Technical Memorandum

1266 South Service Road Unit C31 ● Stoney Creek, Ontario L8E 5R9 ● 905-643-6688

To: Jon Whyte, Phelps Homes Ltd.
From: Anne McDonald
Date: June 12, 2025
Re: Woodland Assessment Update
132 College Street, Smithville
West Lincoln, Ontario
Project No.: 2500107

GEI Consultants Canada Ltd. was retained by Phelps Homes Ltd. to review the conditions of an area that has been mapped as Other Woodland by the Region of Niagara, within a remnant naturalized area that occurs along the eastern part of the property located at 132 College Street in the Township of West Lincoln (herein referred to as the Subject Lands).

The Subject Lands are located within the Smithville urban area boundary and are the former location of College Street Public School. The Subject Lands have been identified as a key site for redevelopment within the Township of West Lincoln with the passing of OPA 54 in 2020, which re-designated the lands from institutional to high density residential. The site-specific provisions require a minimum density of 40 units per hectare.

A Technical Memorandum was prepared in January 2025 to provide a preliminary assessment of the area mapped as Other Woodland, to determine whether it meets Regional Official Plan criteria. Regional staff reviewed the assessment and have requested an updated technical memorandum that provides the following additional information to support the assessment of the treed community:

- Classification of the treed community in accordance with methodologies within the Ecological Land Classification (ELC) for Southern Ontario (Lee et al., 1998);
- Significant Wildlife Habitat (SWH) screening assessment; and
- Assessment of potential watercourse within the treed community.

Site Context

A small remnant natural area at the rear of the lot is located behind the former College Street School yard and is delineated by a chain link fence. The natural area extends onto the adjacent municipally maintained cemetery and abuts a new residential development to the east.

The Region of Niagara Natural Environment System (NES) mapping has identified the area as 'Other Woodland', defined in Schedule L of the Regional Official Plan (ROP 2022) as "*all terrestrial treed vegetation communities where the percent tree cover is >25 per cent"*. Other woodlands do not include woodlands that meet the criteria as Significant Woodlands.

In addition to having a minimum 25 percent tree cover, Other Woodlands must be a minimum 0.3 ha in size, or be any size abutting a Significant Woodland, wetland, or permanent stream. The current mapped extent of the woodland is 0.301 hectares according to the Regional NES online mapping (**Figure 1, Appendix A**).

In accordance with ROP (2022) Sections 3.1.9.5 and 3.1.9.7, development within or adjacent to Other Woodlands must demonstrate no negative impact to the feature or its functions through the preparation of an Environmental Impact Study (EIS). Section 3.1.9.9 of the ROP (2022) mandates ecologically appropriate buffers from natural heritage features and areas, the width of which is to be determined through an EIS.

On December 12, 2024, GEI staff visited the site to review existing conditions and confirm the accuracy of the Regional NES feature mapping. Vegetation clearing has previously occurred in the north portion of the Regionally mapped extent of the woodland. Additionally, the woodland shows heavy impacts by Emerald Ash Borer (EAB) which has caused significant dieback and loss of canopy tree cover within the Subject Lands and there is abundant deadfall throughout the treed area. The few remaining mature canopy trees are primarily located at the southern limit of the property and border the adjacent cemetery site.

Drainage Feature

The Subject Lands were formerly the site of a public school building with associated parking and sports fields. The chainlink fence along the east side of the school yard was installed prior to 2000 and a small drainage feature was constructed in the southeast corner of the Subject Lands. Portions of the drainage feature are well-defined, however the increased deadfall and development of ground layer vegetation within the feature impede the movement of water, leading to less definition of the feature toward the outlet. Vegetation within and along the feature is predominantly Spotted Jewelweed with sporadic patches of Reed Canary Grass.

The drainage feature, which collects water that is piped from the site, is approximately 40 m in length and re-enters a pipe at the southern property limit to tie into stormwater facilities for the subdivision located east of the cemetery. While there is no minimum length established in O.Reg 41/24 for a defined watercourse, the Ontario Stream Assessment Protocol (OSAP) requires a sampling site to be a minimum 40 m in length. The feature was constructed to facilitate storm drainage, contains no open channel upstream or downstream of the site, and is ultimately directed to a stormwater pond. Given the limited channel length and the downstream connection to stormwater facilities, GEI determined that the drainage feature does not meet the requirements of permanent or intermittent stream habitat.

Ecological Land Classification

GEI staff conducted an additional site visit on June 10, 2025 to assess the treed community in accordance with ELC protocols and delineate the feature boundaries during leaf-on conditions. The treed community has been classified as a Mineral Cultural Woodland (CUW1). The canopy provided between 25 and 35 percent cover and was dominated by American Elm, Black Walnut, Norway Maple and several dead Ash trees. It is noted that the canopy trees are more abundant along the southern edge of the feature and extending onto the adjacent parcels. The sub-canopy similarly represented 25 to 35 percent tree cover with Manitoba Maple dominant throughout the central part of the feature. There is some regeneration of Ash trees in the understory, but the layer is dominated by non-native shrubs, including Tatarian Honeysuckle and Multiflora Rose. It was generally observed that the feature is disorganized, with several openings in the centre and young tree growth establishing beyond the limits of the canopy. Given the disorganized nature of the feature, GEI completed a conservative delineation of the dripline of the woodland community using a submeter GNSS data logger by assessing along the extreme outer limit of young tree growth and including all open areas. Following this assessment, it was determined that the feature size was below 0.3 ha (at 0.298ha in size).

North of the woodland community, the subject property contains regenerating cultural meadow and thicket habitat. Regrowth of Manitoba Maple and Green Ash as well as Tatarian Honeysuckle and Grey Dogwood are dominant within the understory layer, while Kentucky Bluegrass, Timothy, Canada Goldenrod, and Common Teasel are dominant in the ground layer in the open space.

Vegetation communities are presented in **Figure 2, Appendix A** and a summary of ELC community descriptions is included in **Table B1, Appendix B**.

Significant Wildlife Habitat Screening

The property and adjacent lands have been screened for candidate SWH. See attached SWH screening table (**Table B2**) in **Appendix B.**

The Subject Lands contain small, culturally influenced features, and do not provide sufficient habitat for identification candidate habitat for most SWH types. The only candidate SWH type identified for the Subject Lands was habitat for Special Concern and Rare Wildlife Species. During the field assessments an inventory of all vegetation was completed, and incidental wildlife observations were documented. Birds observed during field assessments included Northern Cardinal, American Robin, House Finch, and Song Sparrow. No other wildlife species were documented. The results of the vegetation inventory are provided in **Appendix C**.

Due to the limited size of the feature and location within the urban area boundary, it does not provide sufficient breeding habitat for sensitive species of birds or amphibians and may only provide limited 'stepping-stone' functions.

No SWH was documented on the Subject Lands.

Woodland Assessment

The Region noted the difference between "tree cover" and "canopy cover" and the importance of the distinction between the two in assessing characterizing a vegetation community using ELC protocols. The ELC manual defines cover as "the area of ground covered or the relative proportion of coverage a particular plant species, vegetation layer or plant form represents". Based on ELC methodology, tree cover within the community was assessed as absolute cover of trees, regardless of vegetation layer. Absolute tree cover within the community was approximately 35%.

The CUW1 community does not meet the ELC definition of a forest and is therefore not candidate for Significant Woodland as defined within Schedule L of the ROP (2022). **Table 1** assesses this feature based on the criteria for both Significant Woodlands and Other Woodlands as they are defined in Schedule L of the ROP (2022).

Table 1. Assessment of Feature Significance

Feature Function	Criteria	Criteria Satisfied?
Tree Cover	>60 percent	No
	>25 percent	**Yes**
Size	2 hectares	No
	1 hectare	No
	0.5 hectares	No
	0.3 hectares	No
	<0.3 hectares	**Yes (<0.298ha)**

Feature Function	Criteria	Criteria Satisfied?
Adjacent Features	Significant Wetland	No
	Permanent Watercourse	No
	Significant Woodland	No

The woodland as it was mapped within the Regional Official Plan is 0.301 ha, which is the minimum size criteria for a treed vegetation community to be designated as an Other Woodland feature. Given the extent of decline within this feature, it would be best described as a Cultural Woodland Community. Based on the current limits of live tree cover exceeding 25% canopy cover, the woodland now falls below the 0.3 ha size threshold and is no longer comprised of a vegetation community that could be considered a significant or other woodland (based on size alone).

A woodland of any size may be considered Other Woodland if it abuts other important features such as a wetland, permanent watercourse, or Significant Woodland. The remnant woodlot associated with the Subject Lands is an isolated treed community, surrounded by residential development and there are no other natural features present. As discussed above, the drainage feature within the treed community is connected to the storm sewers within the adjacent subdivision and there is no open channel located upstream or downstream of the Subject Lands. Accordingly, GEI has not assessed the feature as an intermittent or permanent stream. The remnant treed community does not satisfy Other Woodland criteria, and the policies of Section 3.1.9.5 and 3.1.9.7 of the ROP (2022) will not apply to the feature.

Conclusion

Based on GEI's assessment of the remnant treed community located at 132 College Street in Smithville, the feature will not be subject to the natural heritage policies of the 2022 ROP and does not represent a constraint to development.

It is anticipated that a Tree Preservation Plan will be required as a condition of future development approvals that would provide any required protection measures or compensation requirements for remnant trees. However, as it does not meet Other Woodland criteria, the feature is not subject to mandatory setbacks.

Should you have any questions or concerns, please contact one of the undersigned.

Yours truly,
GEI Consultants

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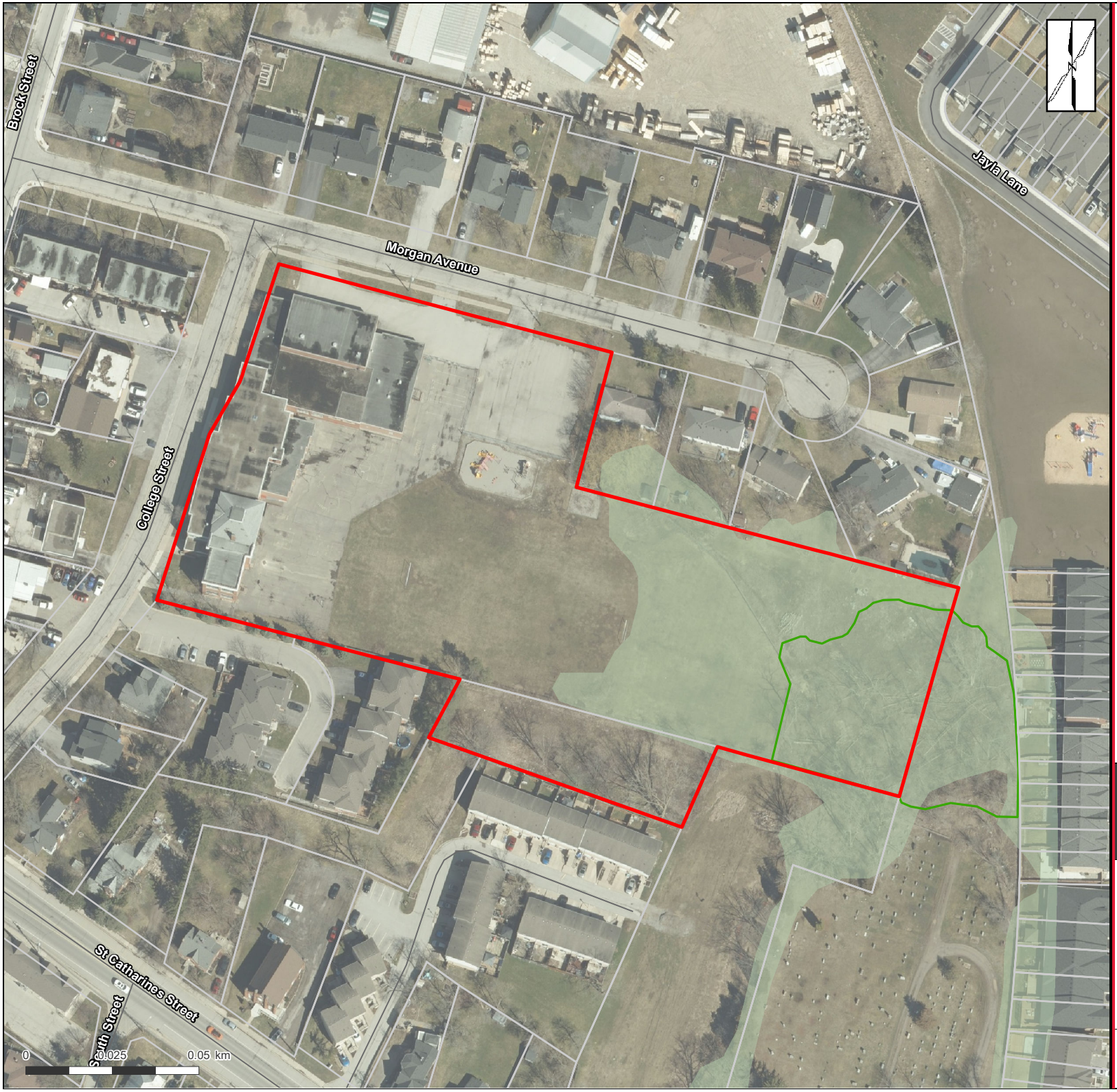
Appendix A Figures

A.1. Figure 1 – Subject Lands

A.2. Figure 2 – Ecological Land Classification

A.1. Figure 1 – Subject Lands



Subject Lands

Road

Assessment Parcels (Niagara Region)

Wooded Area (LIO)

Other Woodlands (Niagara OP Draft)

Reference(s):

1. Coordinate System: NAD 1983 CSRS UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2025, © Niagara Region, 2025.
3. Orthoimagery © First Base Solutions, 2025. Imagery taken in 2023.

Figure 1
Subject Lands

Project Name:
132 College Street
Woodland Assessment Technical Memo

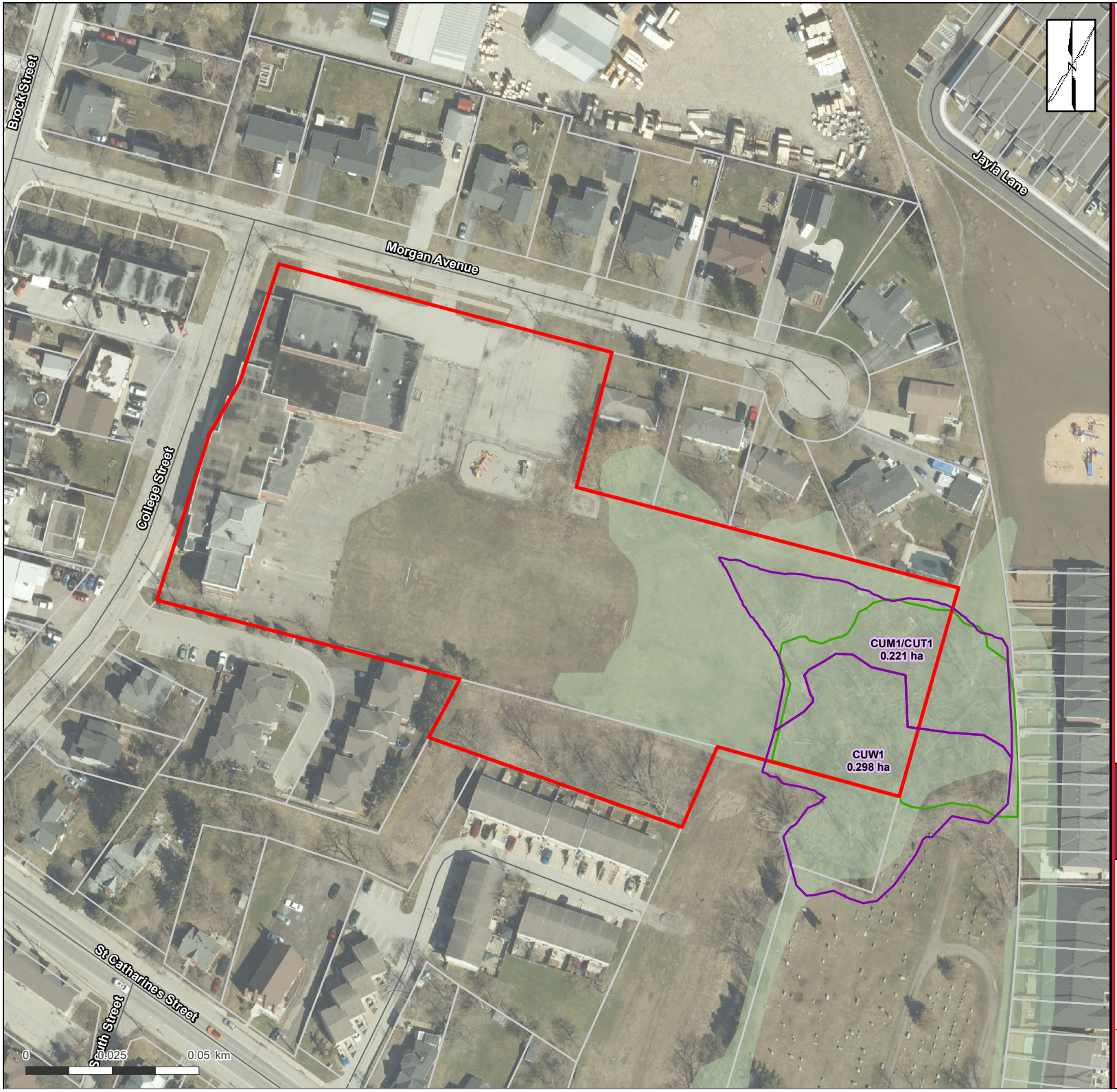
Client Name:
Phelps Homes Ltd.
Smithville, Ontario

GEI Consultants

Last Updated: June 2025
Document ID: 2500107

Document Path: \\bos-pzcc-1\Data_Storage\Working\PHELPS HOMES LTD\2500107 132 College Street Smithville\05_GIS\MXD\2025-06-12_woodland_assessment_tech_memo\2500107_rpt_fig01_other_woodland_mapping.mxd

A.2. Figure 2 – Ecological Land Classification



Subject Lands
Road
Assessment Parcels (Niagara Region)
Wooded Area (LIO)
Other Woodlands (Niagara OP Draft)
Woodland Boundary (GEI)

Note(s):
CUW1, Mineral Cultural Woodland Ecosite
CUM1/CUT1, Mineral Cultural Meadow Ecosite/Mineral Cultural Thicket Ecosite

Reference(s):
1. Coordinate System: NAD 1983 CSRS UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2025, © Niagara Region, 2025.
3. Orthoimagery © First Base Solutions, 2025. Imagery taken in 2023.

Figure 2
Ecological Land Classification

Project Name:
132 College Street
Woodland Assessment Technical Memo

Client Name:
Phelps Homes Ltd.
Smithville, Ontario

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Last Updated: June 2025
Document ID: 2500107

Document Path: \\bos-pzcc-1\Data_Storage\Working\PHELPS HOMES LTD\2500107 132 College Street Smithville\05_GIS\MXD\2025-06-12_woodland_assessment_tech_memo\2500107_rpt_fig02_ecological_land_classification.mxd

Appendix B Tables

B.1. ELC Summary Table

B.2. Significant Wildlife Habitat Screening

B.1. ELC Summary Table

Table B1: Ecological Landscape Classification (ELC) Community Descriptions

ELC TYPE	COMMUNITY DESCRIPTION	S Ranks (NHIC 2021)
CULTURAL – communities resulting from, or maintained by, cultural or anthropogenic-based disturbances		
Cultural Meadow		
CUM1	Mineral Cultural Meadow • Community with less than 25% tree and shrub cover, and more than 25% cover of forbs and/or graminoids.	N/A
CUM1-1	Dry-Moist Old Field Meadow Type • Community complex with CUT1. • Fresh-moist community with Kentucky Bluegrass, Canada Goldenrod, Common Teasel, and Timothy dominant.	N/A
Cultural Thicket		
CUT1	Mineral Cultural Thicket • Community with less than 25% cover of trees and greater than 25% cover of shrubs. • Community complex with CUM1-1. • Fresh-moist community with Green Ash and Tatarian Honeysuckle dominant.	N/A
Cultural Woodland		
CUW1	Mineral Cultural Woodland • Open canopy woodland with 35% tree cover. • Moist community with tree cover dominated by Manitoba Maple, American Elm, and Norway Maple. Tatarian Honesysuckle dominant in understory and Canada Goldenrod in ground layer. • Small drainage feature with Spotted Jewelweed and Reed Canary Grass along length of feature bottom/banks.	N/A

B.2. Significant Wildlife Habitat Screening

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	CUM1 CUT1 Plus evidence of annual spring flooding from meltwater or run-off within these Ecosites. Fields with seasonal flooding and waste grains in the Long Point, Rondeau, Lake St. Clair, Grand Bend and Point Pelee areas may be important to Tundra Swans.	• Fields with sheet water during Spring (mid-March to May) • Fields flooding during spring melt and run- off provide important invertebrate foraging habitat for migrating waterfowl • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered S.W.H. unless they have spring sheet water available <u>Information Sources</u> • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (N.H.I.C.) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • Any mixed species aggregations of 100 or more individuals required • The flooded field ecosite habitat plus a 100-300m radius, dependent on local site conditions and adjacent land use is the significant wildlife habitat • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates) • S.W.H. M.I.S.T. Index #7 provides development effects and mitigation measures.	Annual flooding not documented in study area. Candidate habitat not present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a S.W.H., however a reservoir managed as a large wetland or pond/lake does qualify • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). <u>Information Sources</u> • Environment Canada • Naturalist clubs often are aware of staging/stopover areas. • O.M.N.R.F. Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (e.g. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (N.H.I.C.) Waterfowl Concentration Area	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are S.W.H. • The combined area of the E.L.C. ecosites and a 100m radius area is the S.W.H. • Wetland area and shorelines associated with sites identified within the S.W.H.T.G. Appendix K are significant wildlife habitat. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • S.W.H. M.I.S.T. Index #7 provides development effects and mitigation measures.	No ponds, marshes, lakes, bays, or coastal inlets. Drainage feature not sufficient to support aggregations of waterfowl. No candidate habitat present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Shorebird Migratory Stopover Area **Rationale:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach area, bars and seasonally flooded, muddy and un-vegetated shoreline habitats • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October • Sewage treatment ponds and storm water ponds do not qualify as S.W.H.. <u>Information Sources</u> • Western hemisphere shorebird reserve network • Canadian Wildlife Service (C.W.S.) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Centre (N.H.I.C.) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped E.L.C. shoreline ecosites plus a 100m radius area • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • S.W.H. M.I.S.T. Index #8 provides development effects and mitigation measures.	No shoreline habitat in study area. No candidate habitat present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Raptor Wintering Area **Rationale:** Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **Special Concern:** Short-eared Owl Bald Eagle	Hawks/Owls: Combination of E.L.C. Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM, CUT, CUS, CUW. Bald Eagle: Forest Community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors • Raptor wintering (hawk/owl) sites need to be >20 ha with a combination of forest and upland • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting <u>Information Sources</u> • O.M.N.R.F. Ecologist or Biologist • Naturalist clubs • Natural Heritage Information Centre (N.H.I.C.) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts • Reports and other information available from Conservation Authorities	Studies confirm the use of these habitats by: •One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. •To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. •The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area •Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” •S.W.H. M.I.S.T. Index #10 and #11 provides development effects and mitigation measures.	No forest community present, and Woodland and cultural meadow/thicket community do not meet size criteria. No candidate habitat present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Bat Hibernacula **Rationale**: Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR3 CCA1 CCA2 (Note: buildings are not considered S.W.H.)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts • Active mine sites should not be considered as S.W.H. • The locations of Bat Hibernacula are relatively poorly known. <u>Information Sources</u> • O.M.N.R.F. for possible locations and contact for local experts • Natural Heritage Information Centre (N.H.I.C.) Bat Hibernaculum • Ministry of Northern Development and Mines for location of mine shafts. • Clubs that explore caves (e.g. Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are S.W.H. • The area includes 200 m radius around the entrance of the hibernaculum for most development types and 1000 m for wind farms • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects” • S.W.H. M.I.S.T. Index #1 provides development effects and mitigation measures.	No natural hibernacula present in study area. No candidate habitat present.

Bat Maternity Colonies
 	
Rationale: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.
	Big Brown Bat
	Silver-haired Bat
		Maternity colonies considered S.W.H. are found in forested Ecosites.
		
		All E.L.C. Ecosites in E.L.C. Community Series: FOD, FOM, SWD, SWM
			• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be S.W.H.).
			• Maternity roosts are not found in caves and mines in Ontario
			• Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees
			• Female bats prefer wildlife trees (snags) in early stages if decay, class 1-3 or class 1 or 2
			• Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred
			
			<u>Information Sources</u>
			• O.M.N.R.F. for possible locations and contact for local experts
			• University Biology Departments with bat experts.
				• Maternity colonies with confirmed use by:
				  • >10 Big Brown Bats
				  • >5 adult female Silver-haired Bats
				• The area of habitat includes the entire woodland or a forest stand E.L.C. Ecosite or an Ecoelement containing the maternity colonies
				• Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”
				• S.W.H. M.I.S.T. Index #12 provides the development effects and mitigation measures.
					No mature forest or swamp communities present. No candidate habitat present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Turtle Wintering Areas **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	**Special Concern:** Midland Painted Turtle Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles: SW, MA, OA and SA; FEO and BOO. Northern Map Turtle: Open water areas such as deeper rivers or streams and lakes with current can also be used as overwintering habitat.	• For most turtles, wintering areas are in the same general areas as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Overwintering sites are permanent water bodies, large wetlands and bogs or fens with adequate dissolved oxygen. • Manmade ponds such as sewage lagoons or storm water ponds should not be considered S.W.H.. <u>Information Sources</u> • E.I.S. studies carried out by conservation authorities. • Field naturalists clubs. • O.M.N.R.F. ecologist or biologist • N.H.I.C.	• Presence of five overwintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle overwintering within a wetland is significant. • The mapped E.L.C. ecosite area with the overwintering turtles is the S.W.H.. If the hibernation site is within a stream or river, the deep-water pool where the turtles are overwintering is the S.W.H.. • Overwintering areas may be identified by searching for congregations (basking areas) of turtles on warm, sunny days during the fall (September to October) or spring (March to May). Congregation of turtles is more common where wintering areas are limited and therefore significant. • S.W.H. M.I.S.T. Index #28 provides development effects and mitigation measures for turtle wintering habitat	Absence of open water or wetland habitat. No candidate habitat present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Reptile Hibernaculum **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are	Snakes: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **Special Concern:** Milksnake Eastern Ribbonsnake	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator.	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate S.W.H. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. <u>Information Sources</u> • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs • University herpetologists • Natural Heritage Information Centre (N.H.I.C.)	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (e.g. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) • NOTE: If there are Special Concern Species present, then site is S.W.H. • NOTE: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. • The feature in which the hibernacula is located plus a 30 m radius area is the S.W.H. • S.W.H. M.I.S.T. Index #13 provides development effects and mitigation measures for snake hibernacula.	No potential hibernacula observed in the subject lands. Adjacent residential properties may contain features that go below the frost line. No candidate habitat within subject lands.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff) **Rationale:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> • Reports and other information available from Conservation Authorities • Ontario Breeding Bird Atlas • Bird Studies Canada NatureCounts http://www.birdscanada.org/birdmon • Field Naturalist Clubs	Studies confirming: • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough- winged swallow pairs during the breeding season. • A colony identified as S.W.H. will include a 50m radius habitat area from the peripheral nests • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • S.W.H. M.I.S.T. Index #4 provides development effects and mitigation measures.	Absence of steep slopes, cliffs, or man-made structures to support nesting. No candidate habitat present.
Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs) **Rationale: Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.**	Great Blue Heron Black-crowned Night- Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. Information Sources • Ontario Breeding Bird Atlas colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or N.H.I.C. (O.M.N.R.F.). • Natural Heritage Information Centre (N.H.I.C.) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from Conservation Authorities, M.N.R.F. District Offices and Field Naturalist Clubs.	Studies confirming: • Presence of 2 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15 ha with a colony is the S.W.H. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells • S.W.H. M.I.S.T. Index #5 provides development effects and mitigation measures.	Absence of wetlands and lakes. No candidate habitat present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Colonially -Nesting Bird Breeding Habitat (Ground) **Rationale:** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6 MAS1 – 3 CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Information Sources</u> • Ontario Breeding Bird Atlas, rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from Conservation Authorities. • Natural Heritage Information Centre (N.H.I.C.) Colonial Waterbird Nesting Area • M.N.R.F. District Offices. • Field Naturalist Clubs	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern • Presence of 5 or more pairs for Brewer's Blackbird • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the E.L.C. ecosites containing the colony or any island <3 ha with a colony is the S.W.H. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • S.W.H. M.I.S.T. Index #6 provides development effects and mitigation measures.	Absence of rocky island/peninsula. No candidate habitat present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat Study Area
Migratory Butterfly Stopover Areas **Rationale:** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral **Special Concern:** Monarch	Combination of E.L.C. Community Series; need to have present one Community Series from each landclass: FIELD: CUM, CUT, CUS FOREST: FOC, FOD, FOM, CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	• A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Erie or Lake Ontario • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes <u>Information Sources</u> • M.N.R.F. District Offices • Natural Heritage Information Centre (N.H.I.C.) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days the site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • S.W.H. M.I.S.T. Index #16 provides development effects and mitigation measures.	Site located >5km from Lake Ontario and Lake Erie. No candidate habitat present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Landbird Migratory Stopover Areas **Rationale:** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptor species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these E.L.C. Community Series: FOC FOM FOD SWC SWM SWD	• Woodlots >5 ha in size and within 5 km of Lake Erie and Lake Ontario. If woodlands are rare in an area of shoreline, woodland fragments 2-5 ha can be considered for this habitat • If multiple woodlands are located along the shoreline those woodlands <2 km from Lake Erie and Lake Ontario are more significant • Sites have a variety of habitats: forest, grassland and wetland complexes • The largest sites are more significant • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and within 5 km of Lake Erie and Lake Ontario are Candidate S.W.H.. <u>Information Sources</u> • Bird Studies Canada • Ontario Nature • Local birders and field naturalist clubs • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the habitat by >200 birds/day and with >35 species and with at least 10 bird species recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant • Studies should be completed during spring (Mar.-May) and fall (Aug.-Oct.) migration using standardized assessment techniques. Evaluation to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • S.W.H. M.I.S.T. Index #9 provides development effects and mitigation measures.	Site located >5km from Lake Ontario and Lake Erie. No candidate habitat present.

Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Deer Winter Congregation Areas **Rationale:** Deer movement during winter in the southern areas of Eco-region 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions	White-tailed Deer	All forested Ecosites with these E.L.C. Community Series: FOC, FOM, FOD, SWC, SWM, SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots >100 ha in size or if large woodlots are rare in a planning area, woodlots >50 ha • Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • Large woodlots >100 ha and up to 1,500 ha are known to be used annually by densities of deer that range from 0.1-0.5 deer/ha • Woodlots with high densities of deer due to artificial feeding are not significant. <u>Information Sources</u> • M.N.R.F. District Offices • LIO/NRVIS	Studies confirm: • Deer management is an M.N.R.F. responsibility, deer winter congregation areas considered significant will be mapped by M.N.R.F. • Use of the woodlot by white-tailed deer will be determined by M.N.R.F., all woodlots exceeding the area criteria are significant, unless determined not to be significant by M.N.R.F. • Studies should be complete4d during winter (Jan./Feb.) when >20 cm of snow is on the ground using aerial survey techniques, ground road surveys, or a pellet count deer survey • S.W.H. M.I.S.T. Index #2 provides development effects and mitigation measures	Absence of large (>50ha) woodlot within Study Area. No candidate habitat present.

Specialized Habitat for Wildlife

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat Study Area
Waterfowl Nesting Area **Rationale:** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland E.L.C. Ecosites are Candidate S.W.H.: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3, SWD4 NOTE Includes adjacency to Provincially Significant Wetlands.	• A waterfowl nesting area extends 120 m from a wetland (>0.5 ha) or a wetland (>0.5 ha) and any small wetlands (0.5 ha) within 120 m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur • Upland areas should be at least 120 m wide so that predators such as raccoons, skunks and foxes have difficulty finding nests • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> • Ducks Unlimited staff may know the locations of particularly productive nesting sites • M.N.R.F. Wetland Evaluations for indication of significant waterfowl nesting habitat • Reports and other information available from Conservation Authorities	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • A field study confirming waterfowl nesting habitat will determine boundary of the waterfowl nesting habitat for the S.W.H., this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest • S.W.H. M.I.S.T. Index #25 provides development effects and mitigation measures.	No wetland habitat present. No candidate habitat present.

Specialized Habitat for Wildlife

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **Rationale**: Nest sites are fairly uncommon in Eco - region 7E and are used annually by the species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey SPECIAL CONCERN Bald Eagle	E.L.C. Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. • Nests located on man-made objects are not to be included as S.W.H. (e.g. telephone poles and constructed nesting platforms) <u>Information Sources</u> • N.H.I.C. compiles all known nesting sites for Bald Eagles in Ontario • M.N.R.F. values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat • Nature Counts, Ontario Nest Records Scheme data. • O.M.N.R.F. District. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the S.W.H.. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the S.W.H., maintaining undisturbed shorelines with large trees within this area is important • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the S.W.H.. Area of the habitat from 400-800 m is dependent on sight lines from the nest to the development and inclusion of perching and foraging habitat • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid-August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • S.W.H. M.I.S.T. Index #26 provides development effects and mitigation measures	Absence of forest or swamp communities and no rivers, lakes, ponds, or wetlands in study area. No candidate habitat present.

Specialized Habitat for Wildlife

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat Study Area
Woodland Raptor Nesting Habitat **Rationale:** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested E.L.C. Ecosites. May also be found in SWC, SWM, SWD and CUP3.	• All natural or conifer plantation woodland/forest stands >30 ha with > 4 ha of interior habitat. Interior habitat determined with a 200 m buffer. • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests, within tops or crotches of trees. Species such as Cooper's Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest <u>Information Sources</u> • O.M.N.R.F. Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of one or more active nests from species list is considered significant • Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha area of habitat is the S.W.H.. The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest. • Barred Owl – A 200m radius around the nest is the S.W.H. • Broad-winged Hawk and Coopers Hawk, – A 100m radius around the nest is the S.W.H. • Sharp-Shinned Hawk – A 50m radius around the nest is the S.W.H. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • S.W.H. M.I.S.T. Index #27 provides development effects and mitigation measures	Absence of interior woodland habitat. No candidate habitat present.

Specialized Habitat for Wildlife

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Turtle Nesting Areas **Rationale:** These habitats are rare and when identified will often be the only breeding site for local populations of turtles	**Special Concern:** Midland Painted Turtle Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following E.L.C. Ecosites: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, BOO1, FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and is located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not S.W.H.. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Centre (N.H.I.C.). • Field naturalist clubs.	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtles or Snapping Turtles nesting is a S.W.H.. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30 to 100 m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the S.W.H.. • Travel routes from wetland to nesting area are to be considered within the S.W.H. as part of the 30 to 100 m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • S.W.H. M.I.S.T. Index #28 provides development effects and mitigation measures for turtle nesting habitat.	Absence of marsh and aquatic habitat. No candidate habitat present.

Specialized Habitat for Wildlife

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Seeps and Springs **Rationale:** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamanders	Seeps/springs are areas where groundwater comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	• Any forested area (with <25% meadow/field/ pasture) within the headwaters of a stream or river system • Seeps and springs are important feeding and drinking areas. Especially in the winter will support a variety of plant and animal species. <u>Information Sources</u> • Topographical Map. • Thermography. • Hydrological surveys conducted by Conservation Authorities and MOECC. • Field Naturalists Clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped	Field studies confirm: • Presence of a site with 2 or more seeps/springs should be considered S.W.H.. • The area of an E.L.C. forest ecosite or an ecoelement within ecosite containing the seeps/springs is the S.W.H.. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat • S.W.H. M.I.S.T. Index #30 provides development effects and mitigation measures	Absence of forested ecosite. No candidate habitat present.
Amphibian Breeding Habitat (Woodland) **Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations**	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these E.L.C. Community Series: FOC, FOM, FOD, SWC, SWM, SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500 m2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • O.M.N.R.F. Districts and wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or egg masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (Mar.-Jun.) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands • The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • S.W.H. M.I.S.T. Index #14 provides development effects and mitigation measures	Absence of forested habitat with breeding pools. No candidate habitat present.

Specialized Habitat for Wildlife

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Amphibian Breeding Habitat (Wetlands) **Rationale:** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	E.L.C. Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bullfrog) may be adjacent to woodlands.	• Wetlands >500m2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on M.N.R.F. mapping and could be important amphibian breeding habitats • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators • Bullfrogs require permanent water bodies with abundant emergent vegetation. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • O.M.N.R.F. Districts and wetland evaluations. • Reports and other information available from Conservation Authorities	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 or; Wetland with confirmed breeding Bullfrogs are significant • The E.L.C. ecosite wetland area and the shoreline are the S.W.H. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a S.W.H. is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • S.W.H. M.I.S.T. Index #15 provides development effects and mitigation measures	Absence of wetland and aquatic habitat. No candidate habitat present.

Specialized Habitat for Wildlife

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Woodland Area - Sensitive Bird Breeding Habitat **Rationale:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker **Special Concern:** Cerulean Warbler Canada Warbler	All Ecosites associated with these E.L.C. Community Series: FOC, FOM, FOD, SWC, SWM, SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha • Interior forest habitat is at least 200 m from forest edge habitat Information Sources: • Local birder clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered S.W.H. • Conduct field investigations in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • S.W.H. M.I.S.T. Index #34 provides development effects and mitigation measures HABITATS OF SPECIES OF CONSERVATION CONCERN	Absence of large forested habitat. No candidate habitat present.

Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Marsh Breeding Bird Habitat **Rationale:** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: all SW, MA and CUM1 sites	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water <u>Information Sources</u> • O.M.N.R.F. District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Centre (N.H.I.C.) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 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 S.W.H. • Area of the E.L.C. ecosite is the S.W.H.. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • S.W.H. M.I.S.T. Index #35 provides development effects and mitigation measures	Absence of marsh and aquatic habitat. No candidate habitat present.
Open Country Bird Breeding Habitat **Rationale; This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.**	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern: Short-eared Owl	CUM1 CUM2.	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years) • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • E.I.S. Reports and other information available from Conservation Authorities	Field studies confirm: • Presence of nesting or breeding of 2 or more of the listed species • A field with 1 or more breeding Short-eared Owls is to be considered S.W.H. • The area of S.W.H. is the contiguous E.L.C. ecosite field areas • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • S.W.H. M.I.S.T. Index #32 provides development effects and mitigation measures	Cultural meadow habitat does not meet size criteria. No candidate habitat present.

Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Shrub/Early Successional Bird Breeding Habitat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Species: Brown Thrasher Clay-coloured Sparrow Common Species: Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	• Large field areas succeeding to shrub and thicket habitats >10 ha in size • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row- cropping, haying or live-stock pasturing in the last 5 years) • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands <u>Information Sources</u> • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities	Field studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat • The area of the S.W.H. is the contiguous E.L.C. ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • S.W.H. M.I.S.T. Index #33 provides development effects and mitigation measures	Cultural communities do not meet size criteria. No candidate habitat present.
Terrestrial Crayfish **Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.**	Chimney or Digger Crayfish; (Fallicambarus fodiens) Devil Crayfish or Meadow Crayfish; (Cambarus diogenes)	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, MAS1, MAS2, MAS3, SWD, SWT, SWM CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish	• Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish • Constructs burrows in marshes, mudflats, meadows, the ground can’t be too moist. Can often be found far from water • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well- formed. Information Sources • Information sources from “Conservation Status of Freshwater Crayfishes” by Dr. Premek Hamr for the WWF and CNF, March, 1998	Studies confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites • Area of E.L.C. ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the S.W.H. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult • S.W.H. M.I.S.T. Index #36 provides development effects and mitigation measures	Absence of wet meadow or marsh communities. No candidate habitat present.

Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Special Concern and Rare Wildlife Species **Rationale:** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1, S2, S3, SH) plant and animal species. Lists of these species are tracked by the N.H.I.C.	All plant and animal element occurrences (EOs) within a 1 km or 10 km grid. Older EOs were recorded prior to GPS being available, therefore location information may lack accuracy	• When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to E.L.C. Ecosites <u>Information Sources</u> • Natural Heritage Information Centre (N.H.I.C.) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • N.H.I.C. Website “Get Information”: http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. Have little information available about their requirements	Studies confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest E.L.C. scale that protects the habitat form and function is the S.W.H., this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat. • S.W.H. M.I.S.T. Index #37 provides development effects and mitigation measures	Yes; potential for Special Concern or rare species occurrences within the Study Area. Vegetation inventory and incidental wildlife observations documented.
Cliffs and Talus Slopes **Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario**	Any E.L.C. Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3 m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris..	• Most cliff and talus slopes occur along the Niagara Escarpment Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats • O.M.N.R.F. Districts • Natural Heritage Information Centre (N.H.I.C.) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	• Confirm any E.L.C. Vegetation Type for Cliffs or Talus Slopes • S.W.H. M.I.S.T. Index #21 provides development effects and mitigation measures	No cliffs or talus slopes within Study Area. No candidate habitat present.

Rare Vegetation Communities

Rare Vegetation Community	E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Description	Candidate S.W.H. Detailed Information and Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Sand Barren **Rationale:** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	E.L.C. Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60%	Sand barrens typically are exposed sand, generally sparsely vegetated and caused by a lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	• A sand barren area >0.5 ha in size <u>Information Sources</u> • The Niagara Escarpment Commission has detailed information on location of these habitats • O.M.N.R.F. Districts • Natural Heritage Information Centre (N.H.I.C.) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	• Confirm any E.L.C. Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) • S.W.H. M.I.S.T. Index #20 provides development effects and mitigation measures	No exposed sand within Study Area. No candidate habitat present.
Alvar **Rationale: Alvars are extremely rare habitats in Ecoregion 7E.**	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 Five Alvar Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum These indicator species are very specific to Alvars within Ecoregion 7E	An Alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover	• An Alvar site >0.5 ha in size • Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie Information Sources • Alvars of Ontario (Federation of Ontario Naturalists, 2000) • Conserving Great Lakes Alvars (Ontario Nature) • O.M.N.R.F. Districts • Natural Heritage Information Centre (N.H.I.C.) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	• Field studies identify that four of the five Alvar Indicator Species at a Candidate Alvar Site is significant • Site must not be dominated by exotic of introduced species (<50% vegetative cover are exotic spp.) • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses • S.W.H. M.I.S.T. Index #17 provides development effects and mitigation measures	No alvars present in Study Area. No candidate habitat present.

Rare Vegetation Communities

Rare Vegetation Community	E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Description	Candidate S.W.H. Detailed Information and Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Old Growth Forest **Rationale:** Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 7E.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth Forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi- layered canopy and an abundance of snags and downed woody debris.	• Woodland area is >0.5 ha <u>Information Sources</u> • O.M.N.R.F. Forest Resource Inventory mapping • O.M.N.R.F. Districts • Field Naturalist Clubs • Conservation Authorities • Sustainable Forestry License (SFL) companies will possibly know locations through field operations • Municipal forestry departments	Field studies will determine: • If dominant tree species of the forest are >140 years old, then the area containing these trees is S.W.H. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) • The area of forest ecosites combined or an ecoelement within an ecosite that contain the old growth characteristics is the S.W.H. • Determine E.L.C. vegetation types for the forest area containing the old growth characteristics • S.W.H. M.I.S.T. Index #23 provides development effects and mitigation measures	Absence of mature FOD communities; No candidate habitat present.
Savannah **Rationale: Savannahs are extremely rare habitats in Ontario.**	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25-60% In Ecoregion 7E, known tallgrass prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	• No minimum size to site • Site must be restored or a natural site. Remnant sites such as railway right-of-ways are not considered S.W.H. Information Sources • Natural Heritage Information Centre (N.H.I.C.) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	Field studies confirm: • One or more of the Savannah indicator species listed in Appendix N should be present. Note: savannah plant spp. List from Ecoregion 7E should be used. • Area of the E.L.C. Ecosite is the S.W.H. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) • S.W.H. M.I.S.T. Index #18 provides development effects and mitigation measures.	No savannahs present in Study Area. No candidate habitat present.

Rare Vegetation Communities

Rare Vegetation Community	E.L.C. Ecosite Codes	Candidate S.W.H. Habitat Description	Candidate S.W.H. Detailed Information and Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario	TPO1 TPO2	A tallgrass prairie has ground cover dominated by prairie grasses. An open tallgrass prairie habitat has <25% tree cover. In Ecoregion 7E, known tallgrass prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	• No minimum size to site • Site must be restored or a natural site. Remnant sites such as railway right-of-ways are not considered S.W.H. <u>Information Sources</u> • Natural Heritage Information Centre (N.H.I.C.) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	Field studies confirm: • One or more of the Prairie indicator species listed in Appendix N should be present. Note: savannah plant spp. List from Ecoregion 7E should be used. • Area of the E.L.C. Ecosite is the S.W.H. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) • S.W.H. M.I.S.T. Index #19 provides development effects and mitigation measures.	No tallgrass prairie habitat in Study Area. No candidate habitat present.
Other Rare Vegetation Communities **Rationale: Plant communities that often contain rare species which depend on the habitat for survival.**		Provincially rare (S1, S2, S3) vegetation communities are listed in Appendix M of the Significant Wildlife Habitat Technical Guide (M.N.R.F., 2000). Any E.L.C. Ecosite Code that has a possible E.L.C. Vegetation Type that is provincially rare is candidate S.W.H.. Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	• E.L.C. Ecosite codes that have the potential to be a rare E.L.C. Vegetation Type as outlined in Appendix M of the Significant Wildlife Habitat Technical Guide (M.N.R.F., 2000). • M.N.R.F./N.H.I.C. will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Centre (N.H.I.C.) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	• Field studies should confirm if an E.L.C. Vegetation Type is a rare vegetation community based on listing within Appendix M of the Significant Wildlife Habitat Technical Guide (M.N.R.F., 2000). • Area of the E.L.C. Vegetation Type polygon is the S.W.H.. • S.W.H. M.I.S.T. Index #37 provides development effects and mitigation measures.	Study area only contains culturally influenced communities which are not provided a provincial status rank. No candidate habitat present.

Animal Movement Corridors

Habitat Type	Wildlife Species	Candidate S.W.H. E.L.C. Ecosites Codes	Candidate S.W.H. Habitat Criteria and Information Sources	Confirmed S.W.H. Defining Criteria	Assessment of Habitat in Study Area
Amphibian Movement Corridors **Rationale:** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	• Movement corridors between breeding habitat and summer habitat • Movement corridors must be determined when amphibian breeding habitat is confirmed as S.W.H. (Amphibian Breeding Habitat, Wetland) <u>Information Sources</u> • M.N.R.F. District Office. • Natural Heritage Information Centre (N.H.I.C.). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat • S.W.H. M.I.S.T. Index #40 provides development effects and mitigation measures	Absence of candidate amphibian breeding habitat. No candidate habitat present.

Appendix C Data Summaries

C.1. Vegetation Inventory and ELC Summaries

Table C1: Vegetation Inventory

ORDER	FAMILY	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM (NHIC SEP 19 2023)	WETNESS INDEX (NHIC SEP 19 2023)	OWES WETLAND SPECIES	WEEDINESS INDEX	INVASIVE EXOTIC RANK (Urban Forest Associates 2002)	PROVINCIALLY TRACKED (NHIC) (NHIC FEB 6 2024)	PROVINCIAL STATUS (S-RANK) (NHIC FEB 6 2024)	GLOBAL STATUS (G-RANK) (NHIC FEB 6 2024)	SARO (MNRF) (NHIC FEB 6 2024)	COSEWIC STATUS (NHIC FEB 6 2024)	NIAGARA (Oldham 2010)	CAROLINIAN ZONE (Oldham 2017)	SPECIES CODE	AUTHORITY
DICOTYLEDONS	Anacardiaceae	Rhus typhina	Staghorn Sumac	1	3				N	S5	G5			C	C	RHUTYPH	L.
DICOTYLEDONS	Anacardiaceae	Toxicodendron radicans var. radicans	Eastern Poison Ivy	2	0	T			N	S5	G5T5			C	C	TOXRARA	(L.) Kuntze
DICOTYLEDONS	Apiaceae	Daucus carota	Wild Carrot		5		-2		N	SNA	GNR			IC	IC	DAUCARO	L.
DICOTYLEDONS	Asteraceae	Achillea millefolium	Common Yarrow		3		-1		N	SNA	G5			C	IX	ACHMILL	L.
DICOTYLEDONS	Asteraceae	Ambrosia trifida	Great Ragweed	0	0				N	S5	G5			C	C	AMBTRIF	L.
DICOTYLEDONS	Asteraceae	Arctium minus	Common Burdock		3		-2		N	SNA	GNR			IC	IC	ARCMINU	(Hill) Bernh.
DICOTYLEDONS	Asteraceae	Leucanthemum vulgare	Oxeye Daisy		5		-1		N	SNA	GNR			IC	IC	LEUVULG	Lam.
DICOTYLEDONS	Asteraceae	Solidago altissima var. altissima	Tall Goldenrod	1	3				N	S5	G5			C	C	SOLALAL	L.
DICOTYLEDONS	Asteraceae	Solidago canadensis	Canada Goldenrod	1	3				N	S5	G5			C		SOLCANA	L.
DICOTYLEDONS	Asteraceae	Symphyotrichum lanceolatum	Panicled Aster	3	-3	I			P	S5	G5			C	C	SYMLANC	(Willd.) G.L. Nesom
DICOTYLEDONS	Balsaminaceae	Impatiens capensis	Spotted Jewelweed	4	-3	I			N	S5	G5			C	C	IMPCAPE	Meerburgh
DICOTYLEDONS	Bignoniaceae	Catalpa speciosa	Northern Catalpa		3		-1		N	SNA	G4?			IR	IR	CATSPEC	Warder ex Engelm.
DICOTYLEDONS	Brassicaceae	Alliaria petiolata	Garlic Mustard		0		-3	1	N	SNA	GNR			IC	IC	ALLPETI	(M. Bieb.) Cavara & Grande
DICOTYLEDONS	Brassicaceae	Barbarea vulgaris	Bitter Wintercress		0		-1	3	N	SNA	GNR			IC	IC	BARVULG	W.T. Aiton
DICOTYLEDONS	Brassicaceae	Hesperis matronalis	Dame's Rocket		3		-3	1	N	SNA	G4G5			IC	IC	HESMATR	L.
DICOTYLEDONS	Caprifoliaceae	Dipsacus fullonum	Common Teasel		3		-1	3	N	SNA	GNR			IC	IC	DIPFULL	L.
DICOTYLEDONS	Caprifoliaceae	Lonicera tatarica	Tartarian Honeysuckle		3		-3	1	N	SNA	GNR			IC	IC	LONTATA	L.
DICOTYLEDONS	Cornaceae	Cornus obliqua	Silky Dogwood	2	-3	I			N	S5	G5			C	C	COROBLI	Rafinesque
DICOTYLEDONS	Cornaceae	Cornus racemosa	Grey Dogwood	2	0	T			N	S5	G5			C	C	CORRACE	Lamarck
DICOTYLEDONS	Fabaceae	Lotus corniculatus	Garden Bird's-Foot Trefoil		3		-2	2	N	SNA	GNR			IC	IC	LOTCORN	L.
DICOTYLEDONS	Fabaceae	Trifolium repens	White Clover		3		-1	4	N	SNA	GNR			IC	IC	TRIREPE	L.
DICOTYLEDONS	Fagaceae	Quercus macrocarpa	Bur Oak	5	3	T			N	S5	G5			U	C	QUEMACR	Michaux
DICOTYLEDONS	Grossulariaceae	Ribes rubrum	European Red Currant		5	T	-2		N	SNA	G4G5			IC	IX	RIBRUBR	L.
DICOTYLEDONS	Juglandaceae	Juglans nigra	Black Walnut	5	3				N	S4?	G5			C	C	JUGNIGR	L.
DICOTYLEDONS	Lamiaceae	Glechoma hederacea	Ground-Ivy		3		-2	4	N	SNA	GNR			IC	IC	GLEHEDE	L.
DICOTYLEDONS	Oleaceae	Fraxinus pennsylvanica	Red Ash	3	-3	T			N	S4	G4			C	C	FRAPENN	Marshall
DICOTYLEDONS	Oleaceae	Ligustrum vulgare	European Privet		3		-2	4	N	SNA	GNR			IC	IX	LIGVULG	L.
DICOTYLEDONS	Onagraceae	Epilobium coloratum	Purple-Veined Willowherb	3	-5	I			N	S5	G5			C	C	EPICOLO	Biehler
DICOTYLEDONS	Oxalidaceae	Oxalis stricta	European Wood-Sorrel		3				N	SNA	G5			C	C	OXASTRI	L.
DICOTYLEDONS	Polygonaceae	Rumex crispus	Curled Dock		0	T	-2		N	SNA	GNR			IC	IC	RUMCRIS	L.
DICOTYLEDONS	Primulaceae	Lysimachia nummularia	Creeping Yellow Loosestrife		-3		-3	2	N	SNA	GNR			IC	IC	LYSNUMM	L.
DICOTYLEDONS	Rosaceae	Fragaria virginiana	Wild Strawberry	2	3				N	S5	G5			C	C	FRAVIRG	Miller
DICOTYLEDONS	Rosaceae	Geum aleppicum	Yellow Avens	2	0	T			N	S5	G5			C	C	GEUALEP	Jacquin
DICOTYLEDONS	Rosaceae	Geum canadense	White Avens	3	0	T			N	S5	G5			C	C	GEUCANA	Jacquin
DICOTYLEDONS	Rosaceae	Potentilla simplex	Old Field Cinquefoil	3	3				N	S5	G5			C	C	POTSIMP	Michaux
DICOTYLEDONS	Rosaceae	Prunus virginiana var. virginiana	Chokecherry	2	3				N	S5	G5T5			C	C	PRUVIRG	L.
DICOTYLEDONS	Rosaceae	Pyrus communis	Common Pear		5		-1		N	SNA	G5			IC	IU	PYRCOMM	L.
DICOTYLEDONS	Rosaceae	Rosa canina	Dog Rose		5		-1		N	SNA	GNR			IC	IX	ROSCANI	L.
DICOTYLEDONS	Rosaceae	Rosa multiflora	Multiflora Rose		3		-3	1	N	SNA	GNR			IC	IC	ROSMULT	Thunberg
DICOTYLEDONS	Rosaceae	Rubus occidentalis	Black Raspberry	2	5				N	S5	G5			C	C	RUBOCCI	L.
DICOTYLEDONS	Rubiaceae	Galium aparine	Common Bedstraw	4	3				N	S5	G5			C	C	GALAPAR	L.
DICOTYLEDONS	Salicaceae	Populus deltoides ssp. deltoides	Eastern Cottonwood	4	0	T			N	S5	G5T5			C	C	POPDEDE	Bartram ex Marshall
DICOTYLEDONS	Salicaceae	Salix discolor	Pussy Willow	3	-3	I			N	S5	G5			C	C	SALDISC	Muhlenberg
DICOTYLEDONS	Sapindaceae	Acer negundo	Manitoba Maple	0	0	T		1	N	S5	G5			C	C	ACENEGU	L.
DICOTYLEDONS	Sapindaceae	Acer platanoides	Norway Maple		5		-3	2	N	SNA	GNR			IC	IU	ACEPLAT	L.
DICOTYLEDONS	Sapindaceae	Acer saccharinum	Silver Maple	5	-3	I			N	S5	G5			C	C	ACESACC	L.
DICOTYLEDONS	Ulmaceae	Ulmus americana	White Elm	3	-3	T			N	S5	G4			C	C	ULMAMER	L.
DICOTYLEDONS	Verbenaceae	Verbena urticifolia	White Vervain	4	0	T			N	S5	G5			C	C	VERURTI	L.
DICOTYLEDONS	Viburnaceae	Viburnum opulus var. opulus	Cranberry Viburnum		-3		-1	4	N	SNA	G5TNR			IC	IX	VIBOPOP	
DICOTYLEDONS	Vitaceae	Parthenocissus vitacea	Thicket Creeper	4	3				N	S5	G5			C	C	PARVITA	(Knerr) Hitchcock
DICOTYLEDONS	Vitaceae	Vitis riparia	Riverbank Grape	0	0				N	S5	G5			C	C	VITRIPA	Michaux
MONOCOTYLEDONS	Cyperaceae	Carex blanda	Woodland Sedge	3	0				N	S5	G5			C	C	CARBLAN	Dewey
MONOCOTYLEDONS	Cyperaceae	Carex vulpinoidea	Fox Sedge	3	-5	I			N	S5	G5			C	C	CARVULP	Michaux
MONOCOTYLEDONS	Cyperaceae	Scirpus cyperinus	Common Woolly Bulrush	4	-5	I			N	S5	G5			C	C	SCICYPE	(L.) Kunth
MONOCOTYLEDONS	Juncaceae	Juncus effusus	Soft Rush	4	-5				N	S5	G5			C	C	JUNEFFU	L.
MONOCOTYLEDONS	Juncaceae	Juncus tenuis	Path Rush	0	0				N	S5	GNR			C	C	JUNTENU	Willdenow
MONOCOTYLEDONS	Poaceae	Dactylis glomerata	Orchard Grass		3		-1	3	N	SNA	GNR			IC	IC	DACGLOM	L.
MONOCOTYLEDONS	Poaceae	Festuca rubra	Red Fescue		3				P	S5	G5			IC	IC	FESRUBR	L.
MONOCOTYLEDONS	Poaceae	Glyceria striata	Fowl Mannagrass	3	-5	I			N	S5	G5			C	C	GLYSTRI	(Lam.) Hitchcock
MONOCOTYLEDONS	Poaceae	Phalaris arundinacea var. arundinacea	Reed Canary Grass	0	-3	T		P	N	S5	G5TNR			C	C	PHAARAR	L.
MONOCOTYLEDONS	Poaceae	Phleum pratense ssp. pratense	Common Timothy		3		-1		N	SNA	GNRTNR			IC	IC	PHLPRAT	L.
MONOCOTYLEDONS	Poaceae	Phragmites australis ssp. australis	European Reed		-3	T		1	N	SNA	G5T5			IC	IC	PHRAUAU	(Cav.) Trinius ex Steudel
MONOCOTYLEDONS	Poaceae	Poa pratensis	Kentucky Bluegrass	0	3			2	P	S5	G5			IC		POAPRAT	L.
PTERIDOPHYTES	Equisetaceae	Equisetum arvense	Field Horsetail	0	0	T			N	S5	G5			C	C	EQUARVE	L.

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJECT NAME: 132 College St Smithville		POLYGON: 1
	SURVEYOR(S): A. McDonald	DATE: June 10, 2025	PHOTO:
	START: 1330	END: 1630	UTM: 618,650; 4,772,741

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☒ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☐ TABLELAND		☐ LICHEN	☐ SWAMP
		☒ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☒ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☒ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
☒ SURFICIAL DEP.	☒ TREED
☐ BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>>MUCH GREATER THAN; >GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	ULMAMER>ACEPLAT>JUGNIGR>POPDELT
2	SUB-CANOPY	3	3	ACENEGU>>FRAPENN>ULMAMER>>ACESACC
3	UNDERSTOREY	4,5	3	LONTATA>>ROSMULT>RHACATH=SALDISC
4	GRD. LAYER	6,7	3	SOLCANA>IMPCAPE>>FRAVIRG=SYMLANC

HT CODES: **1**=>25m **2**=10<HT≤25m **3**=2<HT≤10m **4**=1<HT≤2m **5**=0.5<HT≤1m **6**=0.2<HT≤0.5m **7**=HT<0.2m

CVR CODES: **0**=NONE **1**=0%<CVR≤10% **2**=10<CVR≤25% **3**=25<CVR≤60% **4**=CVR>60%

SIZE CLASS ANALYSIS:	A	<10	A	10 – 24	O	25 – 50	N	>50
STANDING SNAGS:	R	<10	O	10 – 24	A	25 – 50	R	>50
DEADFALL/LOGS:	R	<10	O	10 – 24	A	25 – 50	R	>50

ABUNDANCE CODES: **N**=NONE **R**=RARE **O**=OCCASIONAL **A**=ABUNDANT

WOODLAND MATURITY:		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ASSESSMENT:	#1	#2	#3	#4	SOIL PROFILE
TEXTURE:	SiC				
DEPTH TO MOTTLES (g):	37				
DEPTH TO GLEY (G):	-				
DEPTH OF ORGANICS:	0				
DEPTH TO BEDROCK:	-				
MOISTURE REGIME:	5				

COMMUNITY CLASSIFICATION:

ECOSITE: Mineral Cultural Woodland		CODE: CUW1
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

Notes:

LAYERS: **1**=CANOPY>10m **2**=SUB-CANOPY **3**=UNDERSTOREY **4**=GROUND (GRD.) LAYER
ABUNDANCE CODES: **N**=NONE **R**=RARE **O**=OCCASIONAL **A**=ABUNDANT **D**=DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COLL.
ACENEGU	R	D	O		
ACESACC	N	N	R	R	
FRAPENN	R	O	A	O	
JUGNIGR	O	R	N	R	
ULMAMER	D	O	R	R	
ACEPLAT	A	O	R	R	
QUEMACR	N	N	R	R	
PYRCOMM	N	R	N	N	
POP DELT	R	N	N	R	
VIBOPUL	N	N	R	N	
RUBOCCI	N	N	O	N	
RUBODO	N	N	N	R	
LIGVULG	N	N	R	N	
PARVITA	N	N	N	O	
CORRACE	N	N	O	R	
RIBRUBR	N	N	R	R	
PRUVIRG	N	N	R	N	
CORAMOM	N	N	O	N	
VITRIPA	N	N	N	O	
ROSCANI	N	N	R	N	
RHACATH	N	N	O	O	
ROSMULT	N	N	A	O	
LONTATA	N	N	D	R	
SALDISC	N	N	O	N	

SPECIES CODE	LAYER 1	2	3	4	COLL.
FRAVIRG	N	N	N	A	
IMPCAPE	N	N	N	A	
HESMATR	N	N	N	O	
ARCMINU	N	N	N	O	
SOLCANA	N	N	N	D	
LYSMACH	N	N	N	A	
SYMLANC	N	N	N	O	
GEUCANA	N	N	N	O	
GALAPAR	N	N	N	R	
EQUARVE	N	N	N	O	
DIPFULL	N	N	N	R	
EPICOLO	N	N	N	R	
RUMCRIS	N	N	N	R	
SOLALTI	N	N	N	R	
PHALARUN	N	N	N	O	
VERUTRI	N	N	N	R	
GLYSTRI	N	N	N	R	
CARBLAN	N	N	N	O	
CARVULP	N	N	N	R	
AMBTRIF	N	N	N	O	
POAPRAT	N	N	N	O	
FESRUBR	N	N	N	R	
GLEHEDE	N	N	N	O	
DACGLOM	N	N	N	O	
BARVULG	N	N	N	R	
PHLPRAT	N	N	N	R	
ALLPETI	N	N	N	O	
OXASTRI	N	N	N	R	
GEUALEP	N	N	N	R	
TOXRADI	N	N	N	O	

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJECT NAME: 132 College St Smithville		POLYGON: 2
	SURVEYOR(S): A. McDonald	DATE: June 10, 2025	PHOTO:
	START: 1330	END: 1630	UTM: 618,640; 4,772,772

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☒ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☒ MINERAL SOIL	☐ RIVERINE	☒ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
	☐ ACIDIC BEDRK.	☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ BASIC BEDRK.	☐ VALLEY SLOPE		☐ FORB	☐ MARSH
	☐ CARB. BEDRK.	☐ TABLELAND		☐ LICHEN	☐ SWAMP
		☒ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☒ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE / CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH / BAR			☐ SAVANNAH
		☐ SAND DUNE			☒ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
☒ SURFICIAL DEP.	☒ TREED
☐ BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>>MUCH GREATER THAN; >GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	POPDELT>>ULMAMER
2	SUB-CANOPY	3	1	ACENEGU>>FRAPENN
3	UNDERSTOREY	4,5	2	LONTATA>FRAPENN=ACENEGU>CORRACE
4	GRD. LAYER	6,7	4	SOLCANA>DIPFULL=POAPRAT=PHLPRAT

HT CODES: **1**=>25m **2**=10<HT≤25m **3**=2<HT≤10m **4**=1<HT≤2m **5**=0.5<HT≤1m **6**=0.2<HT≤0.5m **7**=HT<0.2m

CVR CODES: **0**=NONE **1**=0%<CVR≤10% **2**=10<CVR≤25% **3**=25<CVR≤60% **4**=CVR>60%

SIZE CLASS ANALYSIS:	A	<10	R	10 – 24	N	25 – 50	N	>50
STANDING SNAGS:	N	<10	N	10 – 24	N	25 – 50	N	>50
DEADFALL/LOGS:	N	<10	N	10 – 24	N	25 – 50	N	>50

ABUNDANCE CODES: **N**=NONE **R**=RARE **O**=OCCASIONAL **A**=ABUNDANT

WOODLAND MATURITY:	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ASSESSMENT:	#1	#2	#3	#4	SOIL PROFILE
TEXTURE:	SiCL				
DEPTH TO MOTTLES (g):	>30				
DEPTH TO GLEY (G):	-				
DEPTH OF ORGANICS:	0				
DEPTH TO BEDROCK:	-				
MOISTURE REGIME:	5				

COMMUNITY CLASSIFICATION:

ECOSITE:	Mineral Cultural Thicket	CODE:	CUT1
VEGETATION TYPE:		CODE:	
INCLUSION		CODE:	
COMPLEX	Dry-Fresh Old Field Meadow	CODE:	CUM1-1

Notes:

LAYERS: **1**=CANOPY>10m **2**=SUB-CANOPY **3**=UNDERSTOREY **4**=GROUND (GRD.) LAYER
ABUNDANCE CODES: **N**=NONE **R**=RARE **O**=OCCASIONAL **A**=ABUNDANT **D**=DOMINANT

SPECIES CODE	LAYER 1	2	3	4	COLL.	SPECIES CODE	LAYER 1	2	3	4	COLL.
ACENEGU	N	O	A	O		POAPRAT	N	N	N	A	
ACESACC	N	N	R	N		GLYSTRI	N	N	N	O	
FRAPENN	N	R	A	O		RUMCRIS	N	N	N	R	
CATSPEC	N	N	R	N		LYSMACH	N	N	N	O	
ULMAMER	N	R	O	R		DIPFULL	N	N	N	A	
POPDELT	D	N	N	R		DACGLOM	N	N	N	O	
						SYMLANC	N	N	N	O	
						SOLCANA	N	N	N	D	
						CARBALN	N	N	N	R	
						JUNTENU	N	N	N	O	
						FRAVIRG	N	N	N	A	
						HESMATR	N	N	N	O	
						SCICYPE	N	N	N	R	
						PHLPRAT	N	N	N	A	
						ARCMINU	N	N	N	O	
						JUNEFFU	N	N	N	R	
						SOLALTI	N	N	N	R	
						DAUCARO	N	N	N	O	
						GEUALEP	N	N	N	R	
						AMBTRIF	N	N	N	O	
						LOTCORN	N	N	N	R	
						TOXRADI	N	N	N	R	
PARVITA	N	N	N	R		ACHMILL	N	N	N	R	
CORRACE	N	N	O	R							
CORAMOM	N	N	R	R							
VITRIPA	N	N	N	R							
RHUTYPH	N	N	R	O							
LONTATA	N	N	D	O							
SALDISC	N	N	R	N							