Turbine 8 (surrounding Turbine 8).  Operation of Turbine 8.</p>	<p>Distance to Turbine 8 and the access road is 70m.</p>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> <li>• Potential for disturbance to breeding activity as a result of construction activities such as noise, vehicular movement and the presence of people;</li> <li>• Potential for silt or sediment to enter the feature as a result of grading;</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on habitat.</li> <li>• Potential for release of contaminants from construction vehicles;</li> <li>• No vegetation removal is proposed for within the feature or within the adjacent contiguous vegetation communities.</li> <li>• <b>Operation</b></li> <li>• Potential for collision with turbine during operation;</li> <li>• Avoidance/Disturbance from lights, sound, routine maintenance to turbine/and or road.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> <li>• Adherence to the timing window for breeding birds (May 1 to July 31) or as based on consultation with MNR and/or Environment Canada) for project activities</li> <li>• If nest searches are required, they will be conducted by a qualified biologist</li> <li>• Develop and implement an erosion and sediment control plan before commencement of construction</li> <li>• Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy duty silt fencing, straw bales).</li> <li>• Demarcate area to ensure there is no encroachment into habitat</li> <li>• Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated with native species).</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>• Ensure a plan is in place to address potential fuel or other deleterious substance spills and ensure vehicle refueling and storage of fuels occurs away from sensitive features.</li> <li>• <b>Operation</b></li> <li>• Utilize a lighting scheme that will minimize bird (or bat) collisions.</li> <li>• Perform maintenance operations outside of sensitive breeding periods for herons (May 1 to July 31, or as determined through consultation with MNR)</li> </ul>	<p><b>Construction/Decommissioning</b> <b>Monitoring:</b> Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly site visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils. <b>Contingency Measures:</b> Notify MOE’s Spills Action Centre for any spills. Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p><b>Monitoring:</b> Inspect locations within 30m of wintering habitat following completion of access roads to ensure no grade changes. <b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Residual Effects</b> Potential for avoidance/disturbance or mortality is minimized during construction by adhering to timing windows for breeding birds. Construction/decommissioning effects are expected to be short and temporary in duration, with low risk of residual effects.</p> <p><b>Operation</b> <b>Monitoring:</b> A 3 year Post-construction bird/bat monitoring program to be completed as per MNR guidance document (Bird and Bird Habitats Guidelines for Windpower Projects Appendix B). <b>Contingency Measures:</b> Implement contingency mitigation measures if mortality thresholds are exceeded based on results of post-construction monitoring. <b>Residual Effects</b></p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
					<p>Avoidance/Disturbance may occur from operational noise; however, the turbine is set back 70m from this feature and the feature is buffered by upland woodland . Disturbance levels are anticipated to be similar to existing agricultural activities occurring on the property. Considering this residual effects relating to disturbance are considered to be low.</p> <p>Post construction bird and bat mortality monitoring will be conducted and where mortality thresholds are reached operational mitigation will be implemented And addressed in the EEMP</p> <p>The significance of this residual effect is considered low as feature is buffered from the turbine by upland forest and no evidence of multiple nest sites was documented.</p>
<p>Wildlife WH-SSC-ST-01 Species of Special Concern – Snapping Turtle</p>	<p>Construction, Decommissioning and Operation of Turbine 8 and access road.</p>	<p>70m from Turbine 8 and access road.</p>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> <li>• Incidental mortality of turtles moving between over-wintering ponds and other areas due to access road construction;</li> <li>• Barrier to turtle movement as a result of construction fencing, roads or other structures;</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on Turtle Over-wintering Habitat Features.</li> <li>• <b>Operation</b></li> <li>• Possible mortality of turtles moving between over-wintering ponds and other areas due to maintenance adjacent to Turtle Over-wintering Habitat.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> <li>• Fence area as far from pond and as close to transmission line as possible during construction/decommissioning activities.</li> <li>• Education of operations staff to be aware during C/D activities in proximity to this feature in May, June, September or October. No clearing in May, June, September or October</li> <li>• Maintain speed limits (30km/h) of vehicles near pond habitat.</li> <li>• Construction activities within 30m of significant turtle hibernacula should occur during daylight hours to avoid collisions with wildlife and not during emergence (March-May)</li> <li>• Fence off wetland using erosion/sediment fence</li> <li>• Area searches for turtles prior to beginning construction activities</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> <li>• <b>Operation</b></li> <li>• Education of operations staff to be aware during maintenance activities in proximity to this feature in May, June, September or October.</li> <li>• Maintain speed limits (30km/h) of vehicles near over-wintering pond.</li> </ul>	<p><b>Construction/Decommissioning Monitoring:</b></p> <p>Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly site visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p> <p><b>Contingency Measures:</b></p> <p>Notify MOE’s Spills Action Centre for any spills. Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p><b>Monitoring:</b></p> <p>Inspect locations within 30m of wintering habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency Measures</b></p> <p>If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Residual Effects</b></p> <p>Potential disturbance to habitat or/mortality of animals is minimized through mitigation measures. Construction effects and disturbance is expected to be short in duration with risks of residual effects low.</p> <p><b>Operations</b></p> <p>No additional monitoring or contingency measures required.</p> <p><b>Residual Effects</b></p> <p>Operational effects are expected to be similar to agricultural use of the lands, and therefore residual effects are not anticipated.</p>
Wildlife	Construction and	60m from electrical	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> </ul>	<p><b>Construction/Decommissioning</b></p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
WH-SSC-ST-02 Species of Special Concern – Snapping Turtle	operation of collection line within the road right of way.	collection within road right of way.	<ul style="list-style-type: none"> <li>• Potential for disturbance to breeding activity as a result of construction activities such as noise, vehicular movement and the presence of people;</li> <li>• Potential for silt or sediment to enter the feature as a result of grading;</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on habitat.</li> <li>• Potential for release of contaminants from construction vehicles;</li> <li>• No vegetation removal is proposed for within the feature or within the adjacent contiguous vegetation communities.</li>   <li>• <b>Operation</b></li>   <li>• Disturbance from lights, sound, routine maintenance to turbine/and or road.</li> </ul>	<ul style="list-style-type: none"> <li>• Fence area as far from pond and as close to collection line as possible during construction/decommissioning activities.</li> <li>• Education of operations staff to be aware during C/D activities in proximity to this feature in May, June, September or October. No clearing in May, June, September or October</li> <li>• Maintain speed limits (30km/h) of vehicles near pond habitat.</li> <li>• Construction activities within 30m of significant turtle hibernacula should occur during daylight hours to avoid collisions with wildlife and not during emergence (March-May)</li> <li>• Fence off wetland using erosion/sediment fence</li> <li>• Area searches for turtles prior to beginning construction activities</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li>   <li>• <b>Operation</b></li>   <li>• Education of operations staff to be aware during maintenance activities in proximity to this feature in May, June, September or October.</li> <li>• Maintain speed limits (30km/h) of vehicles near over-wintering pond.</li> </ul>	<p>Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly site visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p> <p><b>Contingency Measures:</b> Notify MOE’s Spills Action Centre for any spills. Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p>Inspect locations within 30m of wintering habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Residual Effects</b> Potential disturbance to habitat or/mortality of animals is minimized through mitigation measures. Construction effects and disturbance is expected to be short in duration with risks of residual effects low.</p> <p><b>Operations</b> No additional monitoring or contingency measures required.</p> <p><b>Residual Effects</b> Operational effects are expected to be similar to agricultural use of the lands, and therefore residual effects are not anticipated.</p>
Wildlife WH-SSC-ST-03 Species of Special Concern – Snapping Turtle	Construction and operation of collection line within the road right of way.	60m from electrical collection within road right of way.	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> <li>• Potential for disturbance to breeding activity as a result of construction activities such as noise, vehicular movement and the presence of people;</li> <li>• Potential for silt or sediment to enter the feature as a result of grading;</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on habitat.</li> <li>• Potential for release of contaminants from construction vehicles;</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Construction/Decommissioning</b></li> <li>• Fence area as far from pond and as close to transmission line as possible during construction/decommissioning activities.</li> <li>• Education of operations staff to be aware during C/D activities in proximity to this feature in May, June, September or October. No clearing in May, June, September or October</li> <li>• Maintain speed limits (30km/h) of vehicles near pond habitat.</li>   <li>• Construction activities within 30m of significant turtle</li> </ul>	<p><b>Construction/Decommissioning</b></p> <p>Conduct regular site inspections and monitoring of sediment and erosion controls where construction occurs within 30m of a feature, ensure construction best management practices are followed, by a designated on-site Environmental Monitor(s). Monitoring schedule should include weekly site visits during construction, prior to and post large rainfall events or significant snow event, daily during extended events and monthly during inactive construction periods and prior to stabilization of soils.</p> <p><b>Contingency Measures:</b> Notify MOE’s Spills Action Centre for any spills. Assess and remediate affected soils and water. Ensure that additional sediment and erosion controls are available</p>

Feature ID	Project Phase & Activity within 120m of the Feature	Distance between Feature and all Project Components	Potential Negative Effects to the Feature	Mitigation Measures	Performance Objectives, Monitoring and Contingency Plans, Residual Effects
			<ul style="list-style-type: none"> <li>• No vegetation removal is proposed for within the feature or within the adjacent contiguous vegetation communities.</li> <li>• <b>Operation</b></li> <li>• Disturbance from lights, sound, routine maintenance to turbine/and or road.</li> </ul>	<p>hibernacula should occur during daylight hours to avoid collisions with wildlife and not during emergence (March-May)</p> <ul style="list-style-type: none"> <li>• Fence off wetland using erosion/sediment fence</li> <li>• Area searches for turtles prior to beginning construction activities</li> <li>• Ensure no grade changes within catchment area of ponds that would affect hydroperiods;</li> <li>• If surface drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> </ul> <p>• <b>Operation</b></p> <ul style="list-style-type: none"> <li>• Education of operations staff to be aware during maintenance activities in proximity to this feature in May, June, September or October.</li> <li>• Maintain speed limits (30km/h) of vehicles near over-wintering pond.</li> </ul>	<p>and on-site should additional controls be required, as identified by Environmental Monitor.</p> <p>Inspect locations within 30m of wintering habitat following completion of access roads to ensure no grade changes.</p> <p><b>Contingency Measures</b> If surface water drainage alterations are detected undertake corrective measures to restore pre-development drainage patterns.</p> <p><b>Residual Effects</b> Potential disturbance to habitat or/mortality of animals is minimized through mitigation measures. Construction effects and disturbance is expected to be short in duration with risks of residual effects low.</p> <p><b>Operations</b> No additional monitoring or contingency measures required.</p> <p><b>Residual Effects</b> Operational effects are expected to be similar to agricultural use of the lands, and therefore residual effects are not anticipated.</p>



**Table 19: Summary of Habitat Use Study for Wildlife Habitat Treated as Significant (Bat Maternity Colony). Table appears as prepared by NRSI, 2012 (full report in Appendix I)**

Wildlife Habitat Type	Generalized Methods	Location/Feature(s)
Bat Maternity Colony	<p><b>Site investigation survey methods:</b>                      The woodland will be surveyed to determine if a candidate maternity roost may be present. Methods will follow <i>Bats and Bat Habitats</i> (OMNR 2011a), as did the site investigations for all other woodlands in the project area.</p> <p>The number of cavity trees (&gt;25cm dbh) per hectare will be determined using 0.05ha plots (circular plots with a radius of 12.6m), which are randomly placed throughout each woodland being investigated. A minimum of 10 plots should be used for woodlands which are 10ha or less in size, with one additional plot for every additional hectare for larger woodlands (up to a maximum of 35 plots). Plots will be randomly selected and 12.6m in radius within the portions of woodlands for which access is granted. The number of snags (with or without cavities) or live trees containing cavities within these plots which are &gt;25cm dbh are counted. Following clarification of the intention of the guidance documents during a field session with MNR in March of 2012, only live or dead trees containing cavities will be counted.</p> <p><b>Evaluation of Significance Methodology (if required):</b>                      If the woodland is deemed a candidate maternity colony (contains <math>\geq 10</math> cavity trees/snags per hectare) then the following evaluation of significance methodology will be conducted.</p> <p>A series of single 1.5hr bat exit surveys will be conducted at potential roosts within each habitat.</p> <p>Bat exit surveys will occur at a minimum of 10 snags/cavity trees for areas &lt;10ha with one additional snag/cavity trees for each hectare for areas &lt;30ha and a maximum of 30 snags/cavity trees for areas &gt;30ha. Surveys will be conducted from 30min before dusk and end 1hr after dusk, and will include a combination of both visual and acoustic documentation of bat activity.</p> <p>Surveys will be in accordance with <i>Bats and Bat Habitats</i> (OMNR 2011a).</p> <p>Specific surveys, following the methods described above may not be conducted if site access cannot be secured for specific habitats. If site access is not available, alternative methods (if applicable) will be discussed with the MNR.</p>	BMA-007

**Table 20: Potential Impacts, Mitigation Measures, and Survey Methods for Bat Habitats that have been Treated as Significant. Table appears as prepared by NRSI, 2012 (full report in Appendix I)**

Feature ID	Distance to Project Component with an Operational Effect	Distance to Project Location (Nearest Component)	Potential Negative Effects	Pre-construction Surveys	Mitigation Measures (if significant)	Performance Objectives, Monitoring, and Contingency Plans
BMA-005 Bat Maternity Colony	Overlapping (T10)	Overlapping (T10)	<ul style="list-style-type: none"> <li>Accidental damage to, or permanent removal of vegetation, including tree limbs</li> <li>Noise disturbance and/or avoidance behaviour during construction</li> </ul>	<p>Surveys will be conducted in accordance with Bats and Bat Habitats (OMNR 2011a).</p> <p>If surveys confirm the woodland is a candidate significant bat maternity colony habitat, the following EOS surveys will be conducted: A single 1.5hr visual point count survey will be conducted at 10 snags/cavity trees, as this woodland is &lt;10ha.</p> <p>Surveys will be conducted during the month of June, on nights with suitable weather conditions.</p> <p>Site specific bat surveys are dependent on receiving site access for each of these features. If site access is not available, possible alternative methods will be discussed with the MNR.</p>	<ul style="list-style-type: none"> <li>Clearly delineate work area using erosion fencing, or similar barrier, to avoid accidental damage to potentially significant bat roosting trees.</li> <li>Prepare a tree preservation plan which identifies specific trees to be removed and whether each tree contains a cavity suitable for potential use as a bat maternity colony.</li> <li>Cavity tree removal will occur outside of the maternity and summer swarming period of May 15 to August 31, wherever possible. If this is not possible, MNR will be consulted regarding any additional mitigation measures that may be required.</li> <li>Construction is to take place outside of the May 1 to July 31 roosting period for this habitat</li> <li>For each suitable cavity tree to be removed, a bat house will be installed in the remainder of the woodland for each of the affected habitats.</li> <li>No clearing or habitat restoration to occur May 1<sup>st</sup>-July 31<sup>st</sup> to avoid disturbing natural bat processes</li> <li>Impacts are expected to be minimal, and temporary, in nature, and no specific mitigation measures have been determined necessary.</li> </ul>	<p><b>Performance Objective:</b></p> <ul style="list-style-type: none"> <li>Protection of bat roosting habitat</li> <li>Ensure no changes to function of habitat.</li> <li>Ensure minimal residual disturbance to wildlife using habitat.</li> </ul> <p><b>Monitoring:</b></p> <ul style="list-style-type: none"> <li>Include T10 among turbines selected for post-construction mortality monitoring, to be conducted as outlined in the EEMP (Genivar 2012b).</li> <li>Access cannot be gained for this habitat, therefore no pre-construction or post-construction behaviour/disturbance monitoring will occur within BMA-005.</li> </ul>

Feature ID	Distance to Project Component with an Operational Effect	Distance to Project Location (Nearest Component)	Potential Negative Effects	Pre-construction Surveys	Mitigation Measures (if significant)	Performance Objectives, Monitoring, and Contingency Plans
			<ul style="list-style-type: none"> <li>Avoidance caused by lighting</li> </ul>		<ul style="list-style-type: none"> <li>Signage indicating presence of a significant feature beyond construction barriers will be posted.</li> <li>Construction personnel will be educated about the location and significance of this feature.</li> <li>Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</li> <li>Revegetation of areas cleared with native plants and reseeding will occur as soon as possible in the growing season</li> <li>Propose a lighting scheme that will minimize potential risk to bat collisions while fulfilling Transport Canada requirements</li> </ul>	
BMA-006 Bat Maternity Colony	0-30m	Overlapping (Access Road, Cabling Below Ground)	<ul style="list-style-type: none"> <li>Accidental damage to, or permanent removal of vegetation, including tree limbs</li> </ul>	<p>Surveys will be in accordance with Bats and Bat Habitats (OMNR 2011a).</p> <p>If surveys confirm the woodland is a candidate significant bat maternity colony habitat, the following EOS surveys will be conducted:</p> <p>A single 1.5hr visual point count survey will be conducted at 10 snags/cavity trees, as this woodland is 10ha.</p>	<ul style="list-style-type: none"> <li>Clearly delineate work area using erosion fencing, or similar barrier, to avoid accidental damage to potentially significant bat roosting trees.</li> <li>Prepare a tree preservation plan which identifies specific trees to be removed and whether each tree contains a cavity suitable for potential use as a bat maternity colony.</li> <li>Cavity tree removal will occur outside of the maternity and summer swarming period of May 15 to August 31, wherever possible. If this is not possible, MNR will be consulted regarding any additional mitigation measures that may be required.</li> </ul>	<p><b>Performance Objective:</b></p> <ul style="list-style-type: none"> <li>Protection of bat roosting habitat</li> <li>Ensure no changes to function of habitat.</li> <li>Ensure minimal residual disturbance to wildlife using habitat.</li> </ul> <p><b>Monitoring:</b></p> <ul style="list-style-type: none"> <li>Include the closest turbine, T11, among turbines selected for post-construction mortality monitoring, to be conducted as outlined in the EEMP (Genivar 2012b).</li> </ul>

Feature ID	Distance to Project Component with an Operational Effect	Distance to Project Location (Nearest Component)	Potential Negative Effects	Pre-construction Surveys	Mitigation Measures (if significant)	Performance Objectives, Monitoring, and Contingency Plans
			<ul style="list-style-type: none"> <li>Noise disturbance and/or avoidance behaviour during construction</li> <li>Avoidance caused by lighting</li> </ul>	Surveys will be conducted during the month of June, on nights with suitable weather conditions.	<p>Construction is to take place outside of the May 1 to July 31 roosting</p> <ul style="list-style-type: none"> <li>For each suitable cavity tree to be removed, a bat house will be installed in the remainder of the woodland for each of the affected habitats.</li> <li>No clearing or habitat restoration to occur May 1<sup>st</sup>-July 31<sup>st</sup> to avoid disturbing natural bat processes</li> </ul> <ul style="list-style-type: none"> <li>Impacts are expected to be minimal, and temporary, in nature, and no specific mitigation measures have been determined necessary.</li> <li>Signage indicating presence of a significant feature beyond construction barriers will be posted.</li> <li>Construction personnel will be educated about the location and significance of this feature.</li> <li>Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</li> <li>Revegetation of areas cleared with native plants and reseeded will occur as soon as possible in the growing season</li> <li>Propose a lighting scheme that will minimize potential risk to bat collisions while fulfilling Transport Canada requirements</li> </ul>	<ul style="list-style-type: none"> <li>Access cannot be gained for this habitat, therefore, no pre-construction or post-construction behaviour/disturbance monitoring will occur within BMA-006.</li> </ul>

Feature ID	Distance to Project Component with an Operational Effect	Distance to Project Location (Nearest Component)	Potential Negative Effects	Pre-construction Surveys	Mitigation Measures (if significant)	Performance Objectives, Monitoring, and Contingency Plans
BMA-007  Bat Maternity Colony	30-120m	100m (T16)	<ul style="list-style-type: none"> <li>Noise disturbance and/or avoidance behaviour during construction</li> </ul>	<p>Pre-construction surveys will follow July 2011 <i>Bats and Bat Habitats</i> guidelines (OMNR 2011).</p> <p>If surveys confirm the woodland is a candidate significant bat maternity colony habitat, the following EOS surveys will be conducted: A single 1.5hr visual point count survey will be conducted at 10 snags/cavity trees, as this woodland is &lt;10ha.</p> <p>Surveys will be conducted during the month of June, on nights with suitable weather conditions.</p>	<ul style="list-style-type: none"> <li>Impacts are expected to be minimal, and temporary, in nature, and no specific mitigation measures have been determined necessary.</li> <li>Construction is to take place outside of the May 1 to July 31 roosting.</li> <li>Signage indicating presence of a significant feature beyond construction barriers will be posted.</li> <li>Construction personnel will be educated about the location and significance of this feature.</li> <li>Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</li> <li>Revegetation of areas cleared with native plants and reseeded will occur as soon as possible in the growing season</li> </ul>	<p><b>Performance Objective:</b></p> <ul style="list-style-type: none"> <li>Protection of bat roosting habitat</li> <li>Ensure no changes to function of habitat.</li> <li>Ensure minimal residual disturbance to wildlife using habitat.</li> </ul> <p><b>Monitoring:</b></p> <ul style="list-style-type: none"> <li>Conduct post-construction monitoring of this feature for 1 year after construction, following pre-construction methods, if this feature is deemed significant.</li> <li>If this first year of post-construction monitoring indicates that this feature may no longer be significant, an additional 2 years of post-construction monitoring will occur following pre-construction methods.</li> <li>If a significant habitat is still significant after the first year of post-construction monitoring, no further monitoring will occur as the habitat will be considered to be unaffected.</li> </ul>

Feature ID	Distance to Project Component with an Operational Effect	Distance to Project Location (Nearest Component)	Potential Negative Effects	Pre-construction Surveys	Mitigation Measures (if significant)	Performance Objectives, Monitoring, and Contingency Plans
						<p><b>Contingency Measure:</b></p> <ul style="list-style-type: none"> <li>If a permanent disturbance has been noted within this wildlife habitat, the MNR will be contacted to determine whether additional mitigation measures will be needed.</li> </ul>

**Table 21: Summary of Potential Negative Effects and Proposed Mitigation Measures for Generalized Candidate Significant Wildlife Habitat**

Component and activity within 120m	Distance to Nearest Project Component	Potential Negative Effect to General Wildlife Habitat	Mitigation Strategy	Monitoring Plan and Contingency Measures
Vegetation removal and soil grading	Up to 120m	Increased erosion and sedimentation resulting from clearing and grubbing, excavation, backfilling and stockpiling.	<ul style="list-style-type: none"> <li>• Develop and implement an erosion and sediment control plan before commencement of construction as per Ontario Provincial Standard Specifications (OPSD 219.130).</li> <li>• Utilize erosion blankets, erosion control fencing, straw bales, siltation bags, etc. For construction activities within 30 m of a wetland, woodland or water body, to mitigate potential excessive erosion and sedimentation. Extra erosion and sediment control materials should be kept on hand, (i.e., heavy-duty silt fencing, straw bales).</li> <li>• Keep sediment and erosion control measures in place until disturbed areas have been stabilized (i.e., re-vegetated).</li> <li>• Schedule grading within 30 m of a watercourse or wetland to avoid times of high runoff volumes (spring and fall), wherever possible. Temporarily suspend work if high runoff volume is noted or excessive flows of sediment discharges occur until mitigation measures are in place.</li> <li>• Re-vegetate temporary roads to pre-construction conditions as soon as possible after construction activities are complete using species native to Ontario in naturally vegetated areas.</li> <li>• All work zones should be delineated with silt fencing and be clearly marked to indicate that no work will occur outside the fenced area</li> <li>• No refuelling or maintenance of vehicles in, or within 30m of a wetland. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor on-site conditions (i.e., erosion and sediment control, spills, flooding, etc.) where construction occurs within 30 m of a feature on the following basis: <ul style="list-style-type: none"> <li>▪ Weekly during active construction periods;</li> <li>▪ Prior to, during and post forecasted large rainfall events (&gt;20 millimetres in 24 hours) or significant snowmelt events (i.e., spring freshet);</li> <li>▪ Daily during extended rain or snowmelt periods;</li> <li>▪ Monthly during inactive construction periods, where the site is left alone for 30 days or longer.</li> </ul> </li> <li>• Contingency Measures: <ul style="list-style-type: none"> <li>▪ Suspend work if excessive flows of sediment discharges occur until additional mitigation measures are in place.</li> </ul> </li> </ul>
Topsoil removal or compaction	Up to 120m	Removal/disturbance of topsoil and increased soil compaction from manoeuvring of heavy machinery, excavation and backfilling.	<ul style="list-style-type: none"> <li>• Minimize vehicle traffic on exposed soils, avoid compacting or other hardening of natural ground surface, and avoid the movement of heavy machinery on areas with sensitive slopes.</li> <li>• Where feasible, lighter vehicles and lighter machinery should be used in and around natural areas.</li> <li>• Any vehicles used within natural areas should use wide-based tires. Tracked vehicles should be avoided.</li> </ul>	<ul style="list-style-type: none"> <li>• See erosion and sedimentation above.</li> </ul>
Directional Drilling	Up to 120m	Increased erosion and sedimentation resulting from directional drilling.	<p><b>Construction/Decommissioning</b></p> <ul style="list-style-type: none"> <li>• Potential for disturbance to breeding activity as a result of construction activities such as noise, vehicular movement and the presence of people;</li> <li>• Potential for silt or sediment to enter the feature as a result of grading;</li> <li>• Changes to surface water drainage patterns resulting from access road construction causing indirect effects on habitat.</li> <li>• Potential for release of contaminants from construction vehicles;</li> <li>• No vegetation removal is proposed for within the feature or within the adjacent contiguous vegetation communities.</li> </ul> <p><b>Operation</b></p> <ul style="list-style-type: none"> <li>• Potential for collision with turbine during operation;</li> <li>• Disturbance from lights, sound, routine maintenance to turbine/and or road.</li> </ul>	<ul style="list-style-type: none"> <li>• See erosion and sedimentation above.</li> </ul> <p>Frac-out plan required- one plan for terrestrial and one plan for aquatic drilling</p>

Component and activity within 120m	Distance to Nearest Project Component	Potential Negative Effect to General Wildlife Habitat	Mitigation Strategy	Monitoring Plan and Contingency Measures
Vegetation clearing associated with wildlife habitat disturbance, incidental mortality, barriers to movement	Up to 120m	Disturbance and/or mortality to terrestrial wildlife, including barriers to wildlife movement.	<ul style="list-style-type: none"> <li>• Time vegetation removal to avoid periods of habitat use to the extent possible, particularly to avoid sensitive life stages (e.g., breeding season for migratory birds, May 1 to July 31 or as determined in consultation with Environment Canada). Undertake active nest surveys if clearing of vegetation must take place during this period. Avoid intersecting likely wildlife migration routes wherever possible.</li> <li>• Construction and decommissioning activities within 30 m of woodlands or wetlands should occur during daylight hours (7:00 am to 7:00 pm), wherever possible.</li> <li>• Clearly post construction speed limits (30km/h). Install and maintain wildlife crossing and speed limit signs on access roads.</li> <li>• Area searches for wildlife species conducted prior to construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake monthly site inspections to ensure that only specified trees are removed, protective fencing is intact and that there is no damage caused to the remaining trees during construction.</li> <li>• Monitoring the success rate of replanted trees</li> <li>• Contingency Measures: <ul style="list-style-type: none"> <li>▪ In the event that trees are damaged during construction, damaged trees should be pruned through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.</li> <li>▪ Consultation with MNR to determine additional contingency measures if necessary.</li> </ul> </li> </ul>
General equipment operation	Up to 120m	Damage to vegetation while operating equipment.	<ul style="list-style-type: none"> <li>• Keep vegetation removal to a minimum and limited to non-significant habitats (e.g., hedgerows).</li> <li>• For roadside collection line routes, vegetation removal (if any) will be kept to a minimum and will be limited to the road right-of-way.</li> <li>• Where construction is to occur within 30 m of natural features, install and maintain protective fencing to clearly define the construction area and prevent accidental damage to vegetation.</li> <li>• Trees at risk of being damaged during construction should be pruned through implementation of proper arboricultural techniques.</li> <li>• Where excavation for construction of access roads or collection lines is conducted within the rooting zone of trees (e.g., within 5 m of the dripline), proper root pruning measures should be implemented to protect tree roots.</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake monthly site inspections to ensure that only specified trees are removed, protective fencing is intact and that there is no damage caused to the remaining trees during construction.</li> <li>• Monitoring the success rate of replanted trees</li> <li>• Contingency Measures: <ul style="list-style-type: none"> <li>▪ In the event that trees are damaged during construction, damaged trees should be pruned through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.</li> <li>▪ Consultation with MNR to determine additional contingency measures if necessary.</li> </ul> </li> </ul>
Noise, human activities, vegetation removal as it related to wildlife or bird nests	Up to 120m	Disturbance to or loss of wildlife habitat, including active bird nests.	<ul style="list-style-type: none"> <li>• Schedule vegetation removal outside of breeding season (May 1 to July 31 or as determined in consultation with Environment Canada and MNR) where possible.</li> <li>• Undertake active nest surveys if clearing of vegetation must take place during this period by a qualified biologist.</li> <li>• Construction and decommissioning activities within 30 m of woodlands or wetlands should occur during daylight hours (7:00 am to 7:00 pm), wherever possible.</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake monthly site inspections to ensure that only specified trees are removed, protective fencing is intact and that there is no damage caused to the remaining trees during construction.</li> <li>• Tree compensation plan to be developed in consultation with the MNR</li> <li>• Contingency Measures: <ul style="list-style-type: none"> <li>▪ In the event that trees are damaged during construction, damaged trees should be pruned through implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.</li> <li>▪ Consultation with MNR to determine additional contingency measures if necessary.</li> </ul> </li> </ul>
The use of deleterious substances in project activities.	Up to 120m	Soil / water contamination by oils, gasoline, grease and other materials from construction equipment, materials storage and handling.	<ul style="list-style-type: none"> <li>• Ensure machinery is maintained free of fluid leaks.</li> <li>• Site maintenance, vehicle washing and refuelling stations where contaminants are handled at least 30 m away from natural features or water bodies. Vehicle refuelling and maintenance will be done on spill collection pads.</li> <li>• Store any stockpiled materials at least 30 m away from a wetland, woodland or waterbody to prevent deleterious substances from inadvertently discharging to the environment.</li> <li>• Develop a spill response plan and train staff on associated procedures.</li> <li>• Maintain emergency spill kits on site.</li> <li>• Control soil / water contamination through best management practices.</li> <li>• Dispose of any waste material from construction activities by authorized and approved off-site vendors.</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct daily inspections of construction equipment for leaks / spills.</li> <li>• Implement contingency measures in the event of a spill.</li> <li>• Contingency Measures: <ul style="list-style-type: none"> <li>▪ In the event of a spill, immediately stop all work until the spill is cleaned up;</li> <li>▪ Install a spill collection pad for refuelling and maintenance;</li> <li>▪ Notify MOE's Spills Action Centre of any leaks or spills;</li> <li>▪ Assess and remediate affected soils and water by using spill kit kept on site;</li> <li>▪ For spills near wetlands, analyze water samples for general chemistry (e.g., temperature, pH, dissolved oxygen, and conductivity), suspended solids, turbidity, nutrients and total metals (e.g., copper, iron, zinc and aluminum).</li> <li>▪ Monitor daily to ensure proper cleanup is completed.</li> </ul> </li> </ul>
The use of deleterious substances specific to directional drilling	Up to 120m	Soil / water contamination by oils, gasoline, grease and other materials from spills during directional drilling.	<ul style="list-style-type: none"> <li>• Conduct all drilling by licensed drillers in accordance with Regulation 903 under Ontario Water Resources Act, R.S.O. 1990.</li> <li>• Develop and implement emergency spills plan outlining steps to contain any chemicals or to avoid contamination of adjacent features.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor directional drilling for the duration of such activities to ensure that "frac-out" or accidental intrusion does not occur, and if it does, to ensure that there are no effects on surface or groundwater.</li> </ul>



Component and activity within 120m	Distance to Nearest Project Component	Potential Negative Effect to General Wildlife Habitat	Mitigation Strategy	Monitoring Plan and Contingency Measures
			<ul style="list-style-type: none"> <li>• Collect drill cuttings as they are generated and place in a soil bin or bag for off-site disposal.</li> <li>• Ensure drill depth is at an appropriate depth below feature to reduce the risk of a “frac-out”.</li> <li>• Install protective fencing around vegetation to prevent accidental damage.</li> <li>• Sediment and erosion controls will be used around the entrance and exit pits.</li> <li>• Directional drilling will be undertaken in accordance with the Department of Fisheries and Oceans’ Operational Statement.</li> <li>• If directional drilling is used, an Environmental Inspector will be on-site during drilling activities.</li> <li>• Entrance and exit pits will be at least 30m from the edge of the wetland, demarcated by a qualified environmental technician using OWES methodology (50% wetland vegetation rule)</li> <li>• Terrestrial and aquatic frac-out plans</li> </ul>	<ul style="list-style-type: none"> <li>• Contingency Measures: <ul style="list-style-type: none"> <li>▪ In the event of a “frac-out”, immediately stop all work, including the recycling of drilling mud / lubricant.</li> <li>▪ Monitor “frac-out” for 4 hours to determine if the drilling mud congeals. If drilling mud congeals, take no other action that would potentially suspend sediments in the water column. If drilling mud does not congeal, erect isolation/containment environment (underwater boom and curtain).</li> <li>▪ If the fracture becomes excessively large, engage a spill response team to contain and clean up excess drilling mud in the water.</li> <li>▪ If the spill affects an area that is vegetated, the area will be seeded and/or replanted using native species similar to those in the adjacent area, or allowed to re-grow from existing vegetation. Revegetated areas will be monitored twice per year for two years subsequent to “frac-out” to confirm revegetation is successful.</li> <li>▪ Document post-cleanup conditions with photographs and prepare “frac-out” incident report describing time, place, actions taken to remediate “frac-out” and measures implemented to prevent recurrence. Provide incident report to MNR and MOE forthwith.</li> </ul> </li> </ul> <p><b>If the frac-out is terrestrial:</b></p> <ul style="list-style-type: none"> <li>• Isolate the area with hay bales, sand bags, or silt fencing to surround and contain the drilling mud.</li> <li>• Consult with MOE regarding next appropriate action among the following: <ul style="list-style-type: none"> <li>- A mobile vacuum truck will be used to pump the drilling mud from the contained area and recycled to the return pit.</li> <li>- The drilling mud will be left in place to avoid potential damage from vehicles entering the area.</li> </ul> </li> <li>• Once excess drilling mud is removed, the area will be seeded and/or replanted using native species similar to those in the adjacent area, or allowed to re-grow from existing vegetation.</li> <li>• Re-vegetated areas will be monitored twice per year for two years subsequent to frac-out to confirm re-vegetation is successful. If re-vegetation is unsuccessful, additional measures will be taken to restore the vegetation, including removal and replacement (using local soils) of existing substrate in the affected area</li> </ul>
Grading or alteration to drainage patterns.	Up to 120m	Changes in surface water drainage patterns.  Obstruction of lateral flows in surface water to wetlands.	<ul style="list-style-type: none"> <li>• Minimize changes in land contours and natural drainage; maintain timing and quantity of flows.</li> <li>• Any grading of lands adjacent to natural features should match existing grades at the identified set-back, or buffer from the features.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect locations within 30 m of wetlands following completion of access roads to ensure no grade changes.</li> <li>• Contingency Measures: <ul style="list-style-type: none"> <li>▪ If surface water drainage alterations are detected, undertake corrective measures to restore drainage pattern.</li> </ul> </li> </ul>

## **5.7 ENVIRONMENTAL EFFECTS MONITORING PLAN**

The Environmental Effects Monitoring Plan (EEMP) is included as part of the Draft Construction Plan Report: East Durham Wind Energy Centre (Genivar, 2012b) and represents an adaptive management approach to protection of significant and provincially significant wetlands, woodlands, valleylands and wildlife habitat, whereby results of regular site inspection and monitoring will be used to determine how construction methods and measures outlined for environmental protection might be altered to best protect these features. Specific commitments have been made to include Turbines 10 and 11 (assuming they are among the 14 turbines proposed to be constructed) in the 3 year post construction monitoring plan for bird and bat mortality as habitat treated as significant for Waterfowl Nesting and Bat Maternity is present within 120m of the proposed location of those turbines. It is LGL's understanding that all of the potential negative environmental effects identified for the Project in Section 5.6 above, and the associated monitoring and contingency plans outlined therein, will be included in the EEMP submitted for the East Durham Wind Energy Centre.

## 6.0 REFERENCES

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## **FIGURES**

## **APPENDIX A AGENCY FILES**

## **APPENDIX B FIELD NOTES**

## **APPENDIX C QUALIFICATIONS**



## **APPENDIX D SITE INVESTIGATION**

## **APPENDIX E EVALUATION OF SIGNIFICANCE**

## **APPENDIX F WETLAND EVALUATION**

## **APPENDIX G WILDLIFE LIST**

## **APPENDIX H VASCULAR PLANT LIST**

## **APPENDIX I BAT MONITORING REPORT (NSRI)**