

Appendix B

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Table 3.1: Winter Raptor Survey Results, Napier Study Area				
Species	14-Dec-09	8- Jan-10	23-Feb-10	Total
Red-tailed Hawk	4 (1)*	--	--	4
Rough-legged Hawk	--	1 (0)	--	1
Total	4	1	0	5
Km driven	17.9	10.2	15.4	
Raptors/km	0.2	0.1	0	

*Number in brackets indicates observations occurring in and within 120m of Project Location (versus Study Area)

Table 3.2 : Records Review – Potential Wildlife Species of Conservation Concern							
	Scientific Name	SRANK	Provincial Status (COSSARO)	National Status (COSEWIC)	Data Source	Species Requirements/ Limiting Factors	Potential to exist within the study area
VEGETATION							
Green Dragon	<i>Arisaema dracontium</i>	S3	Special Concern	Special Concern	NHIC	Found in mesic to wet deciduous woods, thickets, and bottomlands (Flora of North America, 2008). Flowers late spring.	Green Dragon was not observed during field investigations. The Project Location is sited within actively managed agricultural fields with potentially suitable habitat within the 120m zone of investigation limited to Feature 2. Considered absent from the Project Location.
Carey's Sedge	<i>Carex careyana</i>	S2	None	None	NHIC	An S2 species found growing only in rich, deciduous forests (Voss, 1972). The last recorded observation within the regional landscape was in 1934 (NHIC, 2011).	Carey's Sedge was not observed during field investigations. The Project Location is sited within actively managed agricultural fields. Until further evidence of this species is

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	Scientific Name	SRANK	Provincial Status (COSSARO)	National Status (COSEWIC)	Data Source	Species Requirements/ Limiting Factors	Potential to exist within the study area
							documented, it is considered extirpated from the area, and absent from the Project Location.
ODONATA							
Monarch Butterfly	<i>Danaus plexippus</i>	S4B, S2N	Special Concern	Special Concern	Observed during site investigations	Much of the concern regarding the status of the eastern populations of monarchs is a result of the loss of habitat in their Mexican wintering grounds. In southern Ontario the Monarch is considered common and exists primarily wherever milkweed and wildflowers exist. This includes abandoned farmland, along roadsides, and other open spaces where these plants grow.	A limited number of single individuals were observed during investigations on August 19 th , 2011. Site investigations confirmed that the habitat requirements to support significant populations of Monarch (old-field habitats with abundant milkweed plants) did not occur within the Project Location or the 120 m Zone of Investigation (Figure 2, Appendix A; Table 4.3, Appendix B; Appendix F). The

Table 3.2 : Records Review – Potential Wildlife Species of Conservation Concern							
	Scientific Name	SRANK	Provincial Status (COSSARO)	National Status (COSEWIC)	Data Source	Species Requirements/ Limiting Factors	Potential to exist within the study area
							Study Area is not located in an area that would be considered candidate significant wildlife habitat for a migratory butterfly stopover area (see Section 3.2.6.1). Candidate significant wildlife habitat for monarch butterfly areas is considered absent from the Project Location.
AMPHIBIANS AND REPTILES							
Snapping Turtle	<i>Chelydra serpentina</i>	S3	Special Concern	Special Concern	Ontario Herpetofaunal Summary Atlas	Inhabits ponds, sloughs, streams, rivers, and shallow bays that are characterized by slow moving water, aquatic vegetation, and soft bottoms. Females nest in sand or gravel banks at	Site investigations confirmed that areas in or within 120m of the Project Location did not contain the standing water that is required to support Snapping Turtle foraging or hibernation. No bare areas of

Table 3.2 : Records Review – Potential Wildlife Species of Conservation Concern							
	Scientific Name	SRANK	Provincial Status (COSSARO)	National Status (COSEWIC)	Data Source	Species Requirements/ Limiting Factors	Potential to exist within the study area
						waterway edges in late May or early June (COSEWIC, 2008).	<p>loose sandy soil substrate that would support nesting were identified during site investigations.</p> <p>No snapping turtles or evidence of turtle nesting was observed during site investigations (Appendix G). The critical habitat components to support snapping turtle during nesting and hibernation were absent from the Project Location;</p> <p>Snapping Turtle is considered absent from the Project Location.</p>
BIRDS							
Black Tern		S3B	Special Concern	Not at Risk	Ontario Breeding Bird Atlas	The Black Tern is a small tern that nests semi-colonially in freshwater	Site investigations confirmed that marsh habitat did not occur in or within 120 m of

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	Scientific Name	SRANK	Provincial Status (COSSARO)	National Status (COSEWIC)	Data Source	Species Requirements/ Limiting Factors	Potential to exist within the study area
						marshes with emergent vegetation. This species prefers marshes or marsh complexes of more than 20 ha in size for breeding (Dunn and Agro, 1995). Black Tern is designated a species of “Special Concern” by COSSARO, but “Not at Risk” by COSEWIC.	the Project Location. (Figure 2, Appendix A; Table 4.3, Appendix B). Candidate significant wildlife habitat for Black Tern did not occur in or within 120 m of the Project Location.
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	S4B	Special Concern	Threatened	Ontario Breeding Bird Atlas	The Red-headed Woodpecker prefers open deciduous woods, fields, pastures, city parks, river edges and roadsides where scattered large trees occur (Cadman et al., 2007). This species requires at least a few snags or large	One Red-headed Woodpecker was observed (outside breeding season) within the Study Area during site investigations. It was observed foraging on a large dead elm tree that is situated approximately 500 m north of Turbine 1. No other large

Table 3.2 : Records Review – Potential Wildlife Species of Conservation Concern							
	Scientific Name	SRANK	Provincial Status (COSSARO)	National Status (COSEWIC)	Data Source	Species Requirements/ Limiting Factors	Potential to exist within the study area
						dead limbs for its presence in more open habitats (Smith et al., 2000).	<p>dead trees that would support Red-headed Woodpecker were observed in or within 120 m of the Project Location.</p> <p>Candidate significant wildlife habitat for Red-headed Woodpecker is considered absent from the Project Location.</p>
<p>S2 – Imperiled S3 – Vulnerable S4 – Apparently Secure SX – Presumed extirpated S#B – Breeding Status S#N – Non-breeding Status</p>							

NHA Component	Survey Date	Survey Type	Completed By	Time	Weather Conditions*
Record Review	Dec.14, 2009	Winter Raptor Survey	N. Kopysh J. Pleizier	10:35-11:20	Temp: 2-3°C; Wind: 1-2; Cloud: 100%; PPT: Rain in last 24 hours
	Jan. 8, 2010	Winter Raptor Survey	N. Kopysh J. Leslie	14:05-14:35	Temp: -2°C; Wind: 1; Cloud: 100%; PPT: None, average snow depth of 15cm
	Feb. 23, 2010	Winter Raptor Survey	N. Kopysh J. Leslie	10:50-11:20	Temp: -1°C; Wind: 0; Cloud: 100%; PPT: none, ~10cm in last 24 hours, average snow depth of 10 cm
Site Investigation	Aug.19, 2011	Ecological Land Classification Vegetation Survey, Woodland Assessment and Wildlife Assessment	M. Straus	10:30-16:00	Temp: 30°C; Wind: 0, Cloud: 25%; PPT: None
	November 11, 2011	Ecological Land Classification Vegetation Survey, Woodland Assessment and Wildlife Assessment	M. Straus	14:00-15:30	Temp: 6°C; Wind: 5, Cloud: 80%; PPT: None
Evaluation of Significance	September 20, October 31, November 8 and 15, 2011	Wetland Evaluation	J. Leslie	N/A	N/A

* Wind conditions expressed using Beaufort Scale:

0 – calm, <2km/hr 2 – light, 7-12 km/hr 4 – moderate, 20-30 km/hr 6 – strong, 41-51 km/hr
1 – light, 2-6 km/hr 3 – moderate, 13-19 km/hr 5 – fresh, 31-40 km/hr

Table 4.2: Summary of Corrections to Records Review				
Feature	Records Review	Correction made as a result of site investigation	Evaluation of Significance Results	EIS required?
Wetlands	No PSW occurs in or within 120m of the Project Location No locally significant wetlands occur within 120m of the Project Location No unevaluated wetlands identified	-No changes required as a result of the site investigations <u>Additional features identified:</u> -wetland feature 2	Wetland Feature 2 is Significant	YES
Valleylands	None identified in or within 120m of the Project Location	None	n/a	n/a
Woodlands	No woodlands are located in the Project Location. Two woodlands were identified within 120m of Project Location (Features 1 and 2)	-None, no changes were made to the identification or boundaries of woodland features 1 or 2 <u>Additional features identified:</u> - Feature 3	Woodland Feature 2 is significant	YES
ANSIs	No Earth Science or Life Science ANSIs occur within 120m of the Project Location.	None	n/a	n/a
Wildlife Habitat: Seasonal Concentration Areas	No known seasonal concentration areas identified	None -Project Location does not support this function	n/a	n/a
Wildlife Habitat: Rare Vegetation Communities	No known rare vegetation communities	None- Project Location does not support this function	n/a	n/a
Wildlife Habitat: Animal Movement Corridors	No known animal movement corridors	None- Project Location does not support this function	n/a	n/a
Wildlife Habitat: Specialized Habitats	No known specialized habitats	Feature 2 supports generalized wildlife habitat	Generalized wildlife habitat in Feature 2 is Significant	YES
Wildlife Habitat: Species of Conservation Concern	Background records exist for species of special concern (Table 3.2) and declining species (i.e., PIF) in Appendix C from the Study Area	Project Location does not support species of conservation concern occurrences or suitable habitat to support the species detailed in Table 3.2 and Appendix C.	n/a	n/a

Table 4.3: Description and Characterizations of Features Found within 120 m of the Napier Wind Project Location						
Feature #	Total Feature Size (ha)	Identification through Records Review	Feature Type As confirmed during Site Investigation	ELC Community Type	Description of Type	Attributes, Characteristics and Functions
1	2.5	Woodland (MNR; LIO, 2009)	Woodland	CUW1-4*	A white elm cultural woodland. Open canopy woodland dominated by mid-aged white elm, with basswood as a minor associate. The sub-canopy was dominated by hawthorns and apple species with a low shrub layer consisting of buckthorn, red panicked dogwood, and red raspberry. Ground layer consisted of species common to the adjacent cultural meadow such as goldenrods, asters, and wild carrot	<ul style="list-style-type: none"> - open cultural woodland community - no uncommon species composition or structure were observed - vernal pools were not observed - feature is a small, isolated woodland that does not provide interior habitat -not located near sensitive hydrological features (fish habitat, groundwater discharge, headwater area)
2	7.3	Woodland (MNR; LIO, 2009)	Woodland and Wetland	SWD2-2	A deciduous swamp dominated by green ash with various associates such as white elm, bur oak, and swamp and sugar maple.	<ul style="list-style-type: none"> -provides a limited amount of interior habitat (0.3 ha) -no uncommon species composition or structure were observed -isolated woodland -hydrological connection occurs to the east

Feature #	Total Feature Size (ha)	Identification through Records Review	Feature Type As confirmed during Site Investigation	ELC Community Type	Description of Type	Attributes, Characteristics and Functions
3	1.7	Not identified during record review	Woodland	CUP2-2*	Small cultural plantation consisting of alternating rows of young Norway Spruce, maple and white cedar. Ground layer of cultural meadow species such as goldenrods and asters.	-does not provide interior habitat -small isolated feature -very young plantation (i.e. less than 10 years old) -no uncommon species composition or structure observed -not located near sensitive hydrological features (fish habitat, groundwater discharge, headwater area)

*ELC code not listed the First Approximation of ELC for Southern Ontario

ELC TYPE	Community Description
Cultural Plantation (CUP)	
CUP2-2* – Spruce-Maple-Cedar Mixed Plantation	This small actively managed plantation consisted of rows of young Norway Spruce and maple at an approximate height of 3-4 meters. Alternating rows with the spruce and maple was 1-2 meter tall white cedars. The ground layer appeared to consist of cultural meadow species such as goldenrods and asters.
Cultural Meadow (CUM)	
CUM1A – Mineral Cultural Meadow	This cultural meadow was situated between the agricultural field and white elm cultural woodland (CUW1-4*). It consisted of an upland finger to the west as well as a north-south segment that sloped gradually to the south. The east-west upland segment was sparsely vegetated in the understorey (<10% cover) by apple, and was dominated in the ground layer by (in order of abundance) asters (e.g., New England aster), wild carrot, spotted knapweed, and goldenrods (e.g., Canada and tall). There was also a fat carex species obvious within the ground layer within the subsection of this

Table 4.4: Ecological Land Classification (ELC) for communities within 120 m of the Napier Project Location	
ELC TYPE	Community Description
	community. This north-south segment was used by farm machinery to access the adjacent agricultural fields. At the lowest point of elevation, a small hollow approximately where the community extends to the west, existed a small patch of gray dogwood (<5 m diameter; 2m tall). Ground cover at this low point was dominated by grasses, with some Virginia creeper. Ground cover species for the north-south segment of this community consisted of goldenrods (e.g., Canada) and asters (e.g., New England) with some grass species, teasel and vetch.
CUM1B – Mineral Cultural Meadow	This small community within the wheat field consisted of a ring of cultural meadow species such as teasel, thistles and goldenrods parallel with the agricultural field. This ring was no more than 2 m wide, after which sloped sharply into an approximately 2m deep depression into the center of the community. Vegetation in the depression was sparse as desiccated soil was visible beneath the goldenrods (e.g., Canada), grasses, asters, teasel, and spreading dogbane. There were extremely rare occurrences of species such as gray dogwood, (i.e. 5 small seedlings less than 20 cm tall). This community had not been cropped and the poor establishment of the gray dogwood indicated a sustained lack of moisture required for establishment. Due to the topographic position and shape of this feature, it is expected to collect runoff in early spring but for a very short period of time due to the shallow nature of the feature and visibly desiccated mineral soils.
Cultural Woodland (CUW)	
CUW1-4* - White Elm Cultural Woodland	This open canopy woodland was partially located on the adjacent property to the east and was assessed from the property boundary. This community was dominated by mid-aged white elm, with basswood as a minor associate. The sub-canopy was dominated by hawthorns and apple species with a low shrub layer consisting of buckthorn, red paniced dogwood, and red raspberry. At the property boundary, the ground layer consisted of species common to the adjacent cultural meadow such as goldenrods, asters, and wild carrot.
Deciduous Swamp (SWD)	
SWD2-2 – Green Ash Deciduous Swamp	This community appeared to be dominated by green ash with various associates such as white elm, bur oak, and swamp and sugar maple.

*ELC code not listed the First Approximation of ELC for Southern Ontario

Feature #	Size (ha)	Wetland Type	Site Type	Vegetation Communities	Proximity to other wetlands (approximate)	Interspersion (estimate)	Flood Attenuation	Open Water Types	Water Quality Improvement (short term)	Water Quality Improvement (long term nutrient trap)	Water Quality Improvement (groundwater discharge)	Shoreline Erosion	Groundwater Recharge	Summary of Hydrology	Rare Species	Significant Features	Fish Habitat
2	7.3	Swamp	Palustrine	h	175m	80	Headwater; 21 hectare catchment	Type 1	Intermittent inflow and outflow; over 50% agricultural landscape; high proportion of live trees.	Swamp with <50% coverage of organic soil	No evidence of discharge observed	Not applicable	Palustrine feature with predominantly silty clay loam soil	Palustrine swamp on silty clay loam soils with intermittent inflow and intermitent outflow. Situated in a predominantly agricultural watershed. Data based on surveys, air photo interpretation, and soil mapping*	None known to be present	None known to be present	Potentially present, seasonally

Natural Feature Number	Size (Ha)	ELC Type(s) within 120m of Project Location	Woodland Size Criteria (> 4 ha)	Ecological Functions Criteria					Uncommon Characteristics Criteria ⁵	Woodland is Considered Significant (meets at least 1 criteria)
				Presence of Woodland Interior	Proximity to other Significant Woodlands or Habitats ¹	Linkages ²	Water Protection ³	Woodland Diversity Representation ⁴		
1	2.5	CUW1-4	No	No	No	No	No	No	No	No
2	7.3	SWD2-2	Yes	Yes (0.3 ha)	No	No	Yes (fish habitat)	No	No	Yes
3	1.7	CUP2-2	No	No	No	No	No	No	No	No

1- located within 30m of an identified significant feature or fish habitat *and* the woodland is 1 ha or larger
 2- located between two other significant features each of which is within 120 m *and* the woodland is 1 ha or larger
 3- located within 30m of a sensitive hydrological feature (i.e. fish habitat, groundwater discharge, headwater area) *and* the woodland is 0.5 ha or larger
 4- has an area dominated by native natural occurring woodland species *and* the woodland is 1 ha or larger
 5- has uncommon species composition, cover type, age or structure or are older than 100 years old *and* the woodland is 1 ha or larger

Table 6.1 Summary of Potential Impacts and Mitigation Measures					
Feature Number	Significant Natural Features	Project Component(s) located in Project Location	Project Component(s) located within 120m	Potential Impacts	Mitigation Measures
Feature 2	Significant wetland	None	Aboveground feeder line: 37 m at closest point	Limited- construction activities are to occur more than 37 m from the feature	Setback of more than 37 m from feature for construction activities
	Significant woodland	None		Operational impacts are considered negligible	Construction and maintenance activities will be restricted to the municipal road right of way.
	Generalized significant wildlife habitat	None		No further mitigation measures recommended	