Environmental Impact Study

Part of East Half Lot 11, Conc. 5,

Town of Adjala-Tosorontio, County of Simcoe

Prepared for:
Mr. Alvin Young

Prepared by:
Azimuth Environmental
Consulting, Inc.

May 2017

AEC 15-313

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

May 4, 2017 AEC 15-313

Winzen
30 Algie Avenue
Toronto, ON
M8Z 5J8

ATTN: Alvin Young

Re: Environmental Impact Study, Everett Development, Part of East Half Lot 11, Con. 5, Township of Adjala-Tosorontio, County of Simcoe

Dear Mr. Young:

Azimuth Environmental Consulting, Inc. was retained to complete an Environmental Impact Study assessing the potential for negative environmental impacts associated with the development proposed on the abovementioned property. Azimuth has completed all activities and surveys required to satisfy the informational requirements of the Town of Adjala-Tosorontio and the Nottawasaga Valley Conservation Authority. The results of our study conclude that the development will have no negative impacts on the majority of natural heritage features and functions within or beyond the development footprint, if the appropriate mitigation measures are followed. The proposed use of the property appears consistent with the adjacent residential land use, and the existing form and function of the natural heritage features and functions, wildlife habitat, fish habitat, and vegetation communities in the area are anticipated to remain unaffected post development. Further study is required to determine if the development will impact natural heritage features influenced by local hydrology and potential Species at Risk Habitat. If you have any questions or concerns regarding this matter, please do not hesitate to contact me.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

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Terrestrial Ecologist

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1.0 INTRODUCTION

Azimuth Environmental Consulting, Inc. (Azimuth) was retained to prepare an Environmental Impact Study (EIS) for the proposed residential development located at Part of East Half Lot 11, Concession 5, Township of Adjala-Tosorontio (Township), County of Simcoe (County; Figure 1).

This EIS characterizes and assesses the natural heritage features of the property, defines the environmental constraints, discusses the potential environmental impacts of the proposed development and identifies mitigation measures that can be implemented to further reduce impact of the development.

2.0 STUDY APPROACH

The following outlines the activities undertaken to satisfy the informational requirements of the Nottawasaga Valley Conservation Authority (NVCA) in the production of the EIS.

2.1 Background Data

A review of background documents provided information on site characteristics, habitat, wildlife, rare species and communities, and general cultural/historic aspects of the property. This included a review of the following:

- Aerial images (Google, VuMap);
- Atlas of the Breeding Birds of Ontario (OBBA) [website];
- The Ministry of Natural Resources and Forestry (MNRF)'s NHIC Make-A-Map: Natural Heritage Areas application[website];
- Ontario Nature – Ontario Reptile and Amphibian Atlas [website];
- MNRF's Species at Risk Ontario list; and
- Atlas of the Mammals of Ontario (Dobbyn, 1994).

2.2 Methodology and Surveys

2.2.1 Scope of Work

Azimuth contacted the NVCA with a proposed Terms of Reference (Appendix A). The scope of work is described in detail below.

2.2.2 Vegetation Community Mapping and Surveys

The Ecological Land Classification for Southern Ontario (ELC; Lee *et al*., 1998) was used as a general guide to the classification of the vegetation community types. Prior to undertaking the field studies, Azimuth completed a cursory classification of habitats using recent air photo imagery for the property. General vegetation community types

were confirmed and refined through on-site surveys conducted on October 15th, 2015, June 8th, 2016, and August 8th, 2016. The data regarding the ELC classification and vegetation observed are presented in Tables 1 and 2.

2.2.3 Nottawasaga Valley Conservation Authority Feature Delineation

A feature delineation exercise was completed with the NVCA (Dave Featherstone) on October 6, 2016 to identify the limit of the wetland habitat intersecting the proposed development footprint. This wetland limit has been shown on Figure 2.

2.2.4 Wildlife Surveys

General

Observations of mammals, birds, amphibians, and reptiles were recorded during the field investigation (through direct observation and through interpretation of sign [tracks, scats, vocalizations, *etc*.]). Candidate Significant Wildlife Habitat (SWH) functions were evaluated according to provincial criteria (Significant Wildlife Habitat Technical Guide [OMNR, 2000]; Ecoregion 6E Criterion Schedule [MNRF, 2015; Table 3]).

Birds

Two dawn breeding bird surveys were conducted on June 8th and June 24th, 2016. Surveys were comprised of a combined point count (5 minute duration) protocol, based on the OBBA Guide for Participants (OBBA, 2001) and a roving survey methodology. Point count stations were established and all birds identified through visual or auditory confirmation were recorded at each station. The locations of the point count stations are shown on Figure 2. Breeding evidence was assessed based on the criteria of the OBBA (2001). The dates, weather conditions, and results of the surveys can be found in Table 4.

Reptiles and Amphibians (Herpetofauna)

Three nocturnal breeding amphibian surveys were conducted on April 28th, May 22nd and June 16th, 2016, following the protocols of the Marsh Monitoring System (Bird Studies Canada, 2009). Survey stations were established and all amphibians identified through auditory means were recorded during a three minute period. The dates, weather conditions, and results of the surveys can be found in Table 5.

No specific survey for reptiles was conducted.

Aquatic Habitat

A fish and fish habitat survey was completed by Azimuth staff on April 13, 2017 to assess the form and function of any watercourses or drainage features on the property, and determine if fish habitat is present. No fish sampling was completed as part of this study.

Species at Risk

The Species at Risk (SAR) screening included an analysis of the habitat requirements of SAR reported to occur in the overall planning area to identify those having potential to occur on or adjacent to the property, based on habitats present. The MNRF was contacted as a part of the EIS report (Appendix A). No response has been received at this time. Habitat requirements and appropriate designations (END, Threatened [THR], or Special Concern [SC]) for all species included in the screening are outlined in Table 6.

Species specific surveys have been completed for known SAR: Butternut. At this time, all Butternuts found on the property have been mapped and have been assessed according to the Butternut Health Assessment protocol (MNRF, 2013).

Bat Snag Assessments have occurred to document the location of candidate maternity roosting habitat for bat species (Tri-colored Bat, Northern Long-Eared Bat, and Small-footed Bat) within the impacted woodland areas as per the Bat and Bat Habitats: Guidelines for Wind Power Projects protocol (OMNR, 2011). Plots with 12.5m radius plots were established within all candidate ELC communities, and all candidate trees within those plots were identified.

3.0 PLANNING CONTEXT

3.1 Provincial Policy Statement (2014)

The *Planning Act* requires that planning decisions shall be consistent with the *Provincial Policy Statement*, 2014 (PPS; MMAH, 2014). According to the PPS development and site alteration shall not be permitted in:

- Significant wetlands in Ecoregions 5E, 6E and 7E; and
- Significant coastal wetlands.

Similarly, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, development and site alteration shall not be permitted within:

- Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
- Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
- Significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);

- Significant wildlife habitat;
- Significant areas of natural and scientific interest; and
- Coastal wetlands in Ecoregions 5E, 6E and 7E that are not considered to be significant.

Section 2.1.6 of the PPS states that development and site alteration is not permitted in fish habitat except in accordance with federal and provincial requirements.

Section 2.1.7 of the PPS states that development and site alteration shall not be permitted in habitat of END and THR species, except in accordance with provincial and federal requirements.

Under Section 2.1.8 of the PPS, no development and site alteration will be permitted on lands adjacent to natural heritage features and areas defined above unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated there will be no negative impacts on the natural features and ecological functions.

It is ultimately the responsibility of the Province and/or the Municipality to designate areas identified within Section 2.1.4 of the PPS as significant. The Natural Heritage Reference Manual (NRHM; OMNR, 2010) and Ecoregion 6E SWH Criterion Schedule (OMNR, 2015; Table 3) were used to identify candidate features considered applicable to the property and adjacent lands.

3.2 Endangered Species Act (Ontario)

Ontario's *Endangered Species Act*, 2007 (ESA) provides regulatory protection to END and THR species, prohibiting harassment, harm and/or killing of individuals and destruction of their habitats. Habitat is broadly characterized within the ESA as the area prescribed by a regulation as the habitat of the species, or, an area on which the species depends, directly or indirectly, to carry on its life processes including reproduction, rearing of young, hibernation, migration or feeding.

The various schedules of the ESA identify SAR in Ontario. These include species listed as Extirpated (EXT), END, THR, SC. As noted above, only species listed as END and THR receive protection through the ESA from harm and destruction to habitat on which they depend. Species designated as SC may receive protection under the SWH provisions of the PPS.

According to Section 9.(1)(a) of the ESA, "no person shall kill, harm, harass, capture or take a living member of a species that is listed on the [SAR] in Ontario List as an [EXT, END or THR] species".

Section 10.(1) of the ESA prohibits damage to habitat stating that "no person shall damage or destroy the habitat of a species that is listed on the [SAR] in Ontario List as an END or THR species; or a species that is listed on the [SAR] in Ontario List as an EXT species, if the species is prescribed by the regulations for the purpose of this clause".

As per Section 17.(1) of the ESA "the Minister may issue a permit to a person that, with respect to a species specified in the permit that is listed on the [SAR] in Ontario List as an EXT, END or THR species, authorizes the person to engage in an activity specified in the permit that would otherwise be prohibited by section 9 or 10".

3.3 County of Simcoe

Land Use Designations Schedule 5.1 of the County's Official Plan (2016) shows the property as being partially located within the Settlement Area of Everett. It is the County's goal to focus population and employment growth and development within settlements. Specific land use designations within the Settlement Area boundaries are defined within the local municipal plan (Section 3.5.5 of the County Official Plan).

Schedule 5.4 shows that the property is also partially located within the County's Natural Heritage System (Appendix B) which is considered to be part of the County's Greenland System. It is the objective within the Greenlands System to improve the character, form and function of the natural heritage system, thereby improving biodiversity and ecological integrity of the County's natural heritage areas (Section 3.8.1 and 3.8.2 of the Official Plan).

The County's Natural Heritage System is comprised of the following features:

- Habitat of END species and THR species;
- Significant wetlands, significant coastal wetlands, other coastal wetlands, and all wetlands 2.0 ha or larger in area which have been determined to be locally significant, including but not limited to evaluated wetlands;
- Significant woodlands;
- Significant valleylands ;
- Significant wildlife habitat;
- Significant Areas of natural and scientific interest (ANSIs);
- Regional Areas of natural and scientific interest (ANSIs);
- Fish Habitat;
- Linkage areas in accordance with Section 3.3.16; and,
- Public lands as defined in the Public Lands Act.

Section 3.3.15 of the Official Plan states that "despite anything else in this Plan...development and site alteration shall not be permitted:

i. In significant wetlands and significant coastal wetlands.
ii. In the following unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions: Significant woodlands, significant valleylands, significant wildlife habitat, significant areas of natural and scientific interest (ANSIs), and coastal wetlands (not covered by 3.3.15 i) above).
iii. In the following regional and local features, where a local official plan has identified such features, unless is has been demonstrated that there will be no negative impacts on the natural heritage features or their ecological functions: wetlands 2.0 hectares or larger in area determined to be locally significant by an approved EIS, including but not limited to evaluated wetlands, and Regional areas of natural and scientific interest (ANSIs).
iv. In fish habitat except in accordance with provincial and federal requirements.
v. In habitat of END species and THR species, except in accordance with provincial and federal requirements.
vi. On adjacent lands to the natural heritage features and areas listed above, unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions. Adjacent lands shall generally be considered to be:

    a. within 120 metres of habitat of END and THR species, significant wetlands, significant coastal wetlands, wetlands 2.0 hectares or larger determined to be locally significant by an approved EIS, significant woodlands, significant wildlife habitat, significant areas of natural and scientific interest – life science, significant valleylands, and fish habitat;
    b. within 50 metres of significant areas of natural and scientific interest – earth science."

Section 3.8.13 of the Official Plan states that the "local municipal official plans shall establish criteria for evaluating development and site alteration applications within these identified local natural features and areas". Section 3.8.17 goes on to state that "within settlement areas, all lands shall be deemed to be Settlement designation in this Plan. Local municipal official plans are required to identify and map natural heritage features and areas within settlement areas and provide policy direction in accordance with Section 3.3.15 i) and ii). Local municipal official plans may also map other natural heritage systems and provide policy direction related to those systems within settlement areas".

3.4 Township of Adjala-Tosorontio

The property is located within lands designated Agricultural Area, Residential Area and Open Space - Conservation, according to Schedules A-6 (Land Use) and B-5 (Everett Land Use) of the Township's Official Plan (OP; Township of Adjala-Tosorontio, 2000; Appendix B). Schedule C-6 of the Township's OP - Natural Feature Areas and Areas of Aggregate Potential - shows the property as part of NVCA/TRCA Fill areas and part of the County Greenlands (above-mentioned).

The property is located within the Official Plan Amendment Nº15 to the Township's OP - Everett Secondary Plan and Settlement Boundary Expansion (2013). According to Schedule 1 of this Amendment (Appendix B), the majority of the property is designated as part of a Natural Heritage System. The western portion of the property is designated as Low Density Residential.

According to the Township's OP Amendment Nº15, Section 4.6.3.4.5 (Natural Heritage System):

- "Prior to approval of any development or site alteration within the Everett Settlement Boundary, the following studies shall be completed to the satisfaction of the Township and the [NVCA]:
    - o An [EIS] to demonstrate how the development plans conform with the environmental protection and enhancement policies of this plan; to confirm and refine buffers to the natural heritage system; to recommend an environmental monitoring program to measure the effectiveness of any mitigation/enhancement strategies and identify contingency actions; and, to provide recommendations for environmental stewardship education methods."

3.5 Nottawasaga Valley Conservation Authority

The property is located within the NVCA's Regulated Areas (Appendix C). Therefore, the property is subject to Ontario Regulation (O. Reg) 172/06 “Regulation of Development Interference with Wetlands and Alterations to Shorelines and Watercourses”. Development or site alteration proposed within these lands will require a NVCA issued Permit.

Section 2.(1) (e) of the O. Reg. 172/06 states that development is prohibited on "other areas where development could interfere with the hydrologic function of a wetland, including areas within 120 metres of all provincially significant wetlands and wetlands greater than 2 hectares in size, and areas within 30 metres of wetlands less than 2 hectares in size."

According to Section 3.(1) of regulation, the Authority" may grant permission for development in or on the areas described in subsection 2 (1) if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development."

3.6 Federal Fisheries Act

Amendments to the *Fisheries Act*, 1985 came into effect on November 25th, 2013. These changes focus the *Act* on protecting the productivity of recreational, commercial and Aboriginal fisheries. Fisheries and Oceans Canada (DFO) is now focusing protection rules on real and significant threats to the fisheries and the habitat that supports them, while setting clear standards and guidelines for routine projects.

Under the current DFO review process, projects are to be evaluated under the Self-Assessment process to determine whether a project has the potential to result in 'serious harm to fish', and whether DFO review is required to obtain either a Letter of Advice or federal Authorization.

4.0 EXISTING CONDITIONS

4.1 Land Use

4.1.1 On-site Land Use

The property has an area of approximately 19.8ha and is mostly forested, with presence of Mixed and Deciduous Forests, Mixed Swamp, Thicket Swamp and a drainage feature (Figure 2). Meadow Marsh and Cultural Meadow communities are also present on the property. There are two ATV trails, one on each side of the eastern drainage feature and some unmaintained ATV trails through the swamp, which are currently overgrown with Spotted Jewelweed.

4.2 Adjacent Land Use

Land use within the general area are under both residential and agricultural uses to the west, east and south. Large tracts of forested lands extend north-east of the property. Mapping available from the NHIC web explorer indicates that these lands also contain unevaluated wetland (Appendix D).

4.3 Vegetation

ELC mapping and a vegetation survey were completed during site investigations conducted on October 15th, 2015, June 8th, 2016, and August 8th, 2016. Table 1 describes the vegetation communities identified on site and Figure 2 depicts their

location. A total of 161 species of vascular plants were identified on site, from which 76% (123) are native species. A complete list of the vegetation species observed on the property is presented in Table 2.

A survey for Butternut (END) was completed in conjunction with Azimuth's field investigations; two Butternuts were recorded on site. Aside from Butternut, no other vegetative species documented are of federal or provincial conservation concern.

4.4 Wildlife Habitat

4.4.1 Mammals

During Azimuth's field investigations the following species were recorded: Grey Squirrel (*Sciurus carolinensis*), Red Squirrel (*Tamiasciurus hudsonicus*) and Snowshoe Hare (*Lepus americanus*). Given the mixed residential, agricultural and woodland/wetland habitat matrix of the general area, the following species are also expected to occur on site: White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*), Raccoon (*Procyon lotor*), Striped Skunk (*Mephitis mephitis*), Eastern Cottontail (*Sylvilagus floridanus*), Eastern Chipmunk (*Tamias striatus*). None of these species are of federal or provincial conservation concern.

Mammalian SAR potentially occurring in the area are addressed in Section 4.6.

4.4.2 Birds

Two dawn breeding bird surveys were conducted on site, on June 8th and 24th, 2016. A total of 35 species of birds were identified on site, of which two (2) were species of Special Concern (Eastern Wood-pewee and Wood Thrush) and six (6) were area-sensitive species (Black-and-white Warbler, Ovenbird, Magnolia Warbler, American Redstart, Red-breasted Nuthatch and Winter Wren). A full list of the birds recorded on site can be found in Table 4.

With the exception of the Eastern Wood-pewee (SC) and the Wood Thrush (SC), none of the other bird species documented on site are of federal or provincial conservation concern.

4.4.3 Reptiles and Amphibians (Herpetofauna)

Three nocturnal amphibian breeding surveys were conducted on the property on April 28th, May 22nd and June 16th, 2016. Three species of amphibians were recorded breeding on site: Gray Treefrog, Spring Peeper and Green Frog. American Toads were recorded during a vegetation survey conducted in August 2016. A list of the amphibians recorded on site can be found in Table 5.

No turtles or snakes were detected on the property during field investigations.

The Ontario Nature's Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2015) was consulted to identify species that could be utilizing the area. Data for the atlas is presented in 100km^2 squares, each with a unique identifier. The property is located within the square 17NJ89. One (1) species of turtle, two (2) species of snakes and six (6) species of amphibians have been recently (<20 years ago) recorded in the general area.

Herpetofauna SAR identified by ORAA and MNRF as potentially occurring in the area are addressed in Section 4.6.

4.5 Aquatic Habitat

The property is located within the headwaters of the Pine River subwatershed (NVCA, 2013). A drainage feature is located on the property, which enters the property via a culvert crossing to the west under Pine Park Boulevard. The drainage feature flows along the northern boundary of the existing homes before entering an unevaluated wetland and a second channelized drainage feature to the east (Figure 2). The drainage feature has been heavily impacted from historical channelization and residential encroachment, which has resulted in a loss of riparian vegetation and walking structures being built over the feature. Pockets of standing water were observed within the drainage feature during numerous site visits throughout the field season, with flow observed during wet conditions (October 2016 and April 2017). The portion of the feature north of the existing residential lots ranged in wetted width from 1-1.5 m, and had water depths ranging from 5-10 cm. Substrate was organic with no identified riffle or pool features. The entire drainage segment can be classified as a run feature. In proximity to Pine Park Boulevard (approximately a 40m reach), the drainage feature was dry with moist soils during the October 2016 site visit. However, surface flow was observed throughout the entire reach in April 2017, including upstream of Pine Park Boulevard. Watercress was observed in the feature near the eastern limit of the existing development, indicating potential localized groundwater contributions. At this time, no fish community sampling of the feature has occurred. Based on the site conditions observed in April 2017 (*i.e.* shallow water depths, lack of pool features), the drainage feature is not characterized as direct fish habitat. However, the feature is connected to drainage feature downstream which is characterized as direct fish habitat. Therefore, the drainage feature would be expected to provide base flows and detritus material to this system. As per the NVCA 2013 Subwatershed Health Check, the main branch of the Pine River is known to inhabit coldwater species (i.e., Brook Trout, Brown Trout, Rainbow Trout), with some headwaters being identified as providing resident Brook Trout. However, the nearest evaluated stream reach is approximately 2 km downstream, and is classified as "Below Potential" (NVCA, 2013).

4.6 Species at Risk

Species at Risk and their preferred habitat were screened to determine whether there is potentially suitable habitat on or adjacent to the property (Table 6) for the SAR having the potential to occur within the general area. Of the species identified with potential to exist within the broader landscape, the following have potential habitat within and adjacent to the property.

- Mammals: Little Brown Myotis (END), and Northern Myotis (END), and Tricolored Bat (END);
- Birds: Eastern Wood-pewee (SC); Wood Thrush (SC);
- Reptiles: Snapping Turtle (SC); and
- Plants: Butternut (END).

The results of Azimuth's field investigation indicated presence of the following SAR: Butternut (END), Eastern Wood-pewee (SC) and Wood Thrush (SC). No other SAR were confirmed on the property.

5.0 NATURAL HERITAGE FEATURES AND FUNCTIONS

In the following sections we summarize the candidate significant natural heritage features (SNHF) and functions attributable to the property and adjacent lands based on existing designations/delineations by agencies and as revealed through the application of provincial guidelines for identification of significant natural heritage features and functions – including SAR (*i.e.*, NHRM, SWH Ecoregion 6E Criterion Schedule).

5.1 Wetlands

There is an area of approximately 9.2ha of unevaluated wetlands on the property:

- Mixed Swamp (4.1ha) - extending diagonally from the NE to the W of the site;
- Meadow Marsh (2.3ha) - found on each side of the drainage feature located on the centre of the site;
- Deciduous Swamp (3.2ha) - located S of the Meadow Marsh, extending from east to west.

The wetlands within the property are part of an unevaluated regional wetland complex of approximately 220ha.

5.2 Indirect Fish Habitat

The drainage feature present immediately north of the existing lots provides indirect fish habitat through contribution of detritus and seasonal water flow to features downstream

of the property. There is onsite evidence that base groundwater flow is also associated with the feature due to the abundance of watercress observed throughout the drainage feature. However, the nature of groundwater contributions to the feature has not been characterized at this time.

5.3 Candidate Significant Woodland

The significance of the woodland unit present within and extending north-east of the property was assessed according to criteria defined by the NHRM (OMNR, 2010). The woodland is considered to be a Significant Woodland by 4 out of 8 criteria: Woodland Size, Woodland Interior, Proximity to Other Woodlands or Other Habitats, and Water Protection (Table 7). This woodland unit is also designated a part of the Greenlands System, according to the County's Official Plan (Schedule 5.4 - Greenlands; Appendix B). Thus, the feature is considered to be Candidate Significant Woodland.

5.4 Candidate Significant Wildlife Habitat

Table 3 provides an assessment of candidate SWH functions. Based on provincial criteria presented within the Significant Wildlife Habitat Technical Guide (SWHTG) and Ecoregion 6E Criteria Schedules (MNRF, 2015), our findings indicate that there are several potential candidate SWH related to the property including:

- Raptor Wintering Habitat;
- Bat Maternity Colony;
- Woodland Raptor Nesting Habitat;
- Amphibian Breeding Habitat (Woodland);
- Woodland Area-sensitive Bird Breeding Habitat;
- Special Concern & Rare Wildlife Species;
- Deer Yarding Area;
- Deer Movement Corridor and
- Amphibian Movement Corridors.

5.4.1 Raptor Wintering Habitat

Raptor Wintering Area is characterized by a combination of fields and woodlands providing roosting, foraging and resting habitat. The habitat must be utilized by at least 10 individuals of 2 listed species, regularly for at least 20 days in 3 of 5 years, or, used by one or more Short-eared Owls. No raptors haven been recorded during field investigations, however, potentially suitable habitat can be found on and adjacent to the property, due to a combination of agricultural fields and woodlands within the general area.

5.4.2 Bat Maternity Colony

Bat Maternity Colony habitat requires large diameter trees containing cavities or loose bark pockets of sufficient size to house five or more adults, within deciduous or mixed forest communities. The minimum density criteria for candidate habitat is more than 10 large diameter trees per ha. Bat Snag surveys completed in February 2017 indicate that the mixed swamp and mixed forest communities may provide marginal roosting habitat for the species. The results of the survey are further discussed in Section 5.5.2.

5.4.3 Woodland Raptor Nesting Habitat

A Woodland Raptor Nesting Habitat requires forests and conifer plantations >30ha with >10ha of "200m interior forest habitat" containing active nests of listed species. No raptors haven been recorded on the property, however, potentially suitable habitat can be found on and adjacent to the property, since the woodlot on site is part of a woodland unit of approximately 400ha, with more than 10ha of interior forest habitat.

5.4.4 Amphibian Breeding Habitat (Woodland)

Amphibian Breeding Habitat (Woodland) is comprised of forests and swamp wetlands containing permanent or vernal pools that retain water most years until mid-July, with the pools having a breeding population of 1 or more listed species with at least 20 individuals (adults, juveniles, eggs/larval masses). A full chorus of Spring Peeper and Gray Tree Frog has been recorded within the Mixed Swamp present on the NE of the site (Table 5).

5.4.5 Woodland Area-sensitive Bird Breeding Habitat

Significant Woodland Area-sensitive Bird Breeding Habitat is characterized by large mature forest stands over 30ha having "200m interior habitat". The woodlot present on the property is part of a woodland unit that contains over 8ha of 200m interior habitat, though only 0.3ha of 200m interior woodland habitat is present within the property limits (Figure 2). Numerous area-sensitive species were recorded during field investigations (Table 4).

5.4.6 Special Concern & Rare Wildlife Species

Habitat for Rare and Special Concern Species is characterized by the presence of any species considered provincially rare (ranked S1-S3) or designated SC under the ESA. Species of SC identified on the property (Eastern Wood-pewee and Wood Thrush), and those with potential to be present on the property (Snapping Turtle) are addressed in Table 4 of this report and considered on an individual basis.

5.4.7 Deer Yarding Area

Deer Yarding Areas are characterized by large woodlots (>100ha) with low accumulated snow pack which facilitate movement of the species and reduce impact of winter

conditions on the species. The MNRF has identified portions of the property as Stratum II Deer Yard and Winter Congregation Area (Appendix D).

5.4.8 Amphibian Movement Corridors

Amphibian Movement Corridors link amphibian breeding habitat and summer foraging habitat and are comprised of native vegetation and free of gaps. Amphibian Breeding Habitat has been recorded in the NE corner of the property (swamp) and is connected to a matrix of and lowland upland habitat to the south and north-east. Natural lands east of the swamp are not of sufficient width (i.e. >200m) to provide a corridor function considered to be significant by the criteria schedules.

5.4.9 Deer Movement Corridors

Deer Movement Corridors link summer and winter foraging habitat and are comprised of riparian areas, woodlots or ravines that are free of gaps. Deer Yarding habitat has been recorded on the property (swamp) and is connected to a matrix of and lowland upland habitat to the south and north-east. Natural lands proposed for develpoment are not of sufficient width (i.e. >200m) to provide a corridor function considered to be significant by the criteria schedules.

5.5 Endangered & Threatened Species

Potential habitat for species listed as THR or END was identified on and adjacent to the property (Table 6). Our preliminary screening considered in combination with data acquired through species specific surveys has identified habitat potential as follows:

- Confirmed habitat for END plant species - Butternut;
- Potential habitat for END bat species - Brown Myotis, Northern Myotis, Tri-colored

5.5.1 Butternut

Two Butternut trees were found within the Deciduous Forest, on the western portion of the site. A Butternut Health Assessment was conducted on August 8th, 2016 and both were scored as Category 2, "Retainable". According to the current classification of Butternut trees under provincial health assessment protocols, Retainable trees are trees not affected by Butternut canker, or, trees affected by Butternut canker but not so advanced that the tree is declining. Retaining Retainable trees could support the protection or recovery of Butternut trees in the area in which the tree is located (OMNR, 2013):

5.5.2 Little Brown Myotis, Northern Myotis and Tri-Colored Bat

Little Brown Myotis, Northern Myotis and Tri-Colored Bat use a wide variety of habitats for summer roosting including rock crevices, buildings, bridges, caves, mines, and large snags (>25 cm diameter at breast height) in the early stages of decay (COSEWIC, 2013). Large snag trees within forest communities located within the property limits may provide suitable roosting habitat for the species. A snag density survey was completed in February 2017 to determine if candidate maternity roosting habitat was present within the proposed development limits. The mixed swamp and mixed forests contained the minimum of 10 snags/ha, and therefore potential impact to the habitat is further discussed in Section 7.5.2.

6.0 PROPOSED DEVELOPMENT

The proposed development includes the creation of 45 residential lots and an access road with two drainage feature crossings (Figure 3). The removal of approximately 4.4ha of woodland and wetland habitat is being proposed in order to facilitate the development. The development will be serviced by municipal water and sewer. Details regarding project servicing will be finalized as the Everett Secondary Plan Master Servicing Plan (2003) is finalized (C.C. Tatham, 2017).

Storm water management, for quantity and quality control of runoff, is proposed to occur through the installation of various Low Impact Development (LID) features, as per the Preliminary Functional Servicing Report (FSR) and Stormwater Management Report (SMR) prepared by C.C. Tatham (2017; 2017b). Suggested LID measures include enhanced roadside ditches and bioswales, soak-away pits on each individual lot, rear yard infiltration trenches and side yard swales (C.C. Tatham, 2017b). As stated within the FSR, it is expected that these measures will effectively treat stormwater to meet the municipal, provincial and regulatory standards (C.C. Tatham, 2017). Further details regarding the stormwater management for the proposed development can be found in the FSR and the SMR (C.C. Tatham, 2017; C.C. Tatham, 2017b).

A portion of the floodplain also extends into the lands proposed for development (Figure 2 and 3). C.C. Tatham and Associates (C.C. Tatham) are proposing to remove built up sediment from the drainage feature, an exercise that would increase storage volume within the feature and shift the floodplain to allow for build out of the proposed site plan (Figure 3), though Lots 37, 38 and 39 will still contain a portion of the floodplain. The drainage feature associated with the floodplain and a 6m setback to the erosion hazard limit will be retained post development.

7.0 IMPACT ASSESSMENT

7.1 Wetlands

The property contains approximately 9.6ha of wetland area, with the proposed development permanently altering 9.4% (0.9ha) of the property's wetland. The larger wetland complex is approximately 200ha and the proposed development would result in removal of 0.45% of the entire feature. Thus, significant direct habitat loss of locally available wetland habitat will not occur. The NVCA has requested that habitat compensation for the removal occur and that that there may be partnership options available with local initiatives. This agreement will be further explored as the application proceeds through approvals.

Azimuth has also completed a water balance assessment for the proposed development (Appendix E). This preliminary assessment indicates that the development may decrease yearly infiltration by 835m^3. This reduction in infiltration may impact local hydrological regime. Further details regarding stormwater management are required to determine if indirect impact will occur as a result of the proposed development.

7.2 Indirect Fish Habitat

The drainage feature, plus erosion hazard setback, will be retained on the landscape post development (Figure 3), though some modifications to the drainage feature are proposed in order to adjust the flood plain limit (Figure 3). The function of the drainage feature (*i.e.* base flows to downstream fish habitat) should be maintained post-development. No permanent impact to the feature is anticipated, provided that appropriate sediment and erosion controls are implemented, all grading works are completed under dry conditions, all disturbed lands are returned to their natural state, and the proposed drainage crossings are designed and installed in compliance with the *Federal Fisheries Act*, 1985. At this time, a 6m setback/buffer on the erosion hazard limit for the drainage feature has been applied.

7.3 Significant Woodland

The woodland unit present within and adjacent to the property is considered to be regionally significant, as it is mapped as part of the County Greenlands System. In addition to this, the feature meets provincial significance criteria, as described within the NHRM (Table 7). It is ultimately the responsibility of the Province and/or the Municipality to designate natural heritage areas as Significant; hence, this report will consider this feature to be a Candidate Significant Woodland (provincially).

The proposed development would remove approximately 3.6ha of the woodlot, corresponding to approximately 24% of the woodlot area (15ha) within the property

limits. When considering the total contiguous area of the woodland habitat (400ha), this impact is negligible, as only 0.9% of the feature is to be removed.

To minimize potential indirect impact to the retained woodland area, it is recommended that appropriate fencing be installed along the development limit, according to the approved development plan, to ensure that the residential development will not encroach into the feature and that the ecological functions are maintained within that feature.

7.4 Candidate Significant Wildlife Habitat

Development and site alteration are not permitted within SWH and adjacent lands unless the ecological function of the feature(s) has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions. Negative impact is defined as "degradation that threatens the health and integrity of the natural features or ecological functions for which the area is identified due to single, multiple or successive development or site alteration activities" (PPS, 2014). The NHRM (OMNR, 2010) defines ecological integrity as "the condition of an ecosystem in which (a) the structure, composition and function are unimpaired by stresses from human activity, (b) natural ecological processes are intact and self-sustaining, and (c) ecosystem evolution is occurring naturally and that ecological integrity includes hydrological integrity".

7.4.1 Raptor Wintering Habitat

The area proposed to be removed might contribute to Raptor Wintering Habitat off site. However, the lands to be altered do not contain habitat components leading to the significant designation within the criteria schedules. That is, no meadow communities will be altered as a result of the proposed development, and only a small portion of woodland is to be removed, as discussed above. Thus, the proposed development is not expected to impact this SWH function.

7.4.2 Bat Maternity Colony

Deciduous and mixed forests could support bat maternity colony SWH function for species not considered at risk in Ontario. The proposed development will remove approximately 2.7ha of these forests (excluding Coniferous Plantation area, including Mixed Swamp). Approximately 6.3ha of deciduous and mixed forests will remain within the property limits post-development. Additionally, there are approximately 400 hectares of woodland/wetland adjacent to the property. Therefore, it is not expected that the potential SWH function of Bat Maternity Colony will be impacted by the proposed development. A construction timing window is recommended in order to avoid potential impact to individuals that may be utilizing the habitat. Impact to SAR bat potentially utilizing the habitat are further discussed in Section 7.5.2.

7.4.3 Woodland Raptor Nesting Habitat

The area proposed to be removed might contribute to candidate Woodland Raptor Nesting Habitat off site, however, the disturbed area lacks the open meadow component that contributes to the significance, as defined within the criteria schedules (MNRF, 2015). Further, as discussed above, only a small portion of woodland habitat will be removed. Thus the proposed development is not expected to impact this SWH function.

7.4.4 Amphibian Breeding Habitat (Woodland)

Candidate Amphibian breeding habitat has been confirmed in the mixed Swamp, in the northeast portion of the property. The proposed development is not expected to directly impact this habitat, since it will be restricted to the northwest portion of the site. Indirect impact to the wetland may occur if the local hydrology and hydroperiod within the habitat is not maintained post development. Thus, potential impact to this SWH may occur as a result of the proposed development. Impact to this habitat function should be reconsidered once the final SWR is prepared.

7.4.5 Woodland Area-sensitive Bird Breeding Habitat

The woodland proposed for removal is part of a woodland/wetland unit that provides forest interior habitat and could thus contribute to Woodland Area-sensitive Bird Breeding Habitat. Approximately 3.6ha of woodland habitat (including Coniferous Plantation and Mixed Swamp) is proposed to be removed as a result of the development. When considering the total contiguous area of the woodland feature (400ha), this impact is negligible, as only 0.9% of the feature is to be removed. The area of forest interior habitat available to woodland area-sensitive birds will not be significantly changed post-development as of the 8ha available, only 0.3ha (3.8%) will be removed. Therefore, the proposed development is not anticipated to have a negative impact on candidate habitat for Woodland Area-sensitive Bird Breeding, or this SWH function.

7.4.6 Special Concern & Rare Wildlife Species

The following Species of Special Concern are acknowledged to occur in the overall area, and could conceivably be encountered during construction activities:

- Eastern Wood-pewee (confirmed on site);
- Wood Thrush (confirmed on site); and
- Snapping Turtle.

The development will remove the coniferous plantation and deciduous forest and will affect a portion of the mixed and swamp forest communities. There is no expectation that the removal of these communities, as outlined within the concept plan, would

significantly impact habitat availability for Eastern Wood-pewee, Wood Thrush, given the abundance of mature woodland on the property itself and adjacent lands.

Similarly, there is no expectation that the removal of a portion of the mixed swamp and would significantly impact habitat availability for Snapping Turtle, given the abundance of wetlands on the property itself and adjacent lands and the maintenance of the meadow marsh and surface water drainage. Further, no areas of deep (>1m) standing water were observed on the property. Thus, typical habitat utilized by the species for overwintering and foraging is absent from the property, and will not be impacted as result of the development.

Therefore, the proposed development is not anticipated to have a negative impact on habitat for Special Concern & Rare Wildlife Species.

7.4.7 Deer Yarding Area

The majority of the property has been mapped as Deer Winter Congregation Area (Appendix D); the proposed development will result in removal of 4.4ha of the total mapped lands (11,830ha). As only 0.4% of the available habitat will be removed, and the majority of the habitat present within the property limits (comprised of mixed swamp, mixed forest and meadow marsh) will be retained. There is no expectation that the development will result in significant impact to available habitat, nor this SWH function.

7.4.8 Amphibian Movement Corridors

Amphibian Movement Corridors link amphibian breeding habitat and summer habitat, are comprised of native vegetation and are free of gaps. Amphibian breeding habitat has been confirmed in the mixed swamp and thus the adjacent forested areas could provide summer habitat for the individuals. However, the woodlands to be removed are not wide enough to qualify for significance, according to the habitat criteria; the minimum criterion is 200m, and the lands to be removed are approximately 100m wide.

Further, the proposed development is located west of the candidate SWH. Connection to the upland habitat to the south and east of the amphibian breeding area will not be removed as a result of the proposed development. Thus, candidate SWH will not be altered as a result of the proposed development.

7.4.9 Deer Movement Corridors

Deer Movement Corridors link summer and winter foraging for deer, habitat, are comprised of riparian areas and woodlots that are free of gaps. The woodlands to be removed are not wide enough to qualify for significance, according to the habitat criteria;

the minimum criterion is 200m, and the lands to be removed are approximately 100m wide. Further, connection to the upland habitat north and east of the property will not be removed, nor fragmented as a result of the proposed development. Thus, this candidate SWH will not be altered as a result of the proposed development.

7.5 Habitat of Endangered and Threatened Species

7.5.1 Butternut

Butternut Health Assessments were performed on the two Butternuts present on site. The trees were assessed as "Retainable" (Category 2). Category 2 Butternut trees can be removed from the subject lands through an ESA Registry submission consistent with Section 23.7 of O. Reg 242/08 under the ESA. Based on the size of the trees (49 and 59cm DBH), 40 Butternut seedlings and 40 "companion" tree seedlings would have to be planted as compensation for the removal of these 2 trees (total of 80 seedlings).

The proponent will be responsible for sourcing a suitable site where this planting can occur. It is also the proponent's responsibility to plant and care for each Butternut seedling according the requirements established within Section 23.7 of O. Reg 242/08 issued under the ESA.

7.5.2 Little Brown Myotis, Tri-colored and Northern Myotis

The mixed swamp and mixed forest communities within the development footprint met the minimum snag density criteria of 10 snags/ha. However, of the 7 plots sampled within the mixed forest communities, only 5 candidate snag trees, in total, were observed. Of the five, only 2 of the trees had roosting features located above 10m, which is typically preferred by the species. Thus, though traditional assessment of the results leads to an assessment of critical density, the actual representation of habitat within the mixed forest community is quite small.

Within the mixed swamp community, a total of 6 candidate trees were identified, with only one of those trees having a roosting feature above 10m. As with the mixed forest community, though traditional assessment of the results leads to an assessment of critical density, the actual representation of habitat within the mixed swamp is quite small.

Bats do not show fidelity to a particular cavity tree during the maternity season or among years. Within a maternity season, bats frequently move pups among suitable habitat (*i.e.* cavity trees and dwellings). Between seasons, cavity trees – as large/old and decrepit individuals, are subject to natural tree fall and hence at the outset of each maternity season, bats must select among standing trees that persist from one year to the next. That is, a given cavity tree is not consistently or predictably "habitat" from one year to the next. Therefore, given the low representation of high quality habitat within the footprint,

as long as potential habitat is removed outside the maternity season (late May through mid to late August), it is unlikely that harm to individual bats or bat habitat, consistent with Section 2.1.7 of the PPS and Ontario's ESA, will occur. This assessment should be confirmed with MNRF - Midhurst District prior to final plan approval.

8.0 RECOMMENDATIONS

The following recommendations are provided as mitigation for the potential for negative environmental impacts arising during and following the proposed development.

8.1 Additional Studies

Further detail regarding stormwater management for the proposed development is require to determine if the development will alter the local hydrology and natural heritage features influenced by the local water table.

8.2 Timing Restrictions

Construction activities involving removal of vegetation should be restricted from occurring during the breeding season. Migratory birds, nests, and eggs are protected by the *Migratory Birds Convention Act*, 1994, and the *Fish and Wildlife Conservation Act*, 1997. Environment Canada outlines dates when activities in any region have potential to impact nests at the Environment Canada Website (http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#_03).

In Zones C2 and C3, vegetation clearing should be avoided between April 1st through August 31st of any given year. If vegetation clearing is required between these dates, screening by an ecologist with knowledge of bird species present in the area should be undertaken to ensure that the vegetation has been confirmed to be free of nests prior to clearing.

Timing of all in-water work (*i.e.*, channel regrading and culvert installations) should occur within the appropriate in-water work timing window to prevent impacts to downstream fish bearing watercourses during construction. At this time, it is anticipated that in-water would only be permitted between July 15 and August 31 given the potential for Brook Trout to be present in the headwaters of the Pine River (NVCA, 2013). Subsequent design phases should confirm the appropriate in-water timing window with MNRF.

8.3 Species at Risk

Vegetation clearing of the property should proceed in accordance with the timing window outlined above for migratory breeding birds. This will ensure that SAR bat species are

not killed, harmed or harassed during those activities in accordance with Section 9 of the ESA. Section 10 of the ESA protects habitat of SAR. As noted above, habitat for END bat species may be present within two of the forest communities. The MNRF - Midhurst District should be consulted to further discuss potential impact to the END bat species and ensure that the proposed development occurs without contravention of the ESA.

Butternut trees may be removed after submission of a Notice of Butternut Impact through the Environmental Registry, consistent with Section 23.7 of O. Reg 242/08

8.3.1 Non-detected Species of Concern

The absence of a protected species within the property does not indicate that they will never occur within the area. Given the dynamic character of the natural environment, there is a constant variation in habitat use. Care should be taken in the interpretation of presence of species of concern including those listed under the ESA and the federal *Species at Risk Act*, 2002. Changes to policy, or the natural environment, could result in shifts, removal, or addition of new areas to the list of areas currently considered being SAR habitat.

This report is intended as a point in time assessment of the potential to impact SAR; not to provide long term 'clearance' for SAR. While there is no expectation that the assessment should change significantly, it is the responsibility of the proponent to ensure that they are not in contravention of the ESA at the time that works are undertaken. A review of the assessment provided in this report by a qualified person should be sufficient to provide appropriate advice at the time of the onset of future work.

8.4 Isolation of Work Area

In advance of any vegetation clearing or earth works (*i.e.*, clearing or grubbing) it is recommended that the development limit in proximity to natural heritage features be established, as approved in the development plan. We suggest that a temporary fence be installed along the surveyed limits to prevent inadvertent encroachment retained natural areas.

8.5 Indirect Fish Habitat

All work should be completed in the dry, including the channel regrading and culvert installations for the road crossings. Construction staging will need to be developed during subsequent design stages, and should include the use of cofferdams and by-pass pumps to divert any temporary or seasonal flows that may occur during in-water work.

Sediment and Erosion Control Plans should be developed prior to the proposed drainage regrading. Any requirement for dewatering should include the use of envirobags and

sediment traps (or equivalent) located an adequate distance from the channel with proper overland flow paths atop stable vegetation to ensure that proper filtration of discharge water occurs prior to returning to the receiving drain. Runoff should be directed away from exposed soil surfaces to mitigate the potential for soil mobilization.

Stockpiled material is to be stored at a safe distance from the identified drainage features with appropriate sediment and erosion controls in place to ensure that no deleterious substances enter waterways.

A Spill Response Plan and the appropriate contingency materials to absorb a spill will be on the site at all times. All equipment maintenance and refueling should be conducted at least 30 m from the drainage feature.

Due to the presence of fish habitat immediately downstream of the proposed work area, and the proposed modifications to the drainage channel and culvert installations, a DFO Request for Review will need to be submitted once final site plans are prepared. Appropriate mitigation measures will need to be developed to protect downstream fish bearing watercourses, including a Sediment and Erosion Control Plan and a Construction Staging Plan, which will need to be included in the DFO Request for Review submission.

8.6 Site Restoration

All areas disturbed during construction should be stabilized immediately following the development. Azimuth recommends that all disturbed areas outside of the proposed lot fabric be revegetated with native trees and shrubs combined with a native seed mix suitable for the location and function.

8.6.1 Wetland Compensation

The NVCA has indicated that they will permit removal of a portion of the wetland habitat, provided that appropriate compensation occurs in exchange for the removals. The NVCA has indicated that there are ongoing initiatives within the watershed that the proponent could contribute to, and that would be suitable for compensation of the proposed wetland removal. This option will be further explored with the NVCA as the project submission moves through to draft plan review and final site plan design.

8.6.2 Drainage Feature

All anthropogenic refuse (bridges, chairs, garden waste) should be removed from areas adjacent to the drainage feature. It is understood that cleanout of the feature is proposed. All areas disturbed during these works should be immediately stabilized with a native seed mix suitable for riparian areas and the banks of the feature should be planted with

native woody shrubs (*i.e.* Buttonbush, Red-Osier Dogwood, Nannyberry, willow sp.). Encroachment within the feature should be discouraged post development.

9.0 POLICY AND REGULATION CONFORMITY

9.1 Provincial Policy Statement

The proposed development is not anticipated to result in negative direct or indirect impact to significant natural heritage features or functions (i.e., woodlands, valleylands, ANSIs), (Policies 2.1.4, 2.1.5, 2.1.6, & 2.1.8 of the PPS), including potential animal movement corridors/habitat linkages (Policy 2.1.2 of the PPS). The proposed development may impact, habitat of END and THR species, as well as wetlands and SWH, specifically woodland amphibian breeding habitat if the local hydrology is not maintained - **Azimuth Conclusion: Further study is required**.

9.2 Ontario's Endangered Species Act, 2007

The proposed development can likely be constructed with no contraventions to the ESA as it relates to individuals or habitat of END or THR species of Ontario, provided that the mitigation outline herein is implemented. - **Azimuth Conclusion: Further MNRF consultation is recommended**

9.3 County of Simcoe

The proposed development aligns with the designated land use of the OP. The development is not anticipated to impact the majority of the natural heritage features and functions identified on site, provided that the mitigation measures described herein are implemented. Further study is required to determine if m habitat of END and THR species, wetlands and SWH - Woodland Amphibian Breeding Habitat will be impacted. **Azimuth Conclusion: Further study is required.**

9.4 Township of Adjala-Tosorontio

The proposed development aligns with the designated land use of the Official Plan. The development is not anticipated to impact the majority of the natural heritage features and functions identified on site, provided that the mitigation measures described herein are implemented. Further study is required to determine if habitat of END and THR species, wetlands and SWH - Woodland Amphibian Breeding Habitat will be impacted. – **Azimuth Conclusion: Further study is required.**

9.5 Nottawasaga Valley Conservation Authority

The development is proposed within lands subject to O. Reg 172/06, Development, Interference with Wetlands and Alterations to Shorelines and Watercourses. A permit

under O. Reg 172/06 will be required prior to initiation development for any works proposed in regulated lands.

9.6 Fisheries and Oceans Canada

Final design plans for the proposed drainage feature crossings should be screened by a qualified fisheries ecologist to determine approval requirements under the *Federal Fisheries Act*, 1985. DFO review is anticipated to be required where in-water work is proposed due to the connection of the drainage feature to a downstream watercourse with direct fish habitat.

10.0 CONCLUSIONS

This EIS concludes that the development will have no negative impacts on the majority of the natural heritage features or functions within or beyond the development footprint if the appropriate mitigation measures are followed. The proposed use of the property appears consistent with the adjacent residential land use, and the existing natural heritage features and functions, wildlife habitat, fish habitat, and vegetation communities in the area are anticipated to remain unaffected post development. Further study is required to determine if the development will impact natural heritage features influenced by local hydrology.

The proposed development is consistent with the PPS in that it does not affect the habitat of any known SAR; and does not impact upon designated provincially significant wetland, ANSIs, valley lands, or fish habitat.

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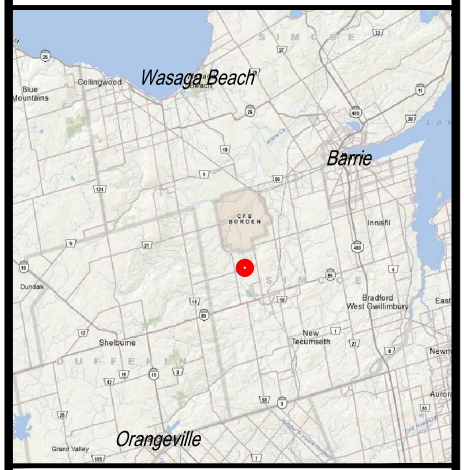
LEGEND:

Approx. Property Boundary



REG MAP

250m 0 750m

HORIZONTAL SCALE 1: 25,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Study Area Location

Winzen Everett EIS,
Everett, ON

DATE ISSUED: *June 2016*	Figure No.
CREATED BY: *JLM*	
PROJECT NO.: *15-313*	1
REFERENCE: *MNRF*	

DAYSTAMP: M:\15 Projects\15-313 Winzen Everette EIS\04.0 - Drafting\15-313.dwg

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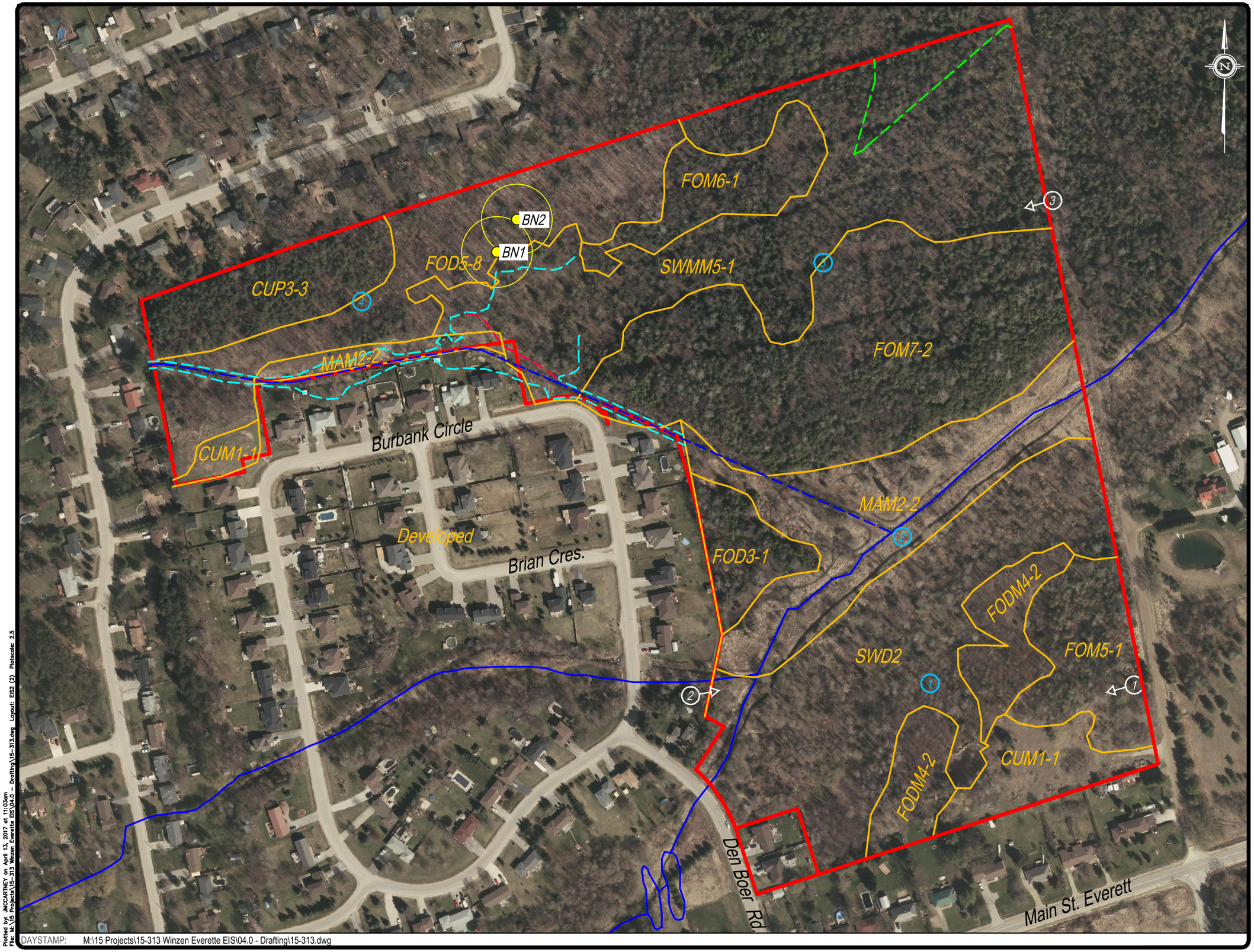

LEGEND:

- Approx. Property Boundary
- Watercourse
- Intermittent Seasonal Drainage Feature
- Existing Flood Limit
- Proposed Flood Limit
- Woodland Interior
- Butternut Locations and 25m Buffer
- Bird Point Count Station
- Amphibian Stations and Direction (white)

Vegetation Communities

CUM1-1	Dry-Moist Old Field Meadow Type
CUP3-3	Scotch Pine Coniferous Plantation
FOD3-1	Dry-Fresh Poplar Deciduous Forest
FODM4-2	Dry-Fresh White Ash-Hardwood Deciduous Forest
FOD5-8	Dry-Fresh Sugar Maple-White Ash Deciduous Forest
FOM5-1	Dry-Fresh White Birch Mixed Forest
FOM6-1	Fresh-Moist Sugar Maple-Hemlock Mixed Forest
FOM7-2	Fresh-Moist White Cedar Hardwood Mixed Forest
MAM2-2	Reed-Canary Grass Mineral Meadow Marsh
SWD2	Ash Mineral Deciduous Swamp
SWMM5-1	Balsam Fir Hardwood Mixed Mineral Swamp Type

Note:
Wetland delineation occured with NVCA (Oct. 2013).

25m 0 75m

HORIZONTAL SCALE 1:2,500

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Environmental Features

Winzen Everett EIS,
Everett, ON

DATE ISSUED:	March 2017	Figure No.
CREATED BY:	JLM	2
PROJECT NO.:	15-313	
REFERENCE:	First Base Solutions	

DAYSTAMP: M:\15 Projects\15-313 Winzen Everette EIS\04.0 - Drafting\15-313.dwg

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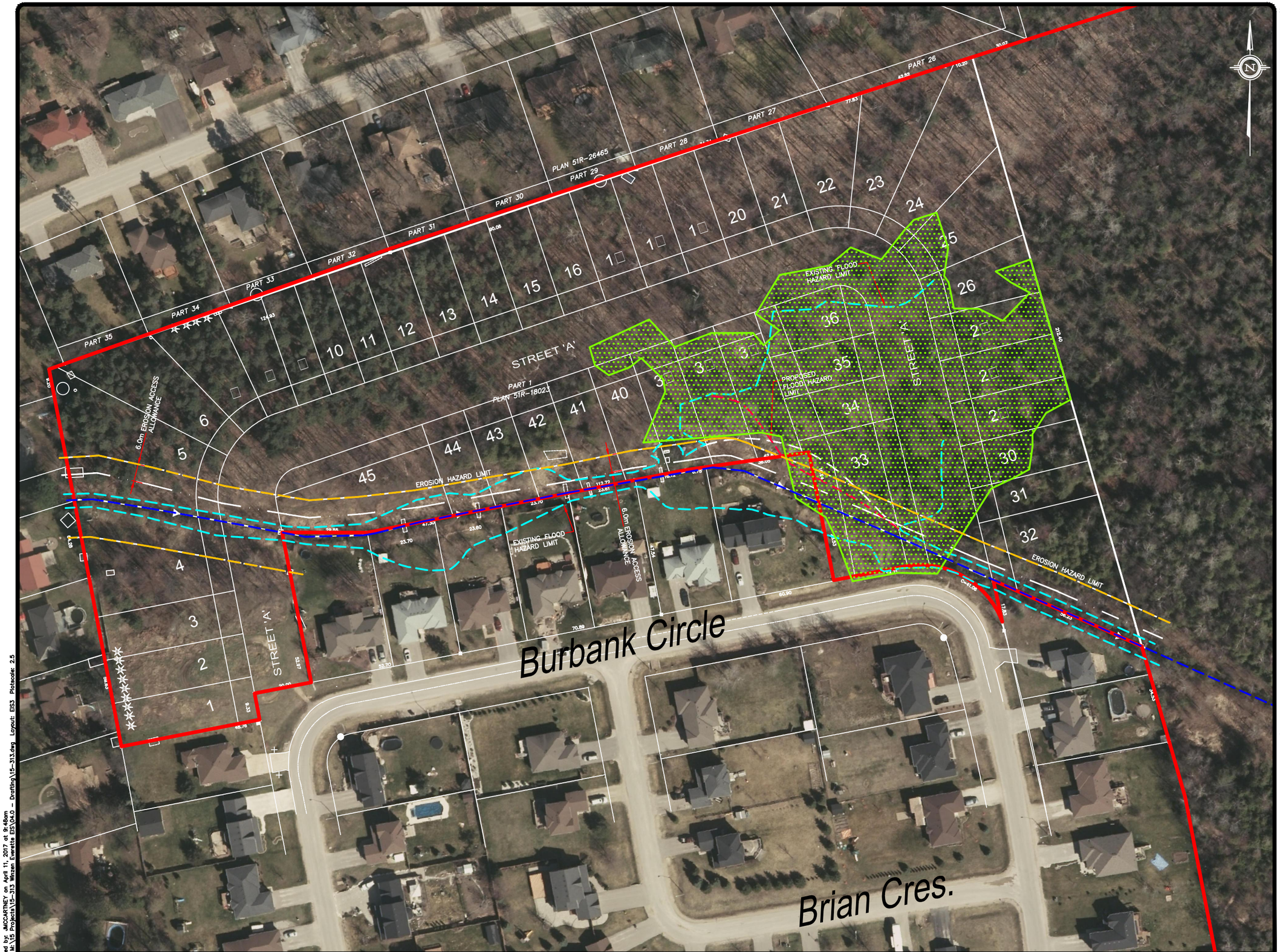

LEGEND:

- *Approx. Property Boundary*
- *Watercourse*
- *Intermittent Seasonal Drainage Feature*
- *Existing Flood Limit*
- *Proposed Flood Limit*
- *Erosion Hazard Limit*
- *Wetland Area Removed*

15m 0 30m

HORIZONTAL SCALE 1:1,250

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Constraints Mapping

Winzen Everett EIS,
Everett, ON

DATE ISSUED:	*March 2017*	Figure No. 3
CREATED BY:	*JLM*	
PROJECT NO.:	*15-313*	
REFERENCE:	*First Base Solutions*	

DAYSTAMP: M:\15 Projects\15-313 Winzen Everette EIS\04.0 - Drafting\15-313.dwg

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Table 1 - Ecological Land Classification (ELC) for Winzen Everett, ON

Ecological Land Classification						
System	**Community Class**	**Community Series**	**Ecosite**	**Vegetation Type**	**Composition**	**Ground Cover**
Terrestrial	FO, Forest	FOD, Deciduous Forest	FOD5, Dry-Fresh Sugar Maple Deciduous Forest	FOD5-8, Dry-Fresh Sugar Maple-White Ash Deciduous Forest	Canopy co-dominated by Sugar Maple and White Ash; with occasional of Wild Black Cherry, White Birch, American Basswood. Occurrence of Scotch Pine, White Cedar, Eastern Hemlock, Trembling Aspen, Red Maple, Black Ash and Butternut. Understory sparse dominated by Sugar Maple and White Ash.	Occurrence of Sensitive Fern, Lady Fern, Oak Fern, Evergreen Wood Fern, Canada Mayflower, Prickly Gooseberry, Spotted Jewelweed, Plaintain-leaved Sedge, Rosy Sedge, Red Raspberry, Partridgeberry and Enchanter's Nightshade.
Terrestrial	CU, Cultural	CUP, Cultural Plantation	CUP3, Coniferous Plantation	CUP3-3, Scotch Pine Coniferous Plantation	Canopy dominated by Scott's Pine, with occurrence of Norway Spruce and Sugar Maple. Sub-canopy Composed by Sugar Maple, White Ash and Black Cherry. Understory sparse composed by Sugar Maple and White Ash.	Dominated by Canada Mayflower, with abundance of White Ash and Sugar Maple seedlings. Occurrence of Solomon's Seal, Red Trilium, Rosy Sedge, Bristly Black Currant and Spinulose Wood Fern.
Terrestrial	FO, Forest	FOM, Mixed Forest	FOM6, Fresh-Moist Hemlock Mixed Forest	FOM6-1, Fresh-Moist Sugar Maple-Hemlock Mixed Forest	Transition between upland forest and swamp. Dominated by Eastern Hemlock, Balsam Fir and Sugar Maple, with occurrence of White Ash, Basswood, Red Maple, Yellow Birch, Green Ash, White Birch and Trembling Aspen.	Mix of upland and wetland species. Occurrence of White and Red Trilliums, Poison Ivy, Herb-robert, Enchanter's Nightshade, Lady Fern, Sensitive Fern, Spinulose Wood Fern and Jack-in-the-Pulpit.
Wetland	SW, Swamp	SWM, Mixed Swamp	SWMM - Conifer Hardwood Mixed Swamp Type	SWMM5-1 Balsam Fir Hardwood Mixed Mineral Swamp Type	Organic swamp. Canopy dominated by Black Ash, with occurrence of Green Ash, willow species, American Elm, Red Maple, Trembling Aspen. Sub-canopy dominated by Balsam Fir and Eastern Hemlock, with occurrence of Black Ash. Understory sparse, mainly composed by Balsam Fir and Black Ash, with occurrence of Red-osier Dogwood, Nanyberry, and American Elm.	Very dense ground cover, co-dominated by Spotted Jewelweed and several species of sedges. Occurrence of Sensitive Fern, Ostrich Fern, Swamp Red Currant, Jack-in-the-pulpit, Swamp Aster, Inland Sedge, Bladder Sedge, Hop Sedge, Pin Cherry and Marsh Bedstraw.
Terrestrial	FO, Forest	FOM, Mixed Forest	FOM7, Fresh-Moist White Cedar-Hardwood Mixed Forest	FOM7-2, Fresh-Moist White Cedar-Hardwood Mixed Forest	Atypical composition; presence of pockets of Mixed Swamp. Canopy dominated by Balsam Fir and White Cedar, with occasional Black Ash and American Elm. Sub-canopy sparse, composed by Black Ash, Red Maple and Balsam Fir. Understory very sparse, composed of tree seedlings.	Mix of upland and wetland species.Occurrence of Canadian Mayflower, Sensitive Fern, Enchanter's Nightshade, Rough Bedstraw, Herb-robert, Ostrich Fern, Royal fern, Long Beech fern, Red Trillium, Spotted Jewelweed.
Wetland	MA, Marsh	MAM, Meadow Marsh	MAM2, Mineral Meadow Marsh	MAM2-2, Reed-canary Grass Mineral meadow Marsh	Rare occurrence of Manitoba Maple. Understory sparse, composed of Black Elderberry, Green Ash, Speckled Alder, Trembling Aspen and Red Raspberry.	Dominated by Reed Canary Grass, with abundance of Spotted Jewelweed. Occurrence of Grass-leaved Goldenrod, Virginia Virgin's Bower, Garlic Mustard, Wild Carrot, Awnless Brome, Spotted Lady's Thumb and Curly Dock.

Table 1 - Ecological Land Classification (ELC) for Winzen Everett, ON

Ecological Land Classification						
System	**Community Class**	**Community Series**	**Ecosite**	**Vegetation Type**	**Composition**	**Ground Cover**
Wetland	SW, Swamp	SWD, Deciduous Swamp	SWD2 - Ash Mineral Decidous Swamp	NA	Canopy very sparse with occasional Black Ash and Trembling Aspen, and rare occurrences of Green Ash and White Birch. Understory dominated by vines, including Virginia Creeper, Virginia Virgin's Bower and Riverbank Grape; occurrence of Manitoba Maple, Speckled Alder, Nanyberry, Black Elderberry.	Dense ground cover, dominated by Spotted Jewelweed and vines. Occurrence of False Nettle, Joe-pye Weed and Purple Loosestrife.
Terrestrial	FO, Forest	FOD, Deciduous Forest	FOD3, Dry-Fresh Poplar-White Birch Deciduous Forest	FOD3-1, Dry-Fresh Poplar Deciduous Forest	Canopy dominated by Trembling Aspen, with abundance of Large-toothed Aspen and occurrence of White Cedar. Sub-canopy dominated by Manitoba Maple, with occurrence of White Cedar and Trembling Aspen. Understory very sparce, mostly composed by Manitoba Maple.	Presence of Common Milkweed, several species of Goldenrod, Wild Carrot, Virginia Creeper and Awnless Brome.
Terrestrial	FO, Forest	FOD, Deciduous Forest	FOD4, Dry-Fresh Deciduous Forest	FODM4-2 Dry-Fresh White Ash-Hardwood Deciduous Forest	Canopy co-dominated by White Birch and White Ash; with abundance of Green Ash, Wild Black Cherry and Trembling Aspen. Occurrence of Red Maple, White Pine, White Cedar, Balsam Fir, American Elm, Larch. Understory dense, dominated by White Ash and Virginia Creeper, with occurrence of Tartarian Honeysuckle, Spreading Dogbane and Speckled Alder.	Dominated by Virginia Creeper, with occurrence of Sensitive Fern, Bracken Fern, Enchanter's Nightshade, Riverbank Grape, and Canada Anemoe.
Terrestrial	FO, Forest	FOM, Mixed Forest	FOM5, Dry-Fresh White Birch-Poplar-Conifer Mixed Forest	FOM5-1, Dry-Fresh White Birch Mixed Forest	Canopy dominated by White Birch and American Larch, with occasonal Yellow Birch, Balsam Fir and Trembling Aspen. Understory dense, mainly composed of White Cedar and Speckled Alder, with occurrence of Manitoba Maple, Red Raspberry and Red-osier Dogwood.	Dominated by seedlings of canopy/understory trees and shrubs. Occurrence of Riverbank Grape, Wild Strawberry, Scouring Rush and Arrow-leaved Aster.
Terrestrial	CU, Cultural	CUM, Cultural Meadow	CUM1, Mineral Cultural Meadow	CUM1-1, Dry-moist Old Field Meadow	Canopy sparse, composed of Scotch Pine, Trembling Aspen and Manitoba Maple.	Dominated by graminoids, including Kentucky Bluegrass, Redtop, Yellow Foxtail, Awless Brome, Creeping Wildrye, Canada Bluegrass. Occurrence of asters and goldenrods, Day Lily, Wild Carrot, Common Yarrow, Cow Vetch, Sweet White Clover, Common Milkweed, Oxeye Daisy, Red and White Clover, Bird's-foot Trefoil, Black Medic, Common Mullein.

Table 2 - Vascular Plant List, Winzen Everett, ON.

			ELC Units[1]											Conservaton Rank[2]		
Family	**Scientific Name**	**Common Name**	**CUM1-1**	**CUP3-3**	**MAM2-2**	**SWD2**	**SWMM5-1**	**FOD3-1**	**FODM4-2**	**FOD5-8**	**FOM5-1**	**FOM6-1**	**FOM7-2**	**G-Rank**	**S-Rank**	**SARO Status**
Aceraceae	*Acer negundo*	Manitoba Maple	X		X	X	X	X			X			G5	S5	
Aceraceae	*Acer rubrum*	Red Maple				X	X		X	X		X	X	G5	S5	
Aceraceae	*Acer saccharum*	Sugar Maple		X			X			X	X	X	X	G5	S5	
Anacardiaceae	*Toxicodendron radicans*	Climbing Poison Ivy										X	X	G5	S5	
Apiaceae	*Daucus carota*	Wild Carrot	X		X			X						GNR	SE5	
Apocynaceae	*Apocynum androsaemifolium*	Spreading Dogbane							X		X			G5	S5	
Araceae	*Arisaema triphyllum*	Jack-in-the-pulpit					X					X		G5	S5	
Asclepiadaceae	*Asclepias syriaca*	Common Milkweed	X					X						G5	S5	
Asteraceae	*Achillea millefolium*	Common Yarrow	X											G5	SE	
Asteraceae	*Ambrosia artemisiifolia*	Annual Ragweed		X	X	X								G5	S5	
Asteraceae	*Arctium lappa*	Greater Burdock			X								X	GNR	SE5	
Asteraceae	*Cichorium intybus*	Chicory	X		X									GNR	SE5	
Asteraceae	*Cirsium arvense*	Canada Thistle	X											GNR	SE5	
Asteraceae	*Erigeron philadelphicus*	Philadelphia Fleabane	X											G5	S5	
Asteraceae	*Eupatorium perfoliatum*	Common Boneset					X							G5	S5	
Asteraceae	*Euthamia graminifolia*	Grass-leaved Goldenrod			X									G5	S5	
Asteraceae	*Eutrochium maculatum*	Spotted Joe Pye Weed			X	X								G5T5	S5	
Asteraceae	*Lactuca canadensis*	Canada Lettuce				X					X			G5	S5	
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy	X											GNR	SE5	
Asteraceae	*Solidago altissima ssp. altissima*	Eastern Late Goldenrod	X		X	X	X	X			X			GNR	S5	
Asteraceae	*Solidago canadensis var. canadensis*	Canada Goldenrod	X			X	X	X			X			G5T5	S5	
Asteraceae	*Solidago gigantea*	Smooth Goldenrod			X	X								G5	S5	
Asteraceae	*Solidago nemoralis ssp. nemoralis*	Gray-stemmed Goldenrod					X							G5T5	S5	
Asteraceae	*Solidago sp.*	Goldenrod	X			X					X		X			
Asteraceae	*Symphyotrichum cordifolium*	Heart-leaved Aster	X				X							G5	S5	
Asteraceae	*Symphyotrichum ericoides*	White Heath Aster	X		X									G5T5	S5	
Asteraceae	*Symphyotrichum lanceolatum*	Panicled Aster	X		X		X							G5T5	S5	
Asteraceae	*Symphyotrichum puniceum*	Swamp Aster			X	X	X							G5	S5	
Asteraceae	*Symphyotrichum urophyllum*	Arrow-leaved Aster									X			G4G5	S4	

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			ELC Units[1]											Conservaton Rank[2]		
Family	**Scientific Name**	**Common Name**	**CUM1-1**	**CUP3-3**	**MAM2-2**	**SWD2**	**SWMM5-1**	**FOD3-1**	**FODM4-2**	**FOD5-8**	**FOM5-1**	**FOM6-1**	**FOM7-2**	**G-Rank**	**S-Rank**	**SARO Status**
Balsaminaceae	*Impatiens capensis*	Spotted Jewelweed			X	X	X			X			X	G5	S5	
Betulaceae	*Alnus incana*	Speckled Alder			X	X			X		X			G5	S5	
Betulaceae	*Betula alleghaniensis*	Yellow Birch									X	X		G5	S5	
Betulaceae	*Betula papyrifera*	Paper Birch		X	X	X	X		X	X	X	X	X	G5	S5	
Betulaceae	*Ostrya virginiana*	Eastern Hop-hornbeam		X						X				G5	S5	
Brassicaceae	*Alliaria petiolata*	Garlic Mustard		X	X	X	X			X			X	GNR	SE5	
Caprifoliaceae	*Lonicera canadensis*	Canada Fly Honeysuckle				X	X							G5	S5	
Caprifoliaceae	*Lonicera tatarica*	Tartarian Honeysuckle	X				X		X					GNR	SE5	
Caprifoliaceae	*Sambucus canadensis*	Common Elderberry			X	X	X							G5T5	S5	
Caprifoliaceae	*Sambucus nigra*	European Elder	X		X	X								G5T5	SEH	
Caprifoliaceae	*Viburnum acerifolium*	Maple-leaf Viburnum					X							G5	S5	
Caprifoliaceae	*Viburnum lentago*	Nannyberry				X	X							G5	S5	
Cornaceae	*Cornus alternifolia*	Alternate-leaved Dogwood		X			X			X	X		X	G5	S5	
Cornaceae	*Cornus rugosa*	Round-leaved Dogwood					X			X	X			G5	S5	
Cornaceae	*Cornus stolonifera*	Red-osier Dogwood					X		X	X	X			G5	S5	
Cucurbitaceae	*Echinocystis lobata*	Wild Mock-cucumber		X	X	X				X				G5	S5	
Cupressaceae	*Thuja occidentalis*	Eastern White Cedar					X	X	X	X	X		X	G5	S5	
Cyperaceae	*Carex gracillima*	Graceful Sedge							X	X	X	X		G5	S5	
Cyperaceae	*Carex interior*	Inland Sedge					X							G5	S5	
Cyperaceae	*Carex intumescens*	Bladder Sedge					X				X			G5	S5	
Cyperaceae	*Carex jamesii*	James' Sedge		X					X	X	X	X	X	G5	S4	
Cyperaceae	*Carex lupulina*	Hop Sedge					X							G5	S5	
Cyperaceae	*Carex plantaginea*	Plantain-leaved Sedge		X						X				G5	S5	
Cyperaceae	*Carex pseudocyperus*	Cyperus-like Sedge					X							G5	S5	
Cyperaceae	*Carex retrorsa*	Retrorse Sedge					X							G5	S5	
Cyperaceae	*Carex rosea*	Rosy Sedge					X	X		X			X	G5	S5	
Cyperaceae	*Carex sp.*	Sedge					X									
Cyperaceae	*Carex stipata*	Awl-fruited Sedge					X							G5	S5	
Cyperaceae	*Carex trisperma*	Three-seeded Sedge					X							G5	S5	
Cyperaceae	*Carex viridula*	Greenish Sedge					X							G5	S5	
Cyperaceae	*Carex vulpinoidea*	Fox Sedge				X	X							G5	S5	

Table 2 - Vascular Plant List, Winzen Everett, ON.

			ELC Units[1]											Conservaton Rank[2]		
Family	**Scientific Name**	**Common Name**	**CUM1-1**	**CUP3-3**	**MAM2-2**	**SWD2**	**SWMM5-1**	**FOD3-1**	**FODM4-2**	**FOD5-8**	**FOM5-1**	**FOM6-1**	**FOM7-2**	**G-Rank**	**S-Rank**	**SARO Status**
Dennstaedtiaceae	*Pteridium aquilinum*	Bracken Fern					X		X	X	X		X	G5	S5	
Dryopteridaceae	*Athyrium filix-femina*	Northeastern Lady Fern					X			X		X		G5T5	S5	
Dryopteridaceae	*Dryopteris*	Wood Fern							X		X					
Dryopteridaceae	*Dryopteris carthusiana*	Spinulose Wood Fern		X								X		G5	S5	
Dryopteridaceae	*Dryopteris clintoniana*	Clinton's Wood Fern								X				G5	S4	
Dryopteridaceae	*Dryopteris intermedia*	Evergreen Wood Fern					X				X			G5	S5	
Dryopteridaceae	*Dryopteris marginalis*	Marginal Wood Fern								X	X			G5	S5	
Dryopteridaceae	*Gymnocarpium dryopteris*	Common Oak Fern								X				G5	S5	
Dryopteridaceae	*Matteuccia struthiopteris*	Ostrich Fern				X	X				X		X	G5	S5	
Dryopteridaceae	*Onoclea sensibilis*	Sensitive Fern			X	X	X		X	X	X	X	X	G5	S5	
Equisetaceae	*Equisetum hyemale*	Common Scouring-rush									X			G5	S5	
Equisetaceae	*Equisetum pratense*	Meadow Horsetail	X				X		X			X		G5	S5	
Equisetaceae	*Equisitum sp.*	Horsetail				X				X						
Fabaceae	*Lotus corniculatus*	Garden Bird's-foot Trefoi	X											GNR	SE5	
Fabaceae	*Medicago lupulina*	Black Medic	X											GNR	SE5	
Fabaceae	*Melilotus albus*	White Sweet-clover	X											G5	SE5	
Fabaceae	*Trifolium pratense*	Red Clover	X		X									GNR	SE5	
Fabaceae	*Trifolium repens*	White Clover	X											GNR	SE5	
Fabaceae	*Vicia cracca*	Tufted Vetch	X											GNR	SE5	
Fagaceae	*Fagus grandifolia*	American Beech		X			X							G5	S4	
Geraniaceae	*Geranium robertianum*	Herb-Robert					X					X	X	G5	S5	
Grossulariaceae	*Ribes americanum*	Wild Black Currant				X			X				X	G5	S5	
Grossulariaceae	*Ribes cynosbati*	Prickly Gooseberry								X				G5	S5	
Grossulariaceae	*Ribes lacustre*	Bristly Black Currant		X			X					X		G5	S5	
Grossulariaceae	*Ribes triste*	Swamp Red Currant					X							G5	S5	
Juglandaceae	*Juglans cinerea*	Butternut								X				G4	S3?	END
Lamiaceae	*Mentha arvensis*	Field Mint				X								G5	S5	
Liliaceae	*Hemerocallis fulva*	Orange Daylily	X											GNA	SE5	
Liliaceae	*Maianthemum canadense*	Wild Lily-of-the-valley		X					X	X	X		X	G5	S5	
Liliaceae	*Maianthemum racemosum*	False Solomon's-seal								X				G5	S5	
Liliaceae	*Maianthemum stellatum*	Star-flowered False Solomon's-seal								X				G5	S5	

Table 2 - Vascular Plant List, Winzen Everett, ON.

			ELC Units[1]											Conservaton Rank[2]		
Family	**Scientific Name**	**Common Name**	**CUM1-1**	**CUP3-3**	**MAM2-2**	**SWD2**	**SWMM5-1**	**FOD3-1**	**FODM4-2**	**FOD5-8**	**FOM5-1**	**FOM6-1**	**FOM7-2**	**G-Rank**	**S-Rank**	**SARO Status**
Liliaceae	*Polygonatum pubescens*	Hairy Solomon's Seal		X						X				G5	S5	
Liliaceae	*Trillium erectum*	Red Trillium								X		X	X	G5	S5	
Liliaceae	*Trillium grandiflorum*	White Trillium		X						X		X		G5	S5	
Lythraceae	*Lythrum salicaria*	Purple Loosestrife				X								G5	SE5	
Oleaceae	*Fraxinus americana*	White Ash		X			X		X	X	X	X	X	G5	S4	
Oleaceae	*Fraxinus nigra*	Black Ash				X	X		X	X			X	G5	S4	
Oleaceae	*Fraxinus pennsylvanica*	Green Ash			X	X	X		X		X			G5	S4	
Onagraceae	*Circaea alpina*	Small Enchanter's Nightshade			X		X		X	X		X	X	G5	S5	
Onagraceae	*Epilobium coloratum*	Purple-veined Willowherb					X							G5	S5	
Orchidaceae	*Epipactis helleborine*	Eastern Helleborine					X					X		GNR	SE5	
Osmundaceae	*Osmunda regalis*	Royal Fern									X		X	G5	S5	
Osmundaceae	*Osmundastrum cinnamomeum*	Cinnamon Fern					X							G5	S5	
Oxalidaceae	*Oxalis montana*	Common Wood-sorrell								X				G5	S5	
Papaveraceae	*Sanguinaria canadensis*	Bloodroot					X							G5	S5	
Pinaceae	*Abies balsamea*	Balsam Fir					X		X	X	X	X	X	G5	S5	
Pinaceae	*Larix laricina*	American Larch							X		X			G5	S5	
Pinaceae	*Picea glauca*	White Spruce		X	X		X				X			G5	S5	
Pinaceae	*Pinus resinosa*	Red Pine								X				G5	S5	
Pinaceae	*Pinus strobus*	Eastern White Pine					X		X	X	X			G5	S5	
Pinaceae	*Pinus sylvestris*	Scotch Pine	X	X			X	X		X				GNR	SE5	
Pinaceae	*Tsuga canadensis*	Eastern Hemlock					X			X	X	X	X	G5	S5	
Plantaginaceae	*Plantago major*	Common Plantain			X									G5	S5	
Poaceae	*Agrostis gigantea*	Redtop	X											G4G5	SE5	
Poaceae	*Bromus inermis*	Awnless Brome	X		X			X						G5TNR	SE5	
Poaceae	*Digitaria ischaemum*	Smooth Crabgrass	X											GNR	SE5	
Poaceae	*Elymus repens*	Creeping Wildrye	X											GNR	SE5	
Poaceae	*Glyceria striata*	Fowl Mannagrass					X							G5	S5	
Poaceae	*Phalaris arundinacea*	Reed Canary Grass			X									G5	S5	
Poaceae	*Phragmites australis ssp. americanus*	American Reed					X							G5T4	S4?	

Table 2 - Vascular Plant List, Winzen Everett, ON.

			ELC Units[1]											Conservaton Rank[2]		
Family	**Scientific Name**	**Common Name**	**CUM1-1**	**CUP3-3**	**MAM2-2**	**SWD2**	**SWMM5-1**	**FOD3-1**	**FODM4-2**	**FOD5-8**	**FOM5-1**	**FOM6-1**	**FOM7-2**	**G-Rank**	**S-Rank**	**SARO Status**
Poaceae	*Poa compressa*	Canada Bluegrass	X											GNR	SE5	
Poaceae	*Poa palustris*	Fowl Bluegrass					X							G5	S5	
Poaceae	*Poa pratensis ssp. pratensis*	Kentucky Bluegrass	X											G5T5	S5	
Poaceae	*Setaria pumila*	Yellow Foxtail	X											GNR	SE5	
Polygonaceae	*Persicaria maculosa*	Spotted Lady's-thumb			X	X				X				G3G5	SE5	
Polygonaceae	*Rumex crispus*	Curly Dock			X									GNR	SE5	
Pyrolaceae	*Pyrola americana*	Round-leaved Pyrola					X							G5	S4?	
Ranunculaceae	*Anemone canadensis*	Canada Anemone					X		X					G5	S5	
Ranunculaceae	*Caltha palustris*	Yellow Marsh Marigold				X	X							G5	S5	
Ranunculaceae	*Clematis virginiana*	Virginia Virgin's-bower	X		X	X								G5	S5	
Ranunculaceae	*Ranunculus recurvatus*	Hooked Buttercup					X							G5	S5	
Rhamnaceae	*Rhamnus cathartica*	Common Buckthorn				X								GNR	SE5	
Rosaceae	*Fragaria virginiana*	Wild Strawberry							X		X			G5	S5	
Rosaceae	*Geum aleppicum*	Yellow Avens				X					X			G5	S5	
Rosaceae	*Prunus pensylvanica*	Pin Cherry					X							G5	S5	
Rosaceae	*Prunus serotina*	Wild Black Cherry					X		X	X	X		X	G5	S5	
Rosaceae	*Prunus virginiana*	Choke Cherry							X					G5	S5	
Rosaceae	*Rubus idaeus*	Common Red Raspberry	X		X	X	X		X	X	X		X	G5T5	S5	
Rosaceae	*Rubus occidentalis*	Black Raspberry					X							G5	S5	
Rosaceae	*Sorbus decora*	Northern Mountain-ash					X							G4G5	S5	
Rubiaceae	*Galium asprellum*	Rough Bedstraw					X						X	G5	S5	
Rubiaceae	*Galium palustre*	Marsh Bedstraw					X							G5	S5	
Rubiaceae	*Galium triflorum*	Three-flowered Bedstraw			X		X							G5	S5	
Rubiaceae	*Mitchella repens*	Partridge-berry					X			X				G5	S5	
Salicaceae	*Populus grandidentata*	Large-tooth Aspen						X					X	G5	S5	
Salicaceae	*Populus tremuloides*	Trembling Aspen	X		X	X	X	X	X	X	X	X	X	G5	S5	
Salicaceae	*Salix amygdaloides*	Peach-leaved Willow					X							G5	S5	
Salicaceae	*Salix sp.*	Willow	X				X									
Scrophulariaceae	*Verbascum thapsus*	Common Mullein	X		X									GNR	SE5	
Solanaceae	*Solanum dulcamara*	Climbing Nightshade				X	X							GNR	SE5	
Taxaceae	*Taxus canadensis*	Canadian Yew					X							G5	S4	

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			ELC Units[1]											Conservaton Rank[2]		
Family	**Scientific Name**	**Common Name**	**CUM1-1**	**CUP3-3**	**MAM2-2**	**SWD2**	**SWMM5-1**	**FOD3-1**	**FODM4-2**	**FOD5-8**	**FOM5-1**	**FOM6-1**	**FOM7-2**	**G-Rank**	**S-Rank**	**SARO Status**
Thelypteridaceae	*Phegopteris connectilis*	Northern Beech Fern											X	G5	S5	
Thelypteridaceae	*Thelypteris palustris*	Eastern Marsh Fern				X								G5	S5	
Tiliaceae	*Tilia americana*	American Basswood		X			X			X		X		G5	S5	
Ulmaceae	*Ulmus americana*	American Elm				X	X		X	X			X	G5?	S5	
Urticaceae	*Boehmeria cylindrica*	False Nettle			X	X	X							G5	S5	
Urticaceae	*Laportea canadensis*	Wood Nettle	X				X							G5	S5	
Vitaceae	*Parthenocissus quinquefolia*	Virginia Creeper			X	X	X	X	X		X	X	X	G5	S4?	
Vitaceae	*Vitis riparia*	Riverbank Grape	X			X	X		X		X		X	G5	S5	

[1]See Figure 1 for vegetation community location and report text for community descriptions

[2]Conservation Rank Information from Ministry of Natural Resources & Forestry, Natural Heritage Information Centre

Survey Dates & Observers: October 15th, 2015 (K. Zgurzynksi); June 8th, 2016 (B. Peloso); August 8th, 2016 (B. Peloso)

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Waterfowl Stopover and Staging Areas (Terrestrial) **<u>Rationale:</u>** Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they 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 (NHIC) 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 area, dependant 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). • SWHMiST Index #7 provides development effects and mitigation measures.	No suitable habitat present.
Waterfowl Stopover and Staging Areas (Aquatic) **<u>Rationale:</u>** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback 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 SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). <u>Information Sources</u> • Environment Canada • Naturalist clubs often are aware of staging/stopover areas • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (*eg.* EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Areas	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 SWH. • The combined area of the ELC ecosites and a 100m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG 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). • SWHMiST Index #7 provides development effects and mitigation measures.	No suitable habitat present.
Shorebird	Greater Yellowlegs	BBO1	• Shorelines of lakes, rivers and wetlands, including	Studies confirming:	No suitable habitat present.

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Migratory Stopover Area **<u>Rationale:</u>** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	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	BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	beach areas, 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 a SWH. <u>Information Sources</u> • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	• 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 ELC shoreline ecosites plus a 100m radius area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #8 provides development effects and mitigation measures.	
Raptor Wintering Area <u>Rationale:</u> Sites used by multiple species of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl <u>Special Concern:</u> Short-eared Owl Bald Eagle	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. <u>Bald Eagle:</u> 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 sites (hawk/owl) 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 windswept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting. <u>Information Sources:</u> • OMNRF Ecologist or Biologist Field Naturalist Clubs • Natural Heritage Information Center (NHIC) 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". • SWHMiST Index #10 and #11 provides development effects and mitigation measures.	**Property may contribute the woodland habitat component within the larger area.**

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Bat Hibernacula **Rationale;** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known. Information Sources • OMNRF for possible locations and contact for local experts • Natural Heritage Information Center (NHIC) Bat Hibernaculum Ministry of Northern • Development and Mines for location of mine shafts. • Clubs that explore caves (*eg*. Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200m radius around the entrance of the hibernaculum, for most development types and 1000m 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. • SWHMiST Index #1 provides development effects and mitigation measures.	No suitable 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 SWH are found in forested Ecosites. All ELC Ecosites in ELC 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 SWH). • 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 tree (snags) in early stages of 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. Information Sources • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by; o >10 Big Brown Bats o >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #12 provides development effects and mitigation measures.	**Property may contribute the woodland habitat component within the larger 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.	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. Information Sources • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF Ecologist or Biologist	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) • Congregation of turtles is more common where wintering areas are limited and therefore significant	No suitable habitat present.

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
			• Field Naturalist clubs • Natural Heritage Information Center (NHIC)	• SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	
Reptile Hibernaculum Rationale; Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**<u>Snakes:</u>** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **<u>Special Concern:</u>** Milksnake Eastern Ribbonsnake **<u>Lizard:</u>** **<u>Special Concern</u>** (Southern Shield population)**:** Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, 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 Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural 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 SWH. • 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. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. <u>Information Sources</u> • In spring, local residents or landowners may have observed the emergence of snakes on their property (*eg.* old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalists clubs • University herpetologists • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (*e.g.* foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) • <u>Note:</u> If there are Special Concern Species present, then site is SWH • <u>Note:</u> Sites for hibernation possess specific habitat parameters (*e.g.* temperature, humidity, *etc.*) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (*e.g.* mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • SWHMiST Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	No suitable habitat present.
Colonially -Nesting Bird Breeding Habitat (Bank and Cliff) **<u>Rationale:</u>** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All	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	• 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*	Studies confirming: • Presence of 1 or more nesting sites with 8or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • 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”. • SWHMiST Index #4 provides development effects and mitigation measures.	No suitable habitat present.

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
swallow population are declining in Ontario.		CLO1 CLS1 CLT1	http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.		
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 NHIC (OMNRF). • Natural Heritage Information Center (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from CAs. • MNRF District Offices • Local naturalist clubs	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. • SWHMiST Index #5 provides development effects and mitigation measures.	No suitable habitat present.
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 low bushes in close proximity to streams and irrigation ditches within farmlands. Information Sources • Ontario Breeding Bird Atlas , rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs. • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field Naturalist clubs	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 ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #6 provides development effects and mitigation measures.	No suitable habitat present.

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Migratory Butterfly Stopover Areas **<u>Rationale:</u>** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral <u>Special Concern</u> Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: <u>Field:</u> CUM CUT CUS <u>Forest:</u> 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 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> • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, 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. • SWHMiST Index #16 provides development effects and mitigation measures.	No suitable habitat present. Not located within 5km of Lake Ontario.
Landbird Migratory Stopover Areas **<u>Rationale:</u>** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website. All migratory songbirds. Canadian Wildlife Service Ontario website:	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those Woodlands <2km from 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 located within 5km of Lake Ontario are Candidate SWH . <u>Information Sources</u> • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #9 provides development effects.	No suitable habitat present. Not located within 5km of Lake Ontario.

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Deer Yarding Areas **Rationale:** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant.	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	**The property is mapped as Stratum 2 Deer Yard by MNRF (Appendix D). MNRF has confirmed that winter concentration areas are present on the property (Appendix D).**
Deer Winter Congregation Areas Rationale: Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD	• Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands . • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule.	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial	No suitable habitat. Property is northern portion of Ecoregion 6E.

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.		Conifer plantations much smaller than 50 ha may also be used.	• Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant. <u>Information Sources</u> • MNRF District Offices • LIO/NRVIS	survey techniques, ground or road surveys. or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	**Candidate SWH**			**Confirmed SWH**	**Assessment**
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
Cliffs and Talus Slopes **<u>Rationale:</u>** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3m 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. <u>Information Sources</u> • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information available on their website • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes • SWHMiST Index #21 provides development effects and mitigation measures.	No suitable habitat present
Sand Barren **<u>Rationale;</u>** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC 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 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 >0.5ha in size. <u>Information Sources</u> • MNRF Districts • Natural Heritage Information Center (NHIC) has location information available on their website. • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.) • SWHMiST Index #20 provides development effects and mitigation measures.	No suitable habitat present
Alvar **<u>Rationale;</u>** Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar 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 6E.	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. <u>Information Sources</u> • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	• Field studies that identify four of the five **Alvar Indicator Species** at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. • SWHMiST Index #17 provides development effects and mitigation measures.	No suitable habitat present

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	**Candidate SWH**			**Confirmed SWH**	**Assessment**
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	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 areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • 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 eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics. • SWHMiST Index #23 provides development effects and mitigation measures.	No suitable 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%.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • 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 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #18 provides development effects and mitigation measures.	No suitable habitat present
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.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	No suitable 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 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST Index #37 provides development effects and mitigation measures.	No suitable habitat present

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SPECIALIZED HABITAT FOR WILDLIFE					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
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 ELC Ecosites are Candidate SWH: 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 (>0.5ha) and any small wetlands (0.5ha) within 120m 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 racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from 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 the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST Index #25 provides development effects and mitigation measures.	No suitable habitat present
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat Rationale; Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey Special Concern Bald Eagle	ELC 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 SWH (*e.g.* telephone poles and constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from	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 SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, 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 SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. • 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 mid March to mid August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No suitable open water habitat is present within close proximity to the subject property.

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SPECIALIZED HABITAT FOR WILDLIFE					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
			Conservation Authorities. • Field Naturalists clubs	• SWHMiST Index #26 provides development effects and mitigation measures.	
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 ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. Interior habitat determined with a 200m 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 Coopers 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. Information Sources • OMNRF 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 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH . (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 SWH. • Broad-winged Hawk and Coopers Hawk– A 100m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial. (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST Index #27 provides development effects and mitigation measures.	**Potentially suitable habitat on and adjacent to site. The woodlot on site is part of a woodland unit of approximately 400ha, with more than 10ha of interior forest habitat. No raptors have been recorded in the 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.	Midland Painted Turtle Special Concern Species Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC 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 are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. Information Sources • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC)	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m 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. • SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No suitable habitat present.

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SPECIALIZED HABITAT FOR WILDLIFE					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
			• Field Naturalist clubs		
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 Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	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 typically support a variety of plant and animal species. Information Sources • Topographical Map • Thermography • Hydrological surveys conducted by Conservation Authorities and MOE. • 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 SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. • SWHMiST Index #30 provides development effects and mitigation measures.	No seeps or springs were recorded within the study area.
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 ELC 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) >500m^2 (about 25m diameter) within or adjacent (within 120m) 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. • OMNRF District • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service	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 eggs 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 (March-June) 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. • SWHMiST Index #14 provides development effects and mitigation measures.	**Species diversity is present, and Gray Tree Frog and Spring Peeper was observed with Call Level Code 3. Thus habitat is considered to be significant.**

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

SPECIALIZED HABITAT FOR WILDLIFE					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
			• Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org		
Amphibian Breeding Habitat (Wetlands) **<u>Rationale;</u>** 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	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (*e.g.* Bull Frog) may be adjacent to woodlands.	• Wetlands>500m^2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • 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. • OMNRF 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 ELC ecosite wetland area and the shoreline are the SWH. • 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 SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #15 provides development effects and mitigation measures.	No suitable habitat present.
Woodland Area-Sensitive Bird Breeding Habitat <u>Rationale:</u> Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	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 Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC 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. <u>Information Sources</u> • Local bird clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to 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 SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #34 provides development effects and mitigation measures.	**Potentially suitable habitat on and adjacent to study area. The woodlot on site is part of a woodland unit of approx. 400ha, with more than 10ha of interior forest habitat. Probable breeding on site for Ovenbird, and Possible breeding on site for Red-breasted Nuthatch and Winter Wren, according to Azimuth's field investigation.**

HABITAT FOR SPECIES OF CONSERVATION CONCERN (NOT INCLUDING ENDANGERED OR THREATENED SPECIES)				
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**	**Confirmed SWH**	**Assessment**

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
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 Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane 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. Information Sources • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Center (NHIC) 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 **or** 1 pair of Sandhill Cranes; **or** breeding by any combination of 5 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • 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”. • SWHMiST Index #35 provides development effects and mitigation measures.	No suitable habitat present.
Open Country Bird Breeding Habitat Sources Defining Criteria **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 • 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 SWH. • The area of SWH is the contiguous ELC 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”. • SWHMiST Index #32 provides development effects and mitigation measures.	No suitable habitat present on property.
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 Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. 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>10haclxiv 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. Information Sources • 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 SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #33 provides development effects and mitigation measures.	No suitable habitat present, Cultural thicket habitat does not meet size criteria.
Terrestrial Crayfish	Chimney or Digger Crayfish;	MAM1 MAM2	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish.	Studies Confirm: • Presence of 1 or more individuals of species listed or their	No crayfish chimneys observed during field investigations.

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

HABITAT FOR SPECIES OF CONSERVATION CONCERN (NOT INCLUDING ENDANGERED OR THREATENED SPECIES)					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	(*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by 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.	chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August 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. • SWHMiST Index #36 provides development effects and mitigation measures.	
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-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences 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 ELC Ecosites Information Sources • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC 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 ELC scale that protects the habitat form and function is the SWH, 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. • SWHMiST Index #37 provides development effects and mitigation measures.	**Eastern Wood-pewee (SC) and Wood Thrush (SC) were recorded on site during Azimuth's field investigations. Study area is Candidate Special Concern & Rare Wildlife Species.**

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

ANIMAL MOVEMENT CORRIDORS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Amphibian Movement Corridors <u>Rationale;</u> 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 SWH from Table 1.2.2 (Amphibian Breeding Habitat –Wetland) of this Schedule. <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Center (NHIC) • 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. • SWHMiST Index #40 provides development effects and mitigation measures.	**No suitable habitat present within development footprint. Lands to be retained meet the minimum width criteria and could be considered part of the amphibian movement corridor.**
Deer Movement Corridors **<u>Rationale:</u>** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when **Deer Wintering Habitat** is confirmed as SWH from Table 1.1 of this schedule. • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Center (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway. • Shorter corridors are more significant than longer corridors. • SWHMiST Index #39 provides development effects and mitigation measures.	**No suitable habitat present within development footprint. Lands to be retained meet the minimum width criteria and could be considered part of the deer movement corridor.**

Table 3. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Winzen Everett

EXCEPTIONS FOR ECOREGION 6E						
EcoDistrict	**Wildlife Habitat and Species**	**Candidate**			**Confirmed SWH**	**Assessment**
		Ecosites	**Habitat Description**	**Habitat Criteria and Information**	**Defining Criteria**	
6E-14 **<u>Rationale:</u>** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears.	**Mast Producing Areas** Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	• Black bears require forested habitat that provides cover, winter hibernation sites, and mast-producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears.	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). <u>Information Sources</u> Important forest habitat for black bears may be identified by OMNRF.	All woodlands > 30ha with a 50%composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 SWHMiST Index #3 provides development effects and mitigation measures.	No suitable habitat present in Study Area.
6E- 17 **<u>Rationale:</u>** Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population	Lek Sharp-tailed Grouse	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting <u>Information Sources</u> • OMNRF district office • Bird watching clubs • Local landowners • Ontario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat • SWHMiST Index #32 provides development effects and mitigation measures	No suitable habitat in Study Area.

Table 4 -Birds List for Winzen Everett, ON

			Point Count Stations[A,B]							Conservation Ranks[F]		
Family	**Scientific Name**	**English Common Name**	**1**	**2**	**3**	**4**	**Incidental[C,D]**	**Breeding Evidence[E]**	**Area-sensitive?***	**S-Rank**	**G-Rank**	**SARO Status**
Ardeidae	*Ardea herodias*	Great Blue Heron	FO,					Observed		S4	G5	
Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing	S,S	S,	,S	,S		Probable		S5B	G5	
Cardinalidae	*Passerina cyanea*	Indigo Bunting	,S	,S				Possible		S4B	G5	
Columbidae	*Zenaida macroura*	Mourning Dove	S,S	S,S	,S	,S		Probable		S5	G5	
Corvidae	*Corvus brachyrhynchos*	American Crow	FO,S	S,S	,FY	S,S	S[C]	Confirmed		S5B	G5	
Corvidae	*Corvus corax*	Common Raven		FO,				Observed		S5	G5	
Corvidae	*Cyanocitta cristata*	Blue Jay	S,S			,S	S[C]	Probable		S5	G5	
Emberizidae	*Melospiza melodia*	Song Sparrow		S,S	S,	,S		Probable		S5B	G5	
Emberizidae	*Zonotrichia albicollis*	White-throated Sparrow		S,				Possible		S5B	G5	
Fringillidae	*Carduelis tristis*	American Goldfinch		S,S			S[C]	Probable		S5B	G5	
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird	S,					Possible		S4	G5	
Icteridae	*Quiscalus quiscula*	Common Grackle		S,	FO,	S,		Possible		S5B	G5	
Mimidae	*Dumetella carolinensis*	Gray Catbird	S,	S,S			S[C,D]	Probable		S4B	G5	
Paridae	*Poecile atricapillus*	Black-capped Chickadee	S,	,S		S,	S[C]	Possible		S5	G5	
Parulidae	*Geothlypis philadelphia*	Mourning Warbler		,S				Possible		S4B	G5	
Parulidae	*Geothlypis trichas*	Common Yellowthroat	S,S	S,			S[D]	Probable		S5B	G5	
Parulidae	*Mniotilta varia*	Black-and-white Warbler	S,	S,				Possible	Yes	S5B	G5	
Parulidae	*Seiurus aurocapilla*	Ovenbird	S,		S,S	S,		Probable	Yes	S4B	G5	
Parulidae	*Setophaga magnolia*	Magnolia Warbler		S,				Possible	Yes	S5B	G5	
Parulidae	*Setophaga ruticilla*	American Redstart	S,S					Probable	Yes	S5B	G5	
Phasianidae	*Bonasa umbellus*	Ruffed Grouse		S,	,DD			Confirmed		S4	G5	
Picidae	*Colaptes auratus*	Northern Flicker				,S		Possible		S4B	G5	
Picidae	*Picoides pubescens*	Downy Woodpecker		,P				Probable		S5	G5	
Regulidae	*Regulus satrapa*	Golden-crowned Kinglet				S,		Possible		S5B	G5	
Sittidae	*Sitta canadensis*	Red-breasted Nuthatch				S,	S[C]	Possible	Yes	S5	G5	
Sturnidae	*Sturnus vulgaris*	European Starling			FO,			Observed		SNA	G5	
Troglodytidae	*Troglodytes aedon*	House Wren	,S					Possible		S5B	G5	
Troglodytidae	*Troglodytes troglodytes*	Winter Wren			,S	S,	S[D]	Possible	Yes	S5B	G5	
Turdidae	*Hylocichla mustelina*	Wood Thrush	S,S	S,	,S			Probable		S4B	G5	SC

Table 4 -Birds List for Winzen Everett, ON

			Point Count Stations[A,B]							Conservation Ranks[F]		
Family	**Scientific Name**	**English Common Name**	**1**	**2**	**3**	**4**	**Incidental[C,D]**	**Breeding Evidence[E]**	**Area-sensitive?***	**S-Rank**	**G-Rank**	**SARO Status**
Turdidae	*Turdus migratorius*	American Robin	S,	,S			S[C,D]	Possible		S5B	G5	
Tyrannidae	*Contopus virens*	Eastern Wood-pewee	,S	,S	S,			Possible		S4B	G5	SC
Tyrannidae	*Empidonax alnorum*	Alder Flycatcher		S,S				Probable		S5B	G5	
Tyrannidae	*Myiarchus crinitus*	Great Crested Flycatcher	S,			,S		Possible		S4B	G5	
Tyrannidae	*Tyrannus tyrannus*	Eastern Kingbird					S[C]	Observed		S4B	G5	
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo	S,S	S,S	S,S	S,S		Probable		S5B	G5	

* According to Appendix C of the Significant Wildlife Habitat Technical Guide (MNRF, 2000)

Surveys Conditions:

[A]June 08, 2016; Start Time 0538hr/ End Time 0700hr; Temperature Start +7°C/ Temperature End+ 16°C; Wind B0; Cloud Cover 0%; Precipitation Nil; Observer M. Fuller & B. Peloso

[B]June 24, 2016; Start Time 0630hr/ End Time 0730hr; Temperature Start +9°C/ Temperature End +10°C; Wind B0; Cloud Cover 0%; Precipitation Nil; Observer M. Fuller

[C]August 08, 2016; Vegetation survey, incidental observations only. Observer B. Peloso

[D]May22, 2016; Amphibian survey, incidental observations only. Observer B. Peloso

[E]OBBA Breeding Evidence Codes:

OBSERVED

FO - Fly Over

X - Species observed in its breeding season (no breeding evidence)

POSSIBLE

H - Species observed in its breeding season in suitable nesting habitat

S - Singing male present, or breeding calls heard, in suitable nesting habitat in nesting season.

PROBABLE

A - Agitated behaviour or anxiety calls of an adult.

N - Nest building or excavation of nest hole.

P -Pair observed in suitable nesting habitat in nesting season.

T - Permanent territory presumed trhough registration of territorial behaviour (e.g. song) on at least two days, a week or more apart, at the same place.

CONFIRMED

DD - Distraction display or injury feigning.

FY - Recently fledged young or downy young, including incapable of sustained flight.

[F]Conservation Rank - from OMNRF, NHIC and SARO Lists 2014

S-rank - S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - Very Common

G-Rank - G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure

SARO - EXP (Extirpated), END (Endangered), THR (Threatened), SC (Special Concern)

Table 5 - Amphibian List for Winzen Everett, ON.

			Survey Stations[A,B,C] (Code - Est.#)[D]				Conservation Ranks[E]		
Family	**Scientific Name**	**Common Name**	**1**	**2**	**3***	**Incidental**	**SARO**	**G Rank**	**S Rank**
Bufonidae	*Anaxyrus americanus*	American Toad				2-5		G5	S5
Hylidae	*Hyla versicolor*	Gray Treefrog			3[B]	1-1		G5	S5
Hylidae	*Pseudacris crucifer*	Spring Peeper	2-6[A], 3[B]	1-2[A]	3[B]			G5	S5
Ranidae	*Lithobates clamitans*	Green Frog		1-1[C]				G5	S5

*Station 3 was not surveyed on April 28th, 2016.

Observation Conditions

[A]April 28, 2016; Start Time 2241hrs/End Time 2300hrs; Temperature +7°C; Wind B0; Cloud Cover 85%; Precipitation Nil; Observer L. Moran and K.Zgurzynski

[B]May 22, 2016; Start Time 2115hrs/End Time 2200hrs; Temperature +15°C; Wind B2 N; Cloud Cover 0%; Precipitation Nil; Observer B. Peloso

[C]June 16, 2016; Start Time 2218hrs/End Time 2300hrs; Temperature +21°C; Wind B0; Cloud Cover 0%; Precipitation Nil; Observer B. Peloso and C. Sinclair

[D]Codes (according to Marsh Monitoring Protocol)

Code 1: individual calls do not overlap and calling individuals can be discretely counted;

Code 2: calls of individuals sometimes overlap, but numbers of individuals can still be estimated;

Code 3: overlap among calls seems continuous (full chorus), and a count estimate is impossible;

[E]Conservation Rank - from OMNRF, NHIC and SAR Lists 2014

Provincial Rank (S-rank) - S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - Very Common

Global Rank (G-Rank) - G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure

SARO - EXP (Extirpated), END (Endangered), THR (Threatened), SC (Special Concern)

Table 6 - Species at Risk Habitat Assessment, Winzen Everett, ON.

Common Name	Species Name	MNR	Key Habitats Used By Species[1]	Initial Assessment
Bank Swallow	*Riparia riparia*	THR	Nests in burrows excavated in natural and human-made settings with vertical sand and silt faces. Colonies commonly found in sand or gravel pits, lakeshores, and along river banks ESA Protection: Species and general habitat protection	Habitat within the study area is not representative of key habitat. Species not expected to occur on study area.
Barn Swallow	*Hirundo rustica*	THR	Ledges and walls of man-made structures such as buildings, barns, boathouses Cliffs or caves ESA Protection: Species and general habitat protection	**Habitat within the study area is not representative of key habitat. Species may nest on adjacent lands and forage over meadow marsh habitat, though species was not observed during surveys.**
Bobolink	*Dolichonyx oryzivorus*	THR	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >4ha (MNRF, 2000) ESA Protection: Species and general habitat protection	Habitat within the study area is not representative of key habitat. Species not expected to occur on study area.
Butternut	*Juglans cinerea*	END	Forests and hedgerows. ESA Protection: Species and general habitat protection	**Two Butternuts were observed in the study area.**
Canada Warbler	*Wilsonia canadensis*	SC	Wet, mixed deciduous-coniferous forests with a well developed shrub layer. Shrub marshes, red-maple stands, cedar stands, black spruce swamps, larch and riparian woodlands along rivers and lakes. (COSEWIC, 2008) ESA Protection: N/A	Potentially suitable habitat on and adjacent to the study area. Species has not been identified during Azimuth's field investigations.
Eastern Meadowlark	*Sturnella magna*	THR	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees. Old orchards with adjacent, open grassy areas >4 ha in size (MNRF, 2000) ESA Protection: Species and general habitat protection	Habitat within the study area is not representative of key habitat. Species not expected to occur on study area.
Eastern Small-footed Bat	*Myotis Lleibii*	END	Generally occurrs in mountainous or rocky regions where it has been noted to roost in large boulders and beneath slabs of rock and stones. Hibernation is typically confined to caves and abandoned mine adits. (Best and Jennings, 1997 and MNRF, 2014) ESA Protection: Species and general habitat protection	Habitat within the study area is not representative of key habitat. Species not expected to occur on study area.
Eastern Wood-pewee	*Contopus virens*	SC	Typically associated with deciduous and mixed forests with little understory vegetation; Often found in clearings or on edges of deciduous and mixed forests (MNRF, 2015). ESA Protection: N/A	**Suitable habitat on and adjacent to the study area. Eastern Wood-pewee Woodpecker has been identified during Azimuth's field investigations.**
Five-lined Skink (Southern Shield Population)	*Plestiodon fasciatus*	SC	The Southern Shield population can be found underneath rocks on open bedrock in forests (MNRF, 2015). ESA Protection: N/A	Habitat within the study area is not representative of key habitat. Species not expected to occur on study area.

Table 6 - Species at Risk Habitat Assessment, Winzen Everett, ON.

Common Name	Species Name	MNR	Key Habitats Used By Species[1]	Initial Assessment
Golden-winged Warbler	*Vermivora chrysoptera*	SC	Areas of early successional scrub surrounded by Mature Forests including dry uplands, swamp forests, and marshes (COSEWIC, 2006). ESA Protection: N/A	Potentially suitable habitat on and adjacent to the study area. Golden-winged Warbler has not been identified during Azimuth's field investigations.
Grasshopper Sparrow	*Ammodramus savannarum*	SC	Typically associated with open grassland areas with well-drained, sandy soil; hayfields, pastures, alvars, pariries, occasionally on grain crops. ESA Protection: N/A	Habitat within the study area is not representative of key habitat. Species not expected to occur on study area.
Little Brown Bat	*Myotis lucifugus*	END	Forests and regularly aging human structures as maternity roost sites. Overwintering sites are characteristically mines or caves, but can often include buildings. ESA Protection: Species and general habitat protection	**Potentially suitable maternity roost habitat present on and adjacent to study area. Little Brown Bat has not been identified during Azimuth's field investigations.**
Northern Long-eared Bat	*Myotis septentrionalis*	END	Maternity roost sites are generally located within deciduous and mixed forests and focused within leaf . Overwintering sites are characteristically mines or caves, but can include buildings. ESA Protection: Species and general habitat protection	**Potentially suitable maternity roost habitat present on and adjacent to study area. Northern Long-eared Bat has not been identified during Azimuth's field investigations.**
Red-Headed Woodpecker	*Melanerpes erythrocephalus*	SC	Oak and Beech Forests, graasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemetaries, beaver ponds and burns (COSEWIC, 2007#). ESA Protection: N/A	Potentially suitable habitat on and adjacent to the study area. Red-headed Woodpecker has not been identified furing Azimuth's field investigations.
Snapping Turtle	*Chelydra serpentina*	SC	Marsh, swamp, fen (poor fens) Shallow waters in lakes or along streams Open areas of sand or gravel ESA Protection: N/A	**Potentially suitable habitat on and adjacent to the study area. Snapping Turtle has not been identified furing Azimuth's field investigations.**
Tri-coloured Bat	*Perimyotis subflavus*	END	Maternity roost sites are generally located within deciduous and mixed forests and focused within leaf . Overwintering sites are characteristically mines or caves, but can include buildings. ESA Protection: Species and general habitat protection	**Potentially suitable maternity roost habitat present on and adjacent to study area. Tri-coloured Bat has not been identified during Azimuth's field investigations.**
Whip-poor-will	*Caprimulgus vociferus*	THR	Whip-poor-will prefer areas with a mix of open and forested habitat, open woodlands, or openings in mature forests (MNRF, 2015). ESA Protection: Species and general habitat protection	No suitable habitat is present within the property limits.
Wood Thrush	*Hylocichla mustelina*	SC	Typically associated with moist mature deciduous and mixed forests with a well developed understory. ESA Protection: N/A	**Suitable habitat on and adjacent to the study area. Wood Thrush <u>has</u> been identified during Azimuth's field investigations.**

1. Habitat as outlined within MNRF's Species at Risk Website (https://www.ontario.ca/environment-and-energy/species-risk-ontario-list) or Species Specific COSEWIC Reports referenced in this document.

Table 7. Significant Woodland Assessment, Winzen, Everett, ON.

CRITERIA	STANDARDS	ASSESSMENT
Woodland Size Criteria		
• Size refers to the aerial (spatial) extent of the woodland (irrespective of ownership) • Woodland areas are considered to be generally continuous even if intersected by narrow gaps 20m or less in width between crown edges. • Size value is related to the scarcity of woodland in the landscape derived on a municipal basis with consideration of the differences in woodland coverage among physical sub-units (e.g., watersheds, biophysical regions). • Size criteria should also account for differences in landscape-level physiography (e.g., moraines, clay planes) and community vegetation types.	Where woodlands cover: • Is less than about 5% of land cover, woodlands 2ha in size or larger should be considered significant • Is about 5-15% of land cover, woodlands 4ha in size or larger should be considered significant • Is about 15-30% of land cover, woodlands 20ha in size or larger should be considered significant • Is about 30-60% of land cover, woodlands 50ha in size or larger should be considered significant • Occupies more than 60% of the land, a minimum size is not suggested, and other factors should be considered	• According to the planning authority, the NVCA watershed contains approximately 32.6% forest cover. Therefore, the Natural Heritage Reference Manual (NHRM; MNR 2010) recommends that continuous patches of woodland cover in the NVCA watershed larger than 50ha should be considered significant. • Tree cover of the study area is continuous with tree cover that extends onto adjacent properties. Accounting for linear canopy gaps wider than 20m, tree cover of the study area and adjacent lands forms part of a woodland with an area of approximately 400ha. • ***Therefore, in the context of the PPS, the woodland present within the study area can be considered Significant according to the Woodland Size criteria.***
Ecological Function Criteria		
Woodland Interior		
• Interior Habitat more than 100m from the edge (as measured from the limits of a continuous woodland as defined above) is important for some species. • For purposes of this criterion, a maintained public road would create an edge even if the opening was not wider than 20m and did not create a separate woodland. •	Woodlands should be considered significant if they have: • Any interior habitat where woodlands cover less than about 15% of the land cover • 2 ha or more of interior habitat where woodlands cover about 15-30% of the land cover • 8 ha or more of interior habitat where woodlands cover about 30-60% of the land cover • 20 ha or more of interior habitat where woodlands cover about 60% of the land cover	• The woodlot present within the study area is part of a woodland containing areas of forest interior exceeding 8ha. Therefore, since landscape contains between 30 and 60% woodland cover, woodland interior compels identification of the woodland unit as significant. • ***Therefore, in the context of the PPS, the woodland present within the study area can be considered Significant according to the Woodland Interior criteria****.*
Proximity to Other Woodlands or Other Habitats		
• Woodlands that overlap, abut or are close to other significant natural heritage features or areas could be considered more valuable or significant than those that are not. • Patches close to each other are of greater mutual benefit and value to wildlife.	Woodlands should be considered significant if: • A portion of the woodland is located within a specific distance (e.g., 30m) of a significant natural feature or fish habitat likely receiving ecological benefit from the woodland and the entire woodland meets the minimum area threshold (e.g., 0.5-20ha, depending on circumstance)	• The woodlot present within the study area is part of a woodland that overlaps with unevaluated wetlands and watercourses. • ***Therefore, in the context of the PPS, the woodland present within the study area can be considered Significant according to the Proximity to Other Woodlands or Other Habitats criteria.***
Linkages		
• Linkages are important connections providing for movement between habitats. • Woodlands that are located between other significant features or areas can be considered to perform an important linkage function as “stepping stones” for movement between habitats.	Woodlands should be considered significant if they: • Are located within a defined natural heritage system or provide a connecting link between two other significant features, each of which is within a specified distance (e.g., 120m) and meets minimum area thresholds (e.g., 1-20ha, depending on circumstance)	• The woodlot present within the study area is identified as part of the Greenlands natural heritage system, according to Schedule 5.1 (Land Use) of the County of Simcoe Official Plan; and the woodland meets the minimum area thresholds. However, linkage function is not present due to the immediacy of the built limit of Everett immediately adjacent to the subject property. • *Therefore, in the context of the PPS, the woodland present within the study area is not considered Significant according to the Linkage criteria.*

Table 7. Significant Woodland Assessment, Winzen, Everett, ON.

CRITERIA	STANDARDS	ASSESSMENT
Water Protection		
• Source water protection is important. • Natural hydrological processes should be maintained.	Woodlands should be considered significant if they: • Are located within a sensitive or threatened watershed or a specific distance (e.g., 50m or top of valley bank if greater) or a sensitive groundwater discharge, sensitive recharge, sensitive headwater area, watercourse or fish habitat and meet minimum area thresholds (e.g., 0.5-10ha, depending on circumstance)	• The woodlot present in the study area is located on Significant Groundwater Recharge Area, and overlaps watercourses. • ***Therefore, in the context of the PPS, the woodland present within the study area can be considered Significant according to the Water Protection criteria.***
Woodland Diversity		
• Certain woodland species have had major reductions in representation on the landscape and may need special consideration. • More native diversity is more valuable than less diversity.	Woodlands should be considered significant if they have: • A naturally occurring composition of native forest species that have declined significantly south and east of the Canadian Shield and meet minimum area thresholds (e.g., 1-20ha, depending on circumstance) • A high native diversity through a combination of composition and terrain (e.g., a woodland extending from a hilltop to a valley bottom or to opposite slopes) and meet minimum area thresholds (e.g., 2-20ha, depending on circumstance)	• The woodland present in the study area is not composed of native forest species that have declined, nor presents a high native diversity. • *Therefore, in the context of the PPS, the woodland present within the study area cannot be considered Significant according to the Woodland Diversity criteria.*
Uncommon Characteristics Criteria		
• Woodlands that are uncommon in terms of species composition, cover type, age or structure should be protected. • Older woodlands (i.e., woodlands greater than 100 years old) are particularly valuable for several reasons, including their contributions to genetic, species and ecosystem diversity.	Woodlands should be considered significant if they have: • A unique species composition or the site is represented by less than 5% overall in woodland area and meets minimum area thresholds (e.g., 0.5ha, depending on circumstance) • A vegetation community with a provincial ranking of S1, S2 or S3 (as ranked by the NHIC and meet minimum area thresholds (e.g., 0.5ha, depending on circumstance) • Habitat (e.g., with 10 individual stems or 100m^2 of leaf coverage) of a rare, uncommon or restricted woodland plant species and meet minimum area thresholds (e.g., 0.5ha, depending on circumstance): vascular plant species for which the NHIC's Southern Ontario Coefficient of Conservatism is 8, 9 or 10; tree species of restricted distribution such as sassafras or rock elm; species existing only in a limited number of sites within the planning area • Characteristics of older woodlands or woodlands with larger tree size structure in native species meet minimum area thresholds	• The woodland present in the study area is not uncommon in terms of species composition, cover types (i.e., composition of ELC vegetation types), structure or age. Additionally, it is not habitat of a rare, uncommon or restricted woodland species. • *Therefore, in the context of the PPS, the woodland present within the study area cannot be considered Significant according to the Uncommon Characteristics criteria.*

Table 7. Significant Woodland Assessment, Winzen, Everett, ON.

CRITERIA	STANDARDS	ASSESSMENT
	(e.g., 1-10ha, depending on circumstance): older woodlands could be defined as having 10 or more trees/ha greater than 100 years old; larger tree size structure could be defined as 10 or more trees/ha at least 50cm in diameter, or a basal area of 8 or more m^2/ha in trees that are at least 40cm in diameter	
Economic and Social Function Values Criteria		
• Woodlands that have high economic or social values through particular site characteristics or deliberate management should be protected.	Woodlands should be considered significant if they have: • High productivity in terms of economically viable products together with continuous native natural attributes and meet minimum area thresholds (e.g., 2-20ha, depending on circumstance) • A high value in special services such as air-quality improvement or recreation at a sustainable level that is compatible with long-term retention and meet minimum area thresholds (e.g., 0.2-10ha, depending on circumstance) • Important identified appreciation, education, cultural or historical value and meet minimum area thresholds (e.g., 0.2-10ha, depending on circumstance)	• No high productivity in terms of economically viable products. • No formal recreational use of study area and adjacent lands. • Forests not identified as providing education, cultural or historical value. • *Therefore, in the context of the PPS, the woodland present within the study area cannot be considered Significant according to the Economic and Social Function Values criteria.*

APPENDICES

Appendix A: Agency Correspondence
Appendix B: Policy Background Information
Appendix C: NVCA Regulated Areas
Appendix D: Biological Background Information
Appendix E: Water Balance

APPENDIX A

Agency Communication

Melissa Fuller

From: Dave Featherstone [dfeatherstone@nvca.on.ca]
Sent: March-24-17 10:39 AM
To: Melissa Fuller
Cc: Lee Bull
Subject: RE: EIS Terms of Reference - Everett, Young

Hi Melissa. This looks good – field work looks complete. The drainage feature north/east of Burbank should be assessed using the Headwater Drainage Assessment guidelines if significant alterations are proposed. We can discuss that in more detail if needed. Potential encroachment into the wetland north of Burbank will need to be addressed.

Best regards,

David Featherstone, B.Sc.
Manager, Watershed Monitoring Program
Nottawasaga Valley Conservation Authority
8195 8th Line, Utopia, ON
L0M 1T0
(705) 424-1479 Ext. 242
dfeatherstone@nvca.on.ca

From: Melissa Fuller [mailto:MFuller@Azimuthenvironmental.Com]
Sent: March-24-17 10:17 AM
To: Dave Featherstone
Subject: EIS Terms of Reference - Everett, Young

Good Morning Dave,

Could you please confirm that the following terms of reference is sufficient for the completion of an EIS on Alvin Young's Everett property?

- Conduct a three-season vegetation survey (Sept/Oct 2015, May and August 2016);
- Designate vegetation communities, using protocols of the Ecological Land Classification for Southern Ontario (Lee *et al*., 1998. Ecological land classification for southern Ontario: first approximation and its applications. SCSS Field Guide FG-02);
- Conduct two dawn breeding bird surveys (June 2016);
- Conduct three amphibian breeding surveys (Spring 2016);
- Undertake a preliminary Species at Risk screening and inventory under the Endangered Species Act, 2007;
- Record other wildlife observations and assess wildlife habitat function of the property;
- Map vegetation communities and other environmental features (wetlands, areas of ground water discharge, etc.) on aerial photography;
- Undertake a hydrogeological assessment to define potential ground water impacts based on published information;

- Provide a detailed description of the study area including natural heritage features and functions and the development proposal;
- Assess the potential direct and indirect impacts of the proposed land-use on the sensitive or significant environmental features;
- Develop an appropriate avoidance/mitigation/restoration strategy to address the potential environmental impacts;
- Demonstrate conformity with the applicable policies of the Town, County, *Provincial Policy Statement*, 2014 and the *Endangered Species Act*, 2007; and

Thank you for your attention to this matter,

Melissa Fuller H. B.Sc.

Terrestrial Ecologist, ISA Certified Arborist

Azimuth Environmental Consulting, Inc
642 Welham Street
Barrie, ON, L4N 9A1

office: (705) 721-8451 ext. 216
fax: (705) 721-8926
cell: 705-795-8451
mfuller@azimuthenvironmental.com

Providing services in hydrogeology, terrestrial and aquatic ecology & environmental engineering

Melissa Fuller

From: Eplett, Megan (MNRF) [Megan.Eplett@ontario.ca]
Sent: April-12-17 2:22 PM
To: Melissa Fuller
Subject: RE: SAR Information Request for a Property in Everett

Follow Up Flag: Follow up
Flag Status: Completed

Hello Melissa,

In addition to the species listed in your letter Eastern Whip-poor-will should be considered. As the site is mostly forested there is the potential for Whip-poor-will to occur on site dependent on forest type/structure.

Please note our mapping shows unevaluated wetlands on the property as well as a Deer Wintering Area. Boundaries for these natural heritage features can be accessed through LIO. The watercourse on site is considered a cold water stream.

It is understood that Butternut, Eastern Wood-pewee and Wood Thrush have been identified on the property through field investigations. Should you come across any further species at risk and/or impacts to species at risk are anticipated by the proposed development further consultation with MNRF will be required.

If you have any further questions please feel free to contact me.

Thanks,

Megan

Megan Eplett
A/ Management Biologist | Ministry of Natural Resources and Forestry | Midhurst District
2284 Nursery Road, Midhurst, Ontario, L9X 1N8 | ☎ (705) 725-7513 | megan.eplett@ontario.ca

---

From: Melissa Fuller [mailto:MFuller@Azimuthenvironmental.Com]
Sent: March-24-17 11:52 AM
To: Benner, Kim (MNRF); Mott, Ken (MNRF)
Subject: SAR Information Request for a Property in Everett

Good Morning,

Please find attached a Species at Risk information request for a property we are currently working on in Everett, Ontario. Please circulate this correspondence to the appropriate biologist.

Regards,

Melissa Fuller H. B.Sc.

Terrestrial Ecologist, ISA Certified Arborist

Azimuth Environmental Consulting, Inc
642 Welham Street

Barrie, ON, L4N 9A1

office: (705) 721-8451 ext. 216
fax: (705) 721-8926
cell: 705-795-8451
mfuller@azimuthenvironmental.com

Providing services in hydrogeology, terrestrial and aquatic ecology & environmental engineering

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

September 01, 2016 AEC 15-313

Nottawasaga Valley Conservation Authority (NVCA)
8195 8th Line,
Utopia, ON
L0M 1T0

ATTN: David Featherstone, B.Sc. - Manager, Watershed Monitoring Program

Re: **Environmental Impact Study**
Everett Development
Part of East Half Lot 11, Concession 5
Township of Adjala-Tosorontio, County of Simcoe

Dear Mr. Featherstone,

Azimuth Environmental Consulting Inc. (Azimuth) has been retained to complete an Environmental Impact Study (EIS) for a proposed development on a property located at Part of East Half Lot 11, Concession 5, Community of Everett, Township of Adjala-Tosorontio, County of Simcoe. The proponent wishes to create residential lots and an access road in the area. We would like to confirm the proposed EIS Scope with NVCA.

EXISTING CONDITIONS

The study area is located within lands designated Agricultural Area, Residential Area and Open Space - Conservation, according to Schedules A-6 (Land Use) and B-5 (Everett Land Use) of the Township of Adjala-Tosorontio Official Plan (Township's OP). Schedule C-6 of the Township's OP - Natural Feature Areas and Areas of Aggregate Potential - shows the study area as part of NVCA/TRCA Fill areas and part of the County of Simcoe Greenlands.

Additionally, the study area is located within the Official Plan Amendment Nº15 to the Township's OP - Everett Secondary Plan and Settlement Boundary Expansion (2013). According to Schedule 1 of this Amendment, the majority of the study area is designated

as part of a Natural Heritage System. The western portion of the property is designated as Low Density Residential.

The site is mostly forested, with presence of Mixed and Deciduous Forests, Mixed Swamp, Thicket Swamp and a water drainage feature. A Meadow Marsh and a Cultural Meadow communities are also present in the property. Vegetation and bird surveys have been conducted on site, and the following SAR were recorded:
- 2 Butternuts (END);
- Wood Thrush (SC); and
- Eastern Wood-pewee (SC)

No other species of federal, provincial or regional concern have been found on site.

BACKGROUND SAR DATA

The Ontario Breeding Bird Atlas (square #17NJ89) has been queried to determine the avian SAR birds recorded within the 100km^2 data square that contains the property. The following species were listed in the data summary (9): Eastern Wood-Pewee, Bank Swallow, Barn Swallow,Wood Thrush, Golden-winged Warbler, Canada Warbler, Grasshopper Sparrow, Eastern Meadowlark and Bobolink.

Available information from the Natural Heritage Information Centre (NHIC) indicates that species of conservation concern recorded within the study area (1 x 1 km data square 17NJ8594) includes records for Eastern Milksnake (currently considered Not at Risk), Common Five-lined Skink (extirpated population, historical record), Harpoon Clubtail (S3) and Arrow Clubtail (S2).

Information available on the Ontario Reptiles and Amphibians Atlas indicates the presence of Snapping Turtle and Five-lined Skink (historical record).

Additionally, we will also include the Endangered bat species in our assessment.

PROPOSED SCOPE OF WORK

The following activities have been proposed in order to fulfill the objectives of this study:

[Activities completed to date]

- Consulted with the Town of Adjala-Tosorontio, Nottawasaga Valley Conservation Authority (NVCA), and the Ontario Ministry of Natural Resources

and Forestry (OMNRF), as required, to determine their concerns regarding the proposed development, their requirements regarding the scope of work, and obtain background information and environmental mapping for the properties;
- Conducted a three-season vegetation survey (October 2015, May and August 2016);
- Designated vegetation communities, using protocols of the Ecological Land Classification for Southern Ontario (Lee et al. 1998. Ecological land classification for southern Ontario: first approximation and its applications. SCSS Field Guide FG-02);
- Conducted two dawn breeding bird surveys (June 2016);
- Undertook a preliminary Species at Risk screening and inventory under the Endangered Species Act, 2007;
- Recorded other wildlife observations and assess wildlife habitat function of the property;
- Mapped vegetation communities and other environmental features (wetlands, areas of ground water discharge, etc.) on aerial photography;

[Activities to be completed]

- Undertake a hydrogeological assessment to define potential ground water impacts based on published information;
- Provide a detailed description of the study area including natural heritage features and functions and the development proposal;
- Assess the potential direct and indirect impacts of the proposed land-use on the sensitive or significant environmental features;
- Develop an appropriate avoidance/mitigation/restoration strategy to address the potential environmental impacts;
- Demonstrate conformity with the applicable policies of the Town, County, *Provincial Policy Statement*, 2014 and the *Endangered Species Act*, 2007; and
- Prepare one draft EIS report for your review and comment prior to preparing final reports for you to circulate to approval agencies.

Please, let us know if this SOW is acceptable at your earliest convenience.

Thank you very much for your assistance in this matter. If you have any questions regarding this project please do not hesitate to contact us.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Bruna Peloso, M.Sc.
Terrestrial Ecologist

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

September 01, 2016 AEC 15-313

MNRF - Midhurst District
2284 Nursery Rd
Midhurst, ON
L0L 1X0

ATTN: Species-at-risk Biologist

Re: **Environmental Impact Study**
Everett Development
Part of East Half Lot 11, Concession 5
Township of Adjala-Tosorontio, County of Simcoe

Dear staff,

Azimuth Environmental Consulting Inc. (Azimuth) has been retained to complete an Environmental Impact Study (EIS) for a proposed development on a property located at Part of East Half Lot 11, Concession 5, Community of Everett, Township of Adjala-Tosorontio, County of Simcoe. The proponent wishes to create residential lots and access road in the area. As part of this EIS, we are undertaking an assessment of Species at Risk that could potentially be utilizing the property to complete their life functions. Please see attached mapping for definition of the Study Area and property location.

EXISTING CONDITIONS

The site is mostly forested, with presence of Mixed and Deciduous Forests, Mixed Swamp, Thicket Swamp and a water drainage feature. A Meadow Marsh and a Cultural Meadow community are also present in the property. Vegetation and bird surveys have been conducted on site, and the following SAR were recorded:
- 2 Butternuts (END);
- Wood Thrush (SC); and
- Eastern Wood-pewee (SC)

No other species of federal, provincial or regional concern have been found on site.

BACKGROUND SAR DATA

The Ontario Breeding Bird Atlas (square #17NJ89) has been queried to determine the avian SAR birds recorded within the 100km^2 data square that contains the property. The following species were listed in the data summary (9): Eastern Wood-Pewee, Bank Swallow, Barn Swallow,Wood Thrush, Golden-winged Warbler, Canada Warbler, Grasshopper Sparrow, Eastern Meadowlark and Bobolink.

Available information from the Natural Heritage Information Centre (NHIC) indicates that species of conservation concern recorded within the study area (1 x 1 km data square 17NJ8594) includes records for Eastern Milksnake (currently considered Not at Risk), Common Five-lined Skink (extirpated population, historical record), Harpoon Clubtail (S3) and Arrow Clubtail (S2).

Information available on the Ontario Reptiles and Amphibians Atlas indicates the presence of Snapping Turtle and Five-lined Skink (historical record).

Additionally, we will also include the Endangered bat species in our assessment.

The purpose of this letter is to request additional information regarding Species at Risk and sensitive areas associated with the study area, aside from those identified above, and to request any background information that may be relevant to our study.

Thank you very much for your assistance in this matter. If you have any questions regarding this project please do not hesitate to contact us.

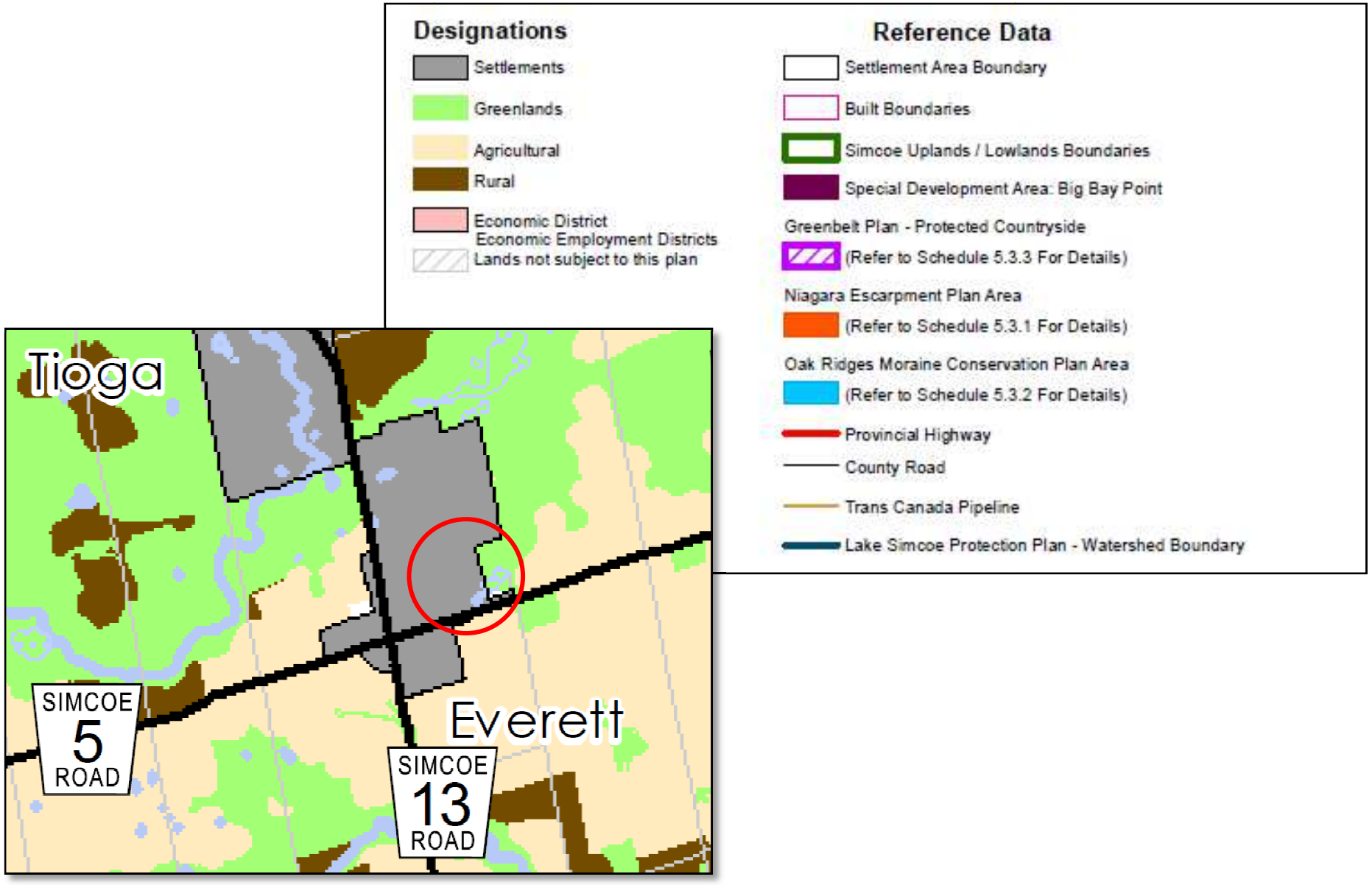
Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Bruna Peloso, M.Sc..
Terrestrial Ecologist

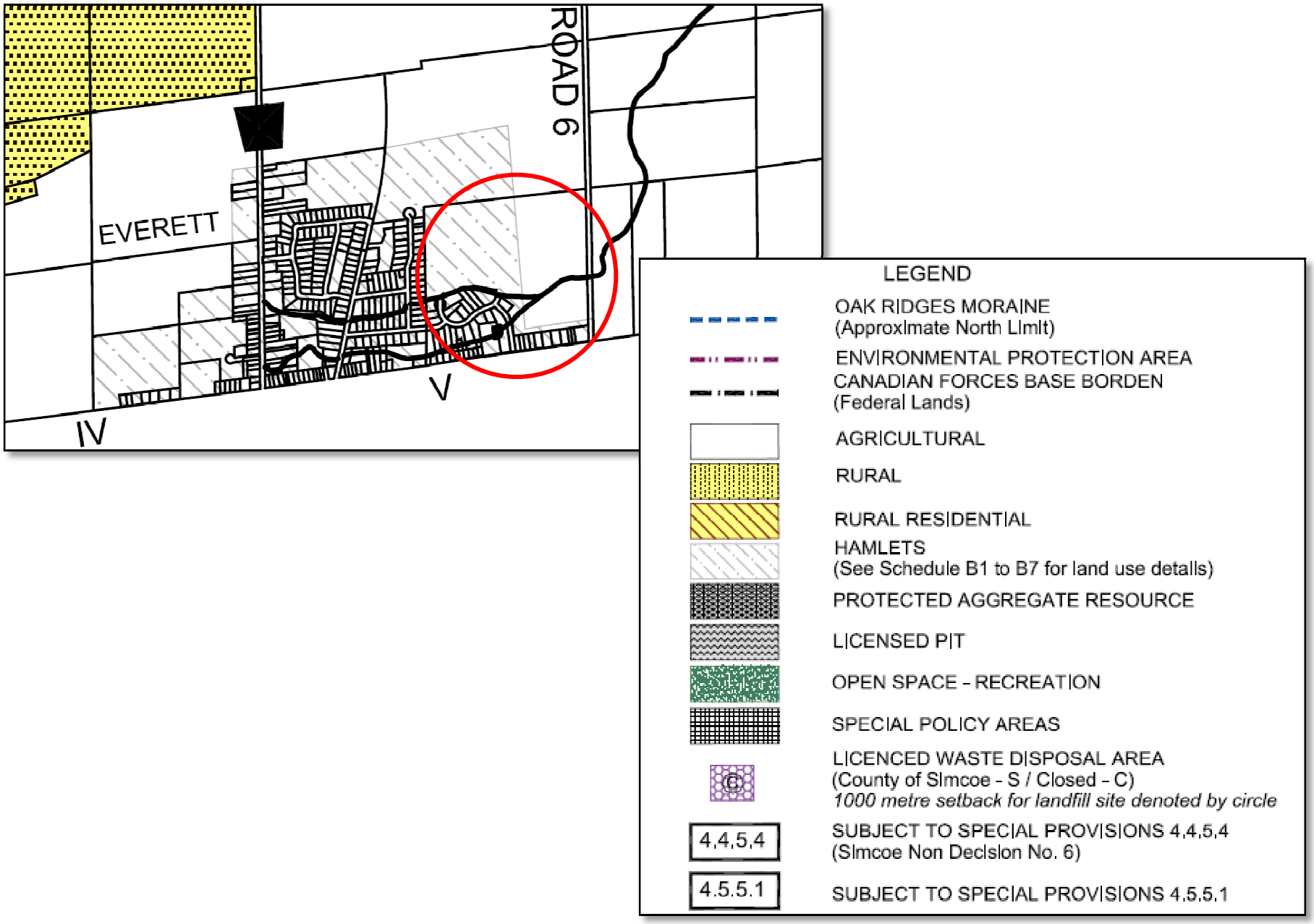
APPENDIX B

Policy Background Information

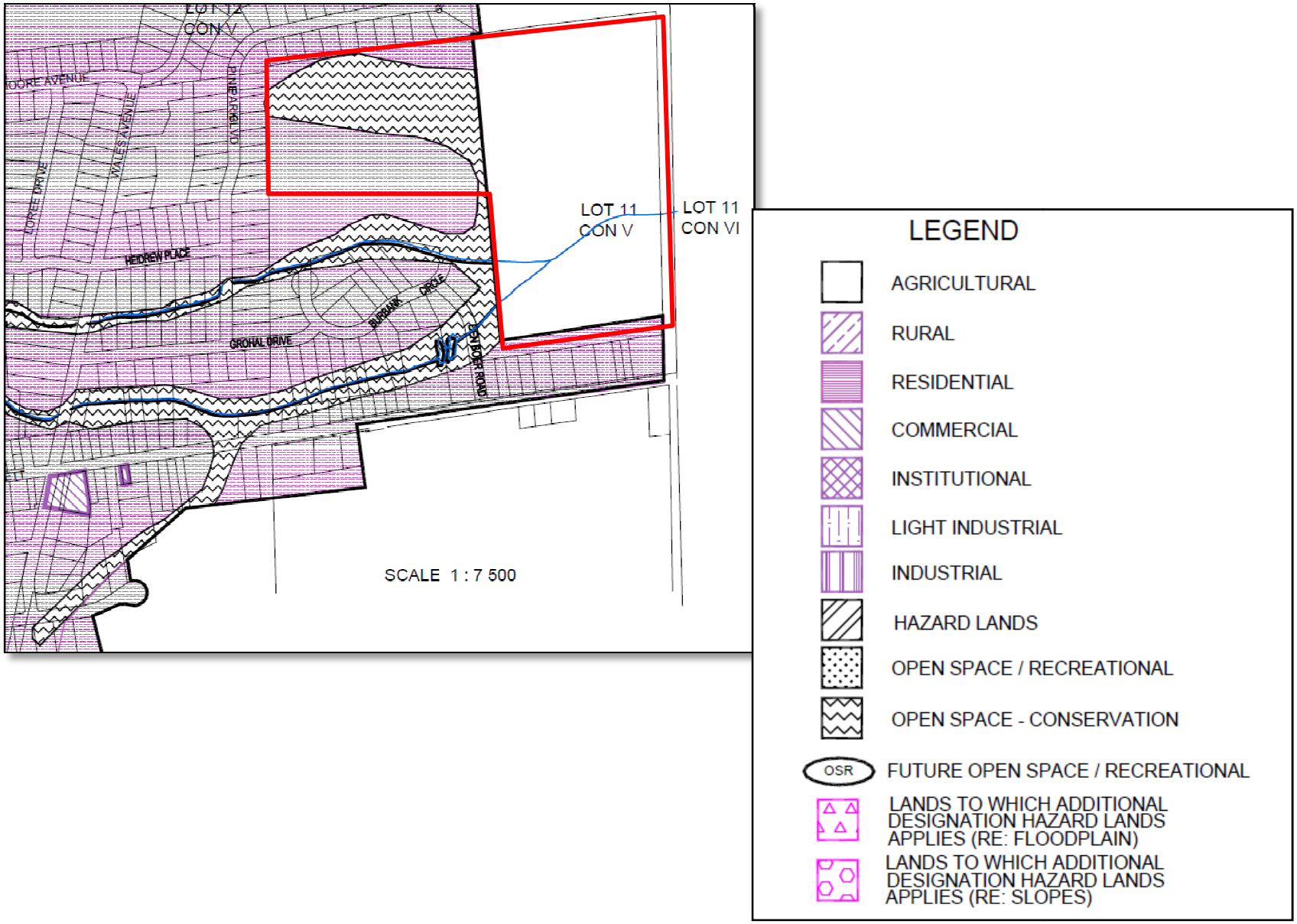
County of Simcoe Official Plan - Schedule 5.1 (Land Use Designations)



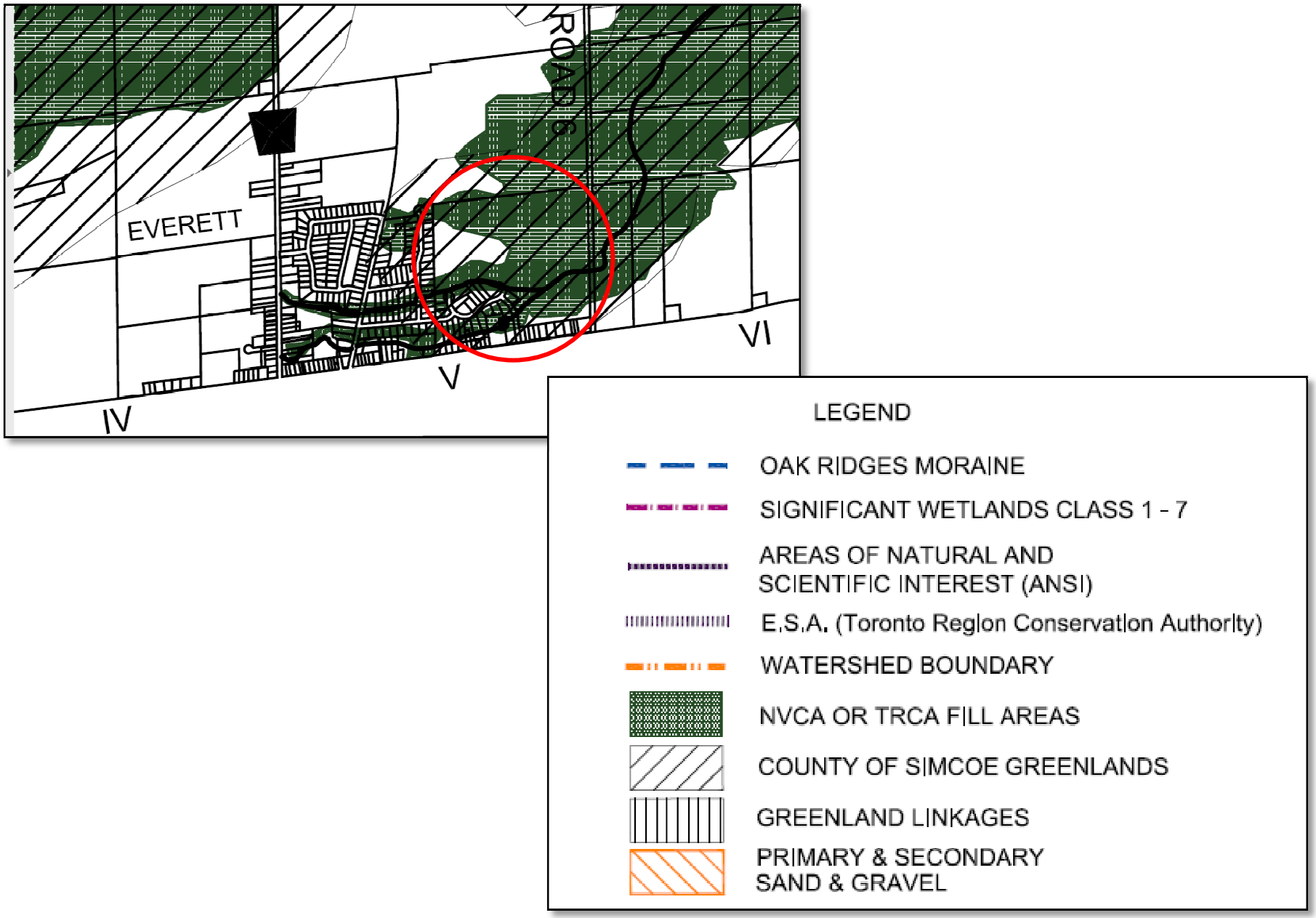
Township of Adjala-Tosorontio Official Plan - Schedule A-6 (Land Use)



Township of Adjala-Tosorontio Official Plan - Schedule B-5 (Everett Land Use)



Township of Adjala-Tosorontio Official Plan - Schedule C-6 (Natural Features and Areas of Aggregate Potential)

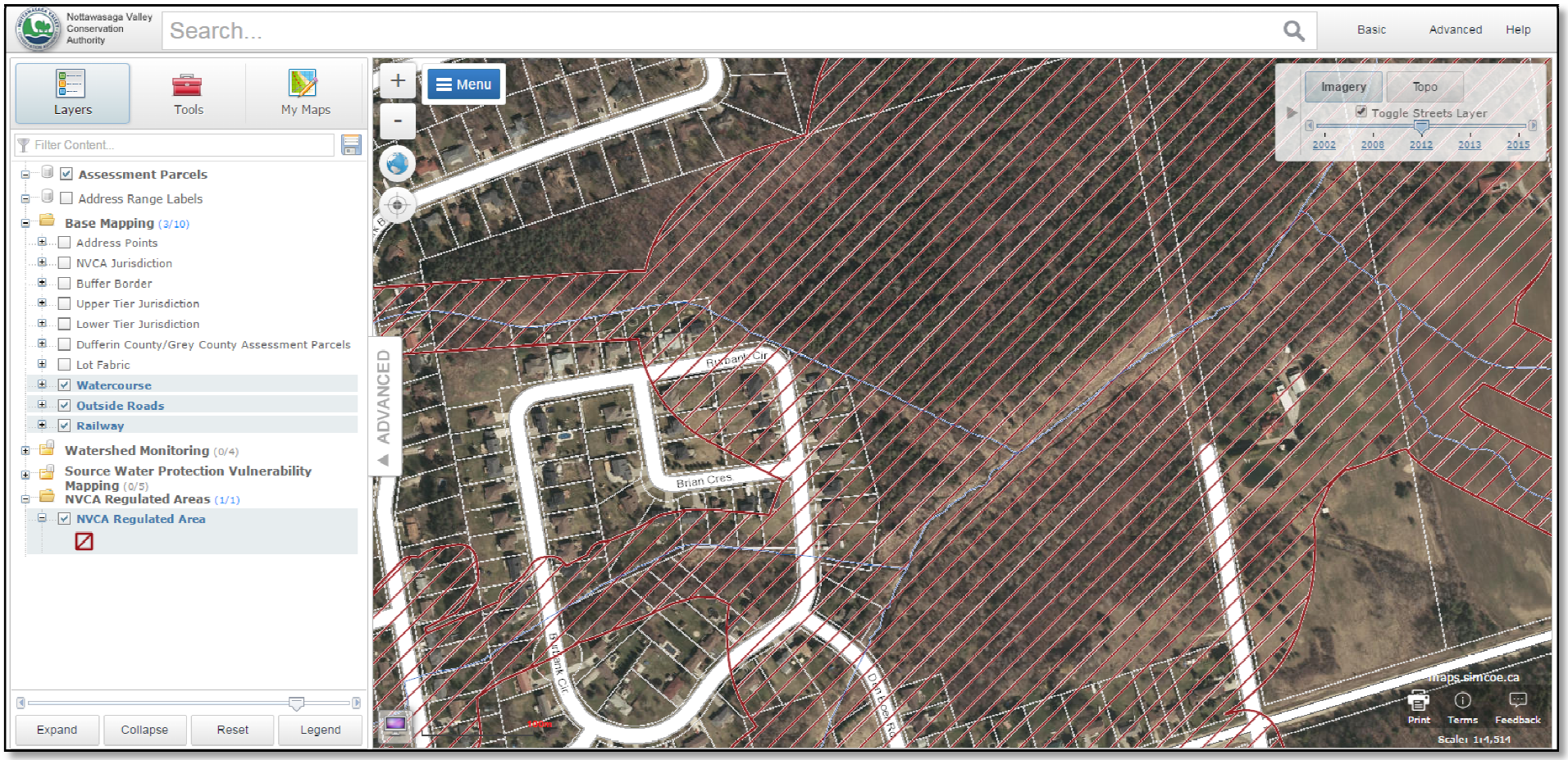


Township of Adjala-Tosorontio Official Plan, Official Plan Amendment N°15, Everett Secondary Plan, Map 1 - Land Use Plan

APPENDIX C

NVCA Regulated Areas

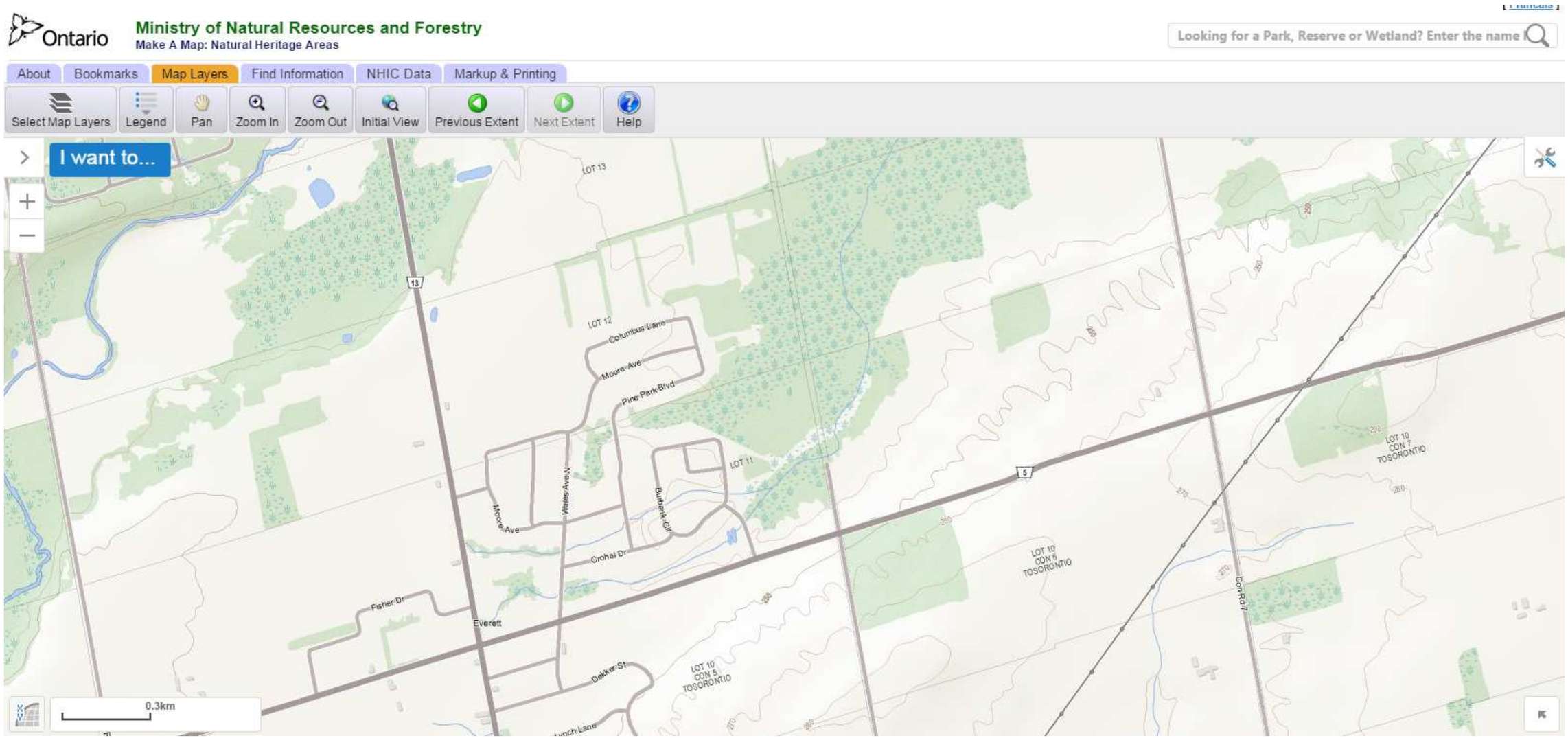
Nottawasaga Valley Conservation Authority Regulated Area



APPENDIX D

Biological Background Information

Unevaluated Wetland Mapping - Everett



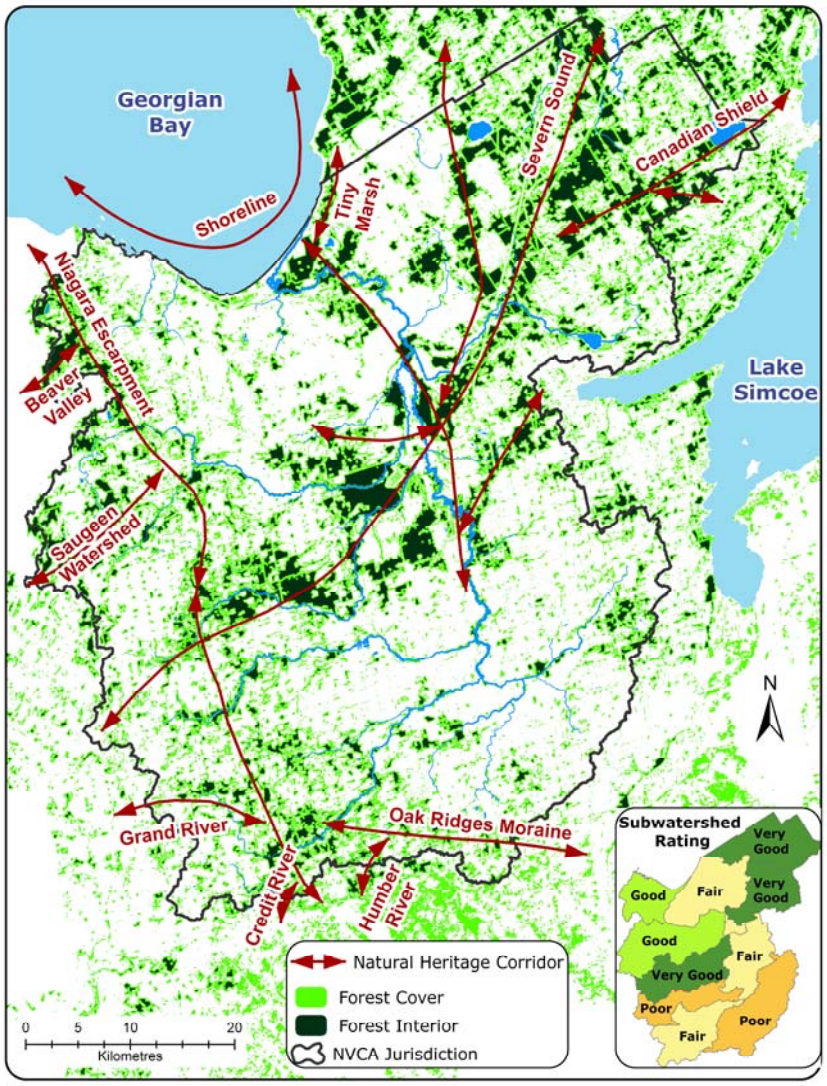
Forest Conditions

Status: Good
Trend: Declining

Forest conditions in the NVCA jurisdiction are generally good. Forest cover has recovered from historical lows in the early 1900s, but is currently under pressure from urban growth and agricultural conversion. Based on satellite photo interpretation, between 2002 and 2008 there was a net loss in watershed forest cover of 460 ha. This represents a 0.39% decrease in forest cover since 2002. Forest loss was generally associated with development activity and, to a lesser extent, agricultural conversion.

The Willow Creek, Pine River and Mad River subwatersheds and the Severn Sound headwaters have the highest percentage of forest cover and forest interior habitat in the NVCA jurisdiction. These areas collectively form an important natural corridor extending from the Niagara Escarpment to the Canadian Shield. Maintaining and enhancing ecological corridors will be important to allow forests and wildlife to adapt to climate change.

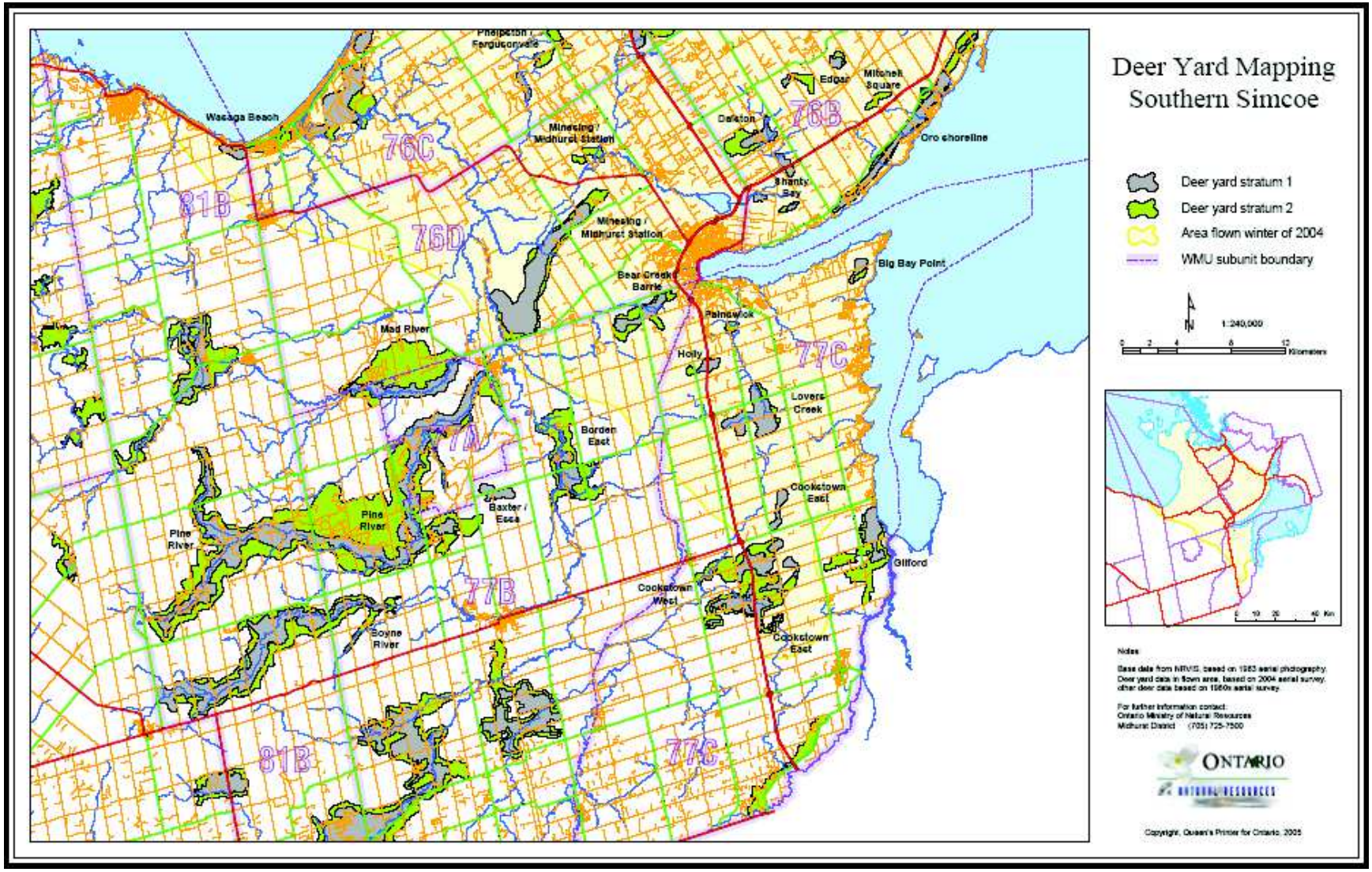
Watershed forests are also part of the Niagara Escarpment system and form an important natural linkage between the Escarpment and the Oak Ridges Moraine. Headwater wetlands west of the Escarpment are connected to similar habitat in the Grand, Saugeen, Credit and Beaver River watersheds. Forests and wetlands are also linked to natural areas northward to Severn Sound and eastward to Lake Simcoe. The Georgian Bay shoreline is part of an important corridor for migrating waterfowl and shorebirds.



Did you know that rare forest communities are present within the watershed? A mosaic of rare pine-oak woodland and tallgrass prairie is found in Wasaga Beach Provincial Park. The Minesing Wetlands hosts rare bur oak and hackberry forest swamps. The cliffs of the Niagara Escarpment support old-growth cedar stands.

Indicators	NVCA Watershed	Indicator Description	Trend (2002-2008)
Forest Cover	**32.6%**	Forest cover is the percentage of the watershed that is forested. Environment Canada suggests that **30% forest cover** is the **minimum** needed to support healthy wildlife habitat; more coverage is beneficial.	↓ -460 ha
Forest Interior	**10.3%**	Forest interior is the area of forest that lies more than 100 m from a forest edge – away from the windy, dry conditions and predators that are associated with the edge. Sensitive forest birds, mammals, reptiles and amphibians require deep forest habitat for survival. Environment Canada suggests that **10% forest interior cover** is the **minimum** needed to support a range of species.	Insufficient data
Riparian Cover	**64.9%**	Streamside forest cover (riparian vegetation) filters pollutants and provides important fish and wildlife habitat. Environment Canada suggests that at least **30 m on each side of the stream** (over 75% of its length) should be natural cover to support healthy streams.	Insufficient data

Ratings:	very good	good	fair	poor	very poor


Deer Yard Mapping
Southern Simcoe
Deer yard stratum 1
Deer yard stratum 2
Area flown winter of 2004
WMU subunit boundary
1:240,000
Kilometers
Wasaga Beach
Minesing / Midhurst Station
Edgar
Mitchell Square
Dalston
Oro shoreline
Shanty Bay
Big Bay Point
Bear Creek / Barrie
Painswick
Holly
Lovers Creek
Mad River
Borden East
Baxter / Essa
Pine River
Cookstown East
Gilford
Cookstown West
Soyne River
76C
76B
76D
81B
77C
77A
77B
81B
77C
Notes
Base data from NRVIS, based on 1983 aerial photography.
Deer yard data in flown area, based on 2004 aerial survey.
other deer data based on 1980s aerial survey.
For further information contact:
Ontario Ministry of Natural Resources
Midhurst District (705) 725-7500
ONTARIO
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Atlas of the BREEDING BIRDS OF ONTARIO

Atlas Data Summary

Select what type of data summary you would like to display and click the appropriate view button. You can use those pages to find out where the atlas regions and atlas squares are located.

What years do you want to display : : all years combined ▼ Which version of the atlas Second (2001-2005) ▼

How do you want to view the results: Tabular results ▼

Show me statistics on the number of species reported, the effort, etc.

1. View summary statistics:: Province ▼ View
2. View summary statistics: By Square ▼ within region 1. Essex ▼ View
3. View list of completed Point Counts in square :: 17NJ89 View

Show me the list of species, the highest breeding evidence and abundance

4. View species list for : : Province ▼ View
5. View species list for square or block no. : : 17NJ89 View

Show me the list of regions or squares reporting a species

6. View list of Regions ▼ reporting ▼ View

A total of 5 point counts have been completed in square 17NJ89.

In addition 0 point count(s) have been completed elsewhere.

Target number of point counts in this square: 21 road side, 4 off road (2 in deciduous forest, 2 in mixed forest). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat.

Species list for square 17NJ89 (number of entries returned: 111)

Region	Square	Species	Breeding Evidence				Point Counts			
			Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
13	17NJ89	Canada Goose	FY	CONF	1	John B Schmelefske				
13	17NJ89	Wood Duck	P	PROB	1	John B Schmelefske				
13	17NJ89	American Black Duck	P	PROB	1	John B Schmelefske				
13	17NJ89	Mallard	FY	CONF	1	John B Schmelefske				
13	17NJ89	Blue-winged Teal	H	POSS	1	John B Schmelefske				
13	17NJ89	Green-winged Teal	P	PROB	1	John B Schmelefske				
13	17NJ89	Common Merganser	H	POSS	1	John B Schmelefske				
13	17NJ89	Ring-necked Pheasant	S	POSS	1	John B Schmelefske				
13	17NJ89	Ruffed Grouse	T	PROB	1	John B Schmelefske				
13	17NJ89	Wild Turkey	FY	CONF	1	John B Schmelefske				
13	17NJ89	Great Blue Heron	H	POSS	1	John B Schmelefske				
13	17NJ89	Green Heron	P	PROB	1	John B Schmelefske				
13	17NJ89	Turkey Vulture	P	PROB	1	John B Schmelefske				
13	17NJ89	Osprey	H	POSS	1	John B Schmelefske				
13	17NJ89	Northern Harrier	D	PROB	1	John B Schmelefske				
13	17NJ89	Northern Goshawk	AE	CONF	1	John B Schmelefske				
13	17NJ89	Broad-winged Hawk	H	POSS	1	John B Schmelefske				
13	17NJ89	Red-tailed Hawk	A	PROB	1	John B Schmelefske				
13	17NJ89	American Kestrel	AE	CONF	1	John B Schmelefske				
13	17NJ89	Killdeer	DD	CONF	1	John B Schmelefske				
13	17NJ89	Rock Pigeon	AE	CONF	1	John B Schmelefske				
13	17NJ89	Spotted Sandpiper	T	PROB	1	John B Schmelefske				
13	17NJ89	Common Snipe	FY	CONF	1	John B Schmelefske				
13	17NJ89	American Woodcock	D	PROB	1	John B Schmelefske				
13	17NJ89	Herring Gull	P	PROB	1	John B Schmelefske				
13	17NJ89	Mourning Dove	P	PROB	1	John B Schmelefske				
13	17NJ89	Yellow-billed Cuckoo	S	POSS	1	John B Schmelefske				
13	17NJ89	Black-billed Cuckoo	T	PROB	1	John B Schmelefske				
13	17NJ89	Eastern Screech-Owl	S	POSS	1	Glenn Coady				
13	17NJ89	Great Horned Owl	H	POSS	1	John B Schmelefske				
13	17NJ89	Ruby-throated Hummingbird	H	POSS	1	John B Schmelefske				

13	17NJ89 Belted Kingfisher	CF	CONF 1	John B Schmelefske			
13	17NJ89 Yellow-bellied Sapsucker	FY	CONF 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 Downy Woodpecker	H	POSS 1	John B Schmelefske			
13	17NJ89 Hairy Woodpecker	CF	CONF 1	John B Schmelefske 1	20.0	0.4	1
13	17NJ89 Northern Flicker	FY	CONF 1	John B Schmelefske			
13	17NJ89 Pileated Woodpecker	S	POSS 1	John B Schmelefske			
13	17NJ89 Eastern Wood-Pewee	P	PROB 1	John B Schmelefske			
13	17NJ89 Alder Flycatcher	T	PROB 1	John B Schmelefske			
13	17NJ89 Willow Flycatcher	T	PROB 1	John B Schmelefske			
13	17NJ89 Least Flycatcher	T	PROB 1	John B Schmelefske			
13	17NJ89 Eastern Phoebe	FY	CONF 1	John B Schmelefske			
13	17NJ89 Great Crested Flycatcher	T	PROB 1	John B Schmelefske 3	60.0	0.6	1
13	17NJ89 Eastern Kingbird	FY	CONF 1	John B Schmelefske			
13	17NJ89 Warbling Vireo	T	PROB 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 Red-eyed Vireo	A	PROB 1	John B Schmelefske 3	60.0	0.8	1
13	17NJ89 Blue Jay	A	PROB 1	John B Schmelefske			
13	17NJ89 American Crow	CF	CONF 1	John B Schmelefske 2	40.0	1.2	1
13	17NJ89 Horned Lark	FY	CONF 1	John B Schmelefske			
13	17NJ89 Tree Swallow	NE	CONF 1	John B Schmelefske			
13	17NJ89 Bank Swallow	AE	CONF 1	John B Schmelefske			
13	17NJ89 Cliff Swallow	AE	CONF 1	John B Schmelefske			
13	17NJ89 Barn Swallow	AE	CONF 1	John B Schmelefske			
13	17NJ89 Black-capped Chickadee	FY	CONF 1	John B Schmelefske 2	40.0	0.4	1
13	17NJ89 Red-breasted Nuthatch	P	PROB 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 White-breasted Nuthatch	P	PROB 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 House Wren	S	POSS 1	John B Schmelefske			
13	17NJ89 Winter Wren	A	PROB 1	John B Schmelefske 2	40.0	0.4	1
13	17NJ89 Sedge Wren	A	PROB 1	John B Schmelefske			
13	17NJ89 Eastern Bluebird	CF	CONF 1	John B Schmelefske			
13	17NJ89 Veery	A	PROB 1	John B Schmelefske			
13	17NJ89 Hermit Thrush	S	POSS 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 Wood Thrush	AE	CONF 1	John B Schmelefske			
13	17NJ89 American Robin	CF	CONF 1	John B Schmelefske			
13	17NJ89 Gray Catbird	A	PROB 1	John B Schmelefske			
13	17NJ89 Brown Thrasher	T	PROB 1	John B Schmelefske			
13	17NJ89 European Starling	CF	CONF 1	John B Schmelefske			
13	17NJ89 Cedar Waxwing	NB	CONF 1	John B Schmelefske			
13	17NJ89 Blue-winged Warbler	S	POSS 1	John B Schmelefske			
13	17NJ89 Golden-winged Warbler	A	PROB 1	John B Schmelefske			
13	17NJ89 Blue-winged/Golden-winged Warbler	S	POSS 1	John B Schmelefske			
13	17NJ89 Nashville Warbler	A	PROB 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 Yellow Warbler	A	PROB 1	John B Schmelefske			
13	17NJ89 Chestnut-sided Warbler	A	PROB 1	John B Schmelefske			
13	17NJ89 Magnolia Warbler	A	PROB 1	John B Schmelefske			
13	17NJ89 Black-throated Blue Warbler	S	POSS 1	John B Schmelefske			
13	17NJ89 Yellow-rumped Warbler	H	POSS 1	John B Schmelefske			
13	17NJ89 Black-throated Green Warbler	T	PROB 1	John B Schmelefske			
13	17NJ89 Pine Warbler	T	PROB 1	John B Schmelefske			
13	17NJ89 Black-and-white Warbler	A	PROB 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 American Redstart	A	PROB 1	John B Schmelefske			
13	17NJ89 Ovenbird	A	PROB 1	John B Schmelefske 4	80.0	0.8	1
13	17NJ89 Northern Waterthrush	A	PROB 1	John B Schmelefske			
13	17NJ89 Mourning Warbler	A	PROB 1	John B Schmelefske			
13	17NJ89 Common Yellowthroat	CF	CONF 1	John B Schmelefske			
13	17NJ89 Canada Warbler	FY	CONF 1	John B Schmelefske			
13	17NJ89 Eastern Towhee	S	POSS 1	John B Schmelefske			
13	17NJ89 Chipping Sparrow	FY	CONF 1	John B Schmelefske			
13	17NJ89 Clay-colored Sparrow	CF	CONF 1	John B Schmelefske			
13	17NJ89 Field Sparrow	FY	CONF 1	John B Schmelefske			
13	17NJ89 Vesper Sparrow	CF	CONF 1	John B Schmelefske			
13	17NJ89 Savannah Sparrow	CF	CONF 1	John B Schmelefske			
13	17NJ89 Grasshopper Sparrow	CF	CONF 1	John B Schmelefske			
13	17NJ89 Song Sparrow	CF	CONF 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 Swamp Sparrow	CF	CONF 1	John B Schmelefske			
13	17NJ89 White-throated Sparrow	A	PROB 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 Scarlet Tanager	A	PROB 1	John B Schmelefske 1	20.0	0.2	1
13	17NJ89 Northern Cardinal	A	PROB 1	John B Schmelefske			
13	17NJ89 Rose-breasted Grosbeak	A	PROB 1	John B Schmelefske			
13	17NJ89 Indigo Bunting	T	PROB 1	John B Schmelefske			
13	17NJ89 Bobolink	FY	CONF 1	John B Schmelefske			
13	17NJ89 Red-winged Blackbird	CF	CONF 1	John B Schmelefske			
13	17NJ89 Eastern Meadowlark	FY	CONF 1	John B Schmelefske			
13	17NJ89 Western Meadowlark	S	POSS 1	William J Crins			

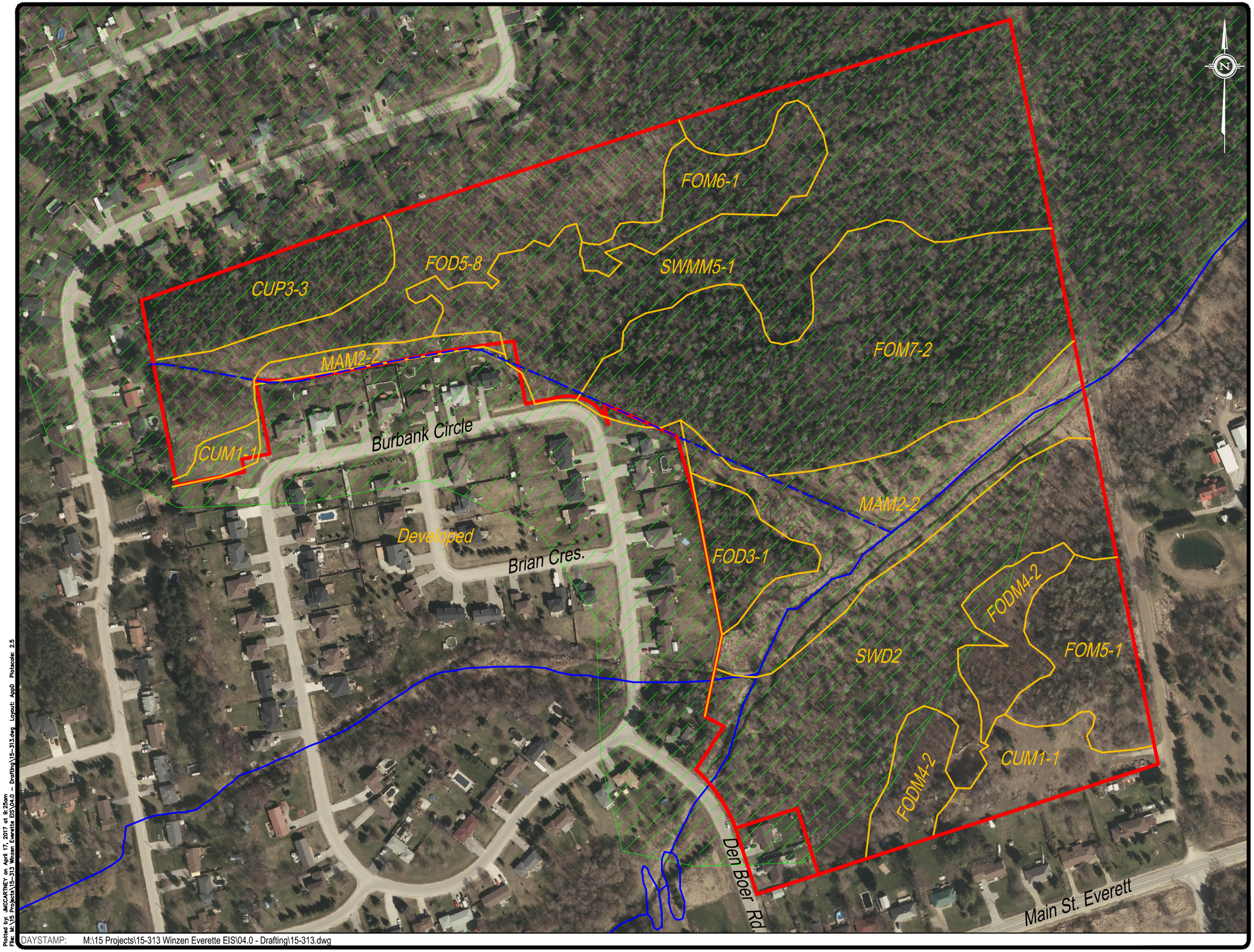
13	17NJ89 Common Grackle	FY	CONF	1	John B Schmelefske				
13	17NJ89 Brown-headed Cowbird	P	PROB	1	John B Schmelefske				
13	17NJ89 Baltimore Oriole	FY	CONF	1	John B Schmelefske				
13	17NJ89 Purple Finch	S	POSS	1	John B Schmelefske				
13	17NJ89 House Finch	H	POSS	1	John B Schmelefske				
13	17NJ89 American Goldfinch	A	PROB	1	John B Schmelefske	1	20.0	0.2	1
13	17NJ89 House Sparrow	NE	CONF	1	John B Schmelefske				

New data summary | Download results

Disclaimer: If you wish to use the data in a publication, research or for any purpose, or would like information concerning the accuracy and appropriate uses of these data, read the data use policy and request form. These data are current as of 1 Sep 2016 .

LEGEND	
Breeding Evidence Max BE: Highest Breeding Evidence recorded Categ: Highest Breeding Category recorded (OBS=observed, POSS=possible, PROB=probable, CONF=confirmed) #Sq: Number of squares with species (Breeding Evidence) Atlasser name: Name of atlasser who reported the highest breeding evidence (if they accepted that their name be displayed). If more than one person provided the same breeding evidence code, then only the number of atlassers is listed.	Point Counts #PC: Number of Point Counts with species %PC: Percent of Point Counts with species Abun: Average number of birds per Point Count #Sq: Number of squares with species (Point Counts)

Site hosted by Bird Studies Canada



LEGEND:

- Approx. Property Boundary
- Watercourse
- Intermittent Seasonal Drainage Feature
- Deer Winter Congregation Area(LIO , 2017)
- Vegetation Communities

CUM1-1	Dry-Moist Old Field Meadow Type
CUP3-3	Scotch Pine Coniferous Plantation
FOD3-1	Dry-Fresh Poplar Deciduous Forest
FODM4-2	Dry-Fresh White Ash-Hardwood Deciduous Forest
FOD5-8	Dry-Fresh Sugar Maple-White Ash Deciduous Forest
FOM5-1	Dry-Fresh White Birch Mixed Forest
FOM6-1	Fresh-Moist Sugar Maple-Hemlock Mixed Forest
FOM7-2	Fresh-Moist White Cedar Hardwood Mixed Forest
MAM2-2	Reed-Canary Grass Mineral Meadow Marsh
SWD2	Ash Mineral Deciduous Swamp
SWMM5-1	Balsam Fir Hardwood Mixed Mineral Swamp Type

25m 0 75m

HORIZONTAL SCALE 1:2,500

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Deer Wintering Area

Winzen Everett EIS,
Everett, ON

DATE ISSUED:	March 2017	Appenix
CREATED BY:	JLM	D
PROJECT NO.:	15-313	
REFERENCE:	First Base Solutions	

DAYSTAMP: M:\15 Projects\15-313 Winzen Everette EIS\04.0 - Drafting\15-313.dwg

Plotted by: JMCCARTNEY on April 17, 2017 at 9:25am
File: M:\15 Projects\15-313 Winzen Everette EIS\04.0 - Drafting\15-313.dwg Layout: App0 Plotscale: 2.5

APPENDIX E

Water Balance

Technical Memorandum

To:	**Melissa Fuller, Azimuth Environmental Consulting, Inc.**
Re:	**Water Balance Assessment – 6126 Concession Road 6, Everett, ON**
From:	Jennifer Thompson, Azimuth Environmental Consulting, Inc.
Project:	15-313
Date:	April 11, 2017

1.0 INTRODUCTION

Azimuth Environmental Consulting, Inc. (Azimuth) was retained to conduct a preliminary water budget for the proposed residential development located at 6126 Concession Road 6 in the community of Everett, Ontario (the "Site"). The Site is located on the west side of Concession Road 6, approximately 70 m north of the Main St East intersection, and is approximately 202,572 m^2 in size. The proposed development will include 45 residential units consisting of a detached home and driveway. The proposed developed area is approximately 42,786 m^2 in size.

The primary objective of this evaluation was to review the geological and hydrologic data available for the subject property, and assess the potential for impacts to occur to the existing hydrogeological conditions on a post-development basis.

2.0 ENVIRONMENTAL SETTING

Soil

The soil map of Simcoe County (Soil Survey Report No. 29, Scale 1:63,360) shows the uppermost soil to be composed of Tioga sandy loam and Muck. Tioga sandy loam is described as grey, calcareous outwash sand with good drainage and is stone free to moderately stony. Muck is described as well decomposed organic material over 1 foot deep underlain by rock, sand, silt, or clay (Hoffman & Richards, 1962). Tioga sandy loam is classified within hydrologic soil group "A". Group A represent soils which have low runoff potential and high infiltration rates even when thoroughly wet. They consist of deep, well to excessively drained sand or gravel and have a high rate of water transmission. Muck is classified within hydrogeologic group "B". Group B represents soils with a moderate infiltration rate when thoroughly wetted.

Physiography

The Ontario Geological Survey (Chapman & Putnam, 1984) describes the study area as being located in the Simcoe Lowlands physiographic region, which lies around the east side of Lake Simcoe, through the shores of Kempenfelt Bay, and up toward Georgian Bay. The Simcoe Lowlands represent the area previously flooded by Lake Algonquin and are bordered by shore cliffs, beaches, and boulder terraces. The Site is located within

the Camp Borden San Plain area of the region, which is characterized by loose, coarse-textured material that is well drained by the entrenchment of the rivers of the area.

Regional Geology

The regional geology reportedly consists of gravel and sand associated with glaciofluvial outwash deposits, and organic deposits consisting of peat, muck, and marl. The Ontario Geological Survey Earth Database shows that the Site overlaps a bedrock divide, and overlaps both shale of the Blue Mountain Formation, and shale/limestone of the Lindsay Formation (OGS, 2016).

Hydrology and Drainage

According to regional contour mapping, the Site varies in elevation between about 242 metres above sea level (masl) at the north west corner and 236 masl along the eastern property line where a drainage channel flows underneath Concession Road 6. This drainage channel intersects the Site in a south west to north east direction, and is a tributary to the Pine River. A larger portion of the Site is composed of wetland. In general, the topography of the Site and surrounding area slopes toward the northeast. Runoff from the proposed development area is expected to currently travel east into the adjacent wetland feature.

Local Geology

The Ministry of the Environment and Climate Change (MOECC) water well records were referenced for any recorded well information within the vicinity of the study area (GIN, 2017; Table A). Table A displays wells immediately adjacent (~300 m) from the study area.

Table A: MOECC Water Well Database Summary[1]

Well No.	Distance from site[2] (m)	Direction from site[2]	Elevation (masl)	Date Drilled	Static Water Level (mbgs)	Total Depth (m)	Well Type	Primary Use
5715586	165	SW	244	1978-08-28	7.3	64.9	Bedrock	Water Supply
5715585	200	SW	244	1978-08-18	2.4	20.7	Overburden	Water Supply
5704553	35	S	242	1964-10-28	1.2	4.6	Overburden	Domestic
5708539	80	E	238	1971-12-30	0.9	3.4	Overburden	Domestic
5708052	70	S	242	1971-07-07	3.1	6.1	Overburden	Domestic
5715575	185	SW	244	1978-06-22	0.6	19.8	Overburden	Observation
5715576	185	SW	244	1978-07-04	1.5	19.8	Overburden	Water Supply
5715584	190	SW	244	1978-08-17	-	20.7	Overburden	Observation
5707847	190	SW	241	1970-06-17	1.8	13.1	Overburden	Water Supply
5706079	40	S	241	1968-07-11	-	38.1	Overburden	Abandoned
5708055	40	S	243	1971-07-05	3.1	6.1	Overburden	Domestic

Notes: [1] - values rounded for presentation purposes
[2] – values measured based on latitude and longitude recorded within the well record as displayed on Google Earth Pro (2015)

The surrounding wells in the MOECC database were drilled primarily for domestic,

water supply, and observation use and ranged in depth between 3.4 m and 64.9 m. One of the wells encountered limestone bedrock at a depth of 59 meters below ground surface (mbgs). The static water levels ranged between 0.9 mbgs and 7.3 mbgs, however was typically less than 3.5 mbgs. The wells were drilled primarily into surficial sand, overlying clay, overlying a second sand unit on top of limestone. However, some wells located south of the Site encountered surficial clay. One well was drilled to a depth of 38 mbgs into clay and was listed as abandoned due to water supply.

3.0 WATER BALANCE APPROACH

In order to determine the potential changes to the natural ground water recharge conditions, a pre- and post-development water balance assessment has been completed using the Thornthwaite and Mather method (1957). The "pre-development" case is based on the existing conditions, i.e. prior to the proposed lot severance and house construction. This method evaluated evapotranspiration based on precipitation and temperature. Residual soil saturation is a function of topography and soil type. Monthly data are tabulated from daily average temperature and precipitation, and the water budget is a continuous calculation over the period of record. To clarify, the method and approach used by many individuals in examining infiltration resets the annual conditions (moisture deficit, snow storage, etc.) over the winter months because of the general lack of infiltration during the frost period. However, we maintain those records and carry them forward from month to month during the entire period of record.

Values were determined on a monthly basis, compiled from daily Environment Canada meteorological data station located in Barrie, Ontario between 1970 and 2014 (Barrie Climate Station – Station ID 6110557). The calculations are based on the average conditions during this period. The average precipitation was 914 millimeters (mm), rainfall was 658 mm, evapotranspiration was 487 mm, and the surplus was 426 mm per year.

The area used in the water balance assessment is limited to the proposed development area (42,786 m^2).

Pre-Development Conditions

Using an aerial image and Figure 2 (Azimuth, 2017), the development area was classified according to land use/vegetation type. Land within the pre-development area can be classified as forest or wetland (Table B).

Table B: Pre Development Area Classification

Land Use	Land Area (m^2)
Forest	30,087
Wetland	12,699
Total	**42,786**

Notes – values rounded for presentation purposes and are considered approximate

Post-Development Conditions

Land within the post-development area can be classified as landscaped/open space, homes, and driveway (Table B). The land classification given in Table B is based on Figure 3 (Azimuth, 2017) and the following assumptions:

- the development will contain approximately 4,950 m^2 of roadway;
- the subject property will be divided into 45 lots, each with a residence and driveway;
- each residence will be about 200 m^2 in size for a total area of 9,000m^2;
- each home will be accessed by a paved driveway. Each driveway is estimated to be 95 m^2. The total driveway area is 4,275 m^2; and
- the remaining land area within each lot will change to landscaped/open space within the post-development conditions.

The post-development conditions contain approximately 43% impervious cover.

Table B – Post Development Area Classification

Land Use	Land Area (m^2)
Landscaped/open space	24,561
Homes	9,000
Driveway	4,275
Municipal Road	4,950
Total Water Balance Area	**42,786**

Notes – values rounded for presentation purposes

4.0 INFILTRATION CALCULATION

Infiltration is generated one of two ways: (1) directly from rainfall impact on pervious surfaces; and (2) indirectly when runoff from impervious surfaces is diverted into adjacent naturalized areas or low impact design (LID).

Infiltration is dependent on the land use, slope, and soil texture of the underlying soil, among other things. To determine the total volume of direct infiltration, an infiltration coefficient (IC) was assigned to each pervious land use according to values obtained from the document titled *MOEE Hydrogeological Technical Information Requirements for Land Development Applications* (MOEE, 1995) and summarized in Table D.

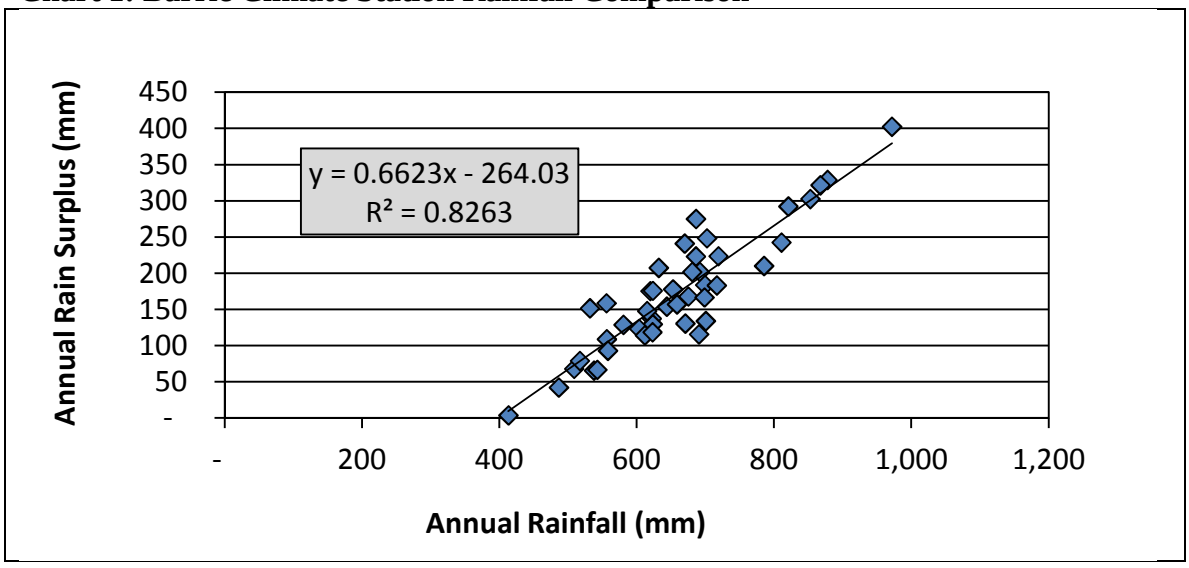
Table D: Assigned Infiltration Coefficients

Land Use	Runoff Coefficient	Infiltration Coefficient (IC)
Wetland	1.0	0.0
Forest[1]	0.15	0.85
Meadow[2]	0.20	0.80
Landscaped/open space[1]	0.30	0.70

Notes [1] – Assuming woodland cover, sandy loam soil, flat/rolling topography, from MOEE (1995)
[2] - Assuming between cultivate and pasture cover, sandy loam soil, flat/rolling topography, from MOEE (1995)
[3] - Assuming lawn cover, sandy loam soil, and flat/rolling topography, from MOEE (1995)

To calculate the indirect infiltration, numerically the runoff from hard surfaces that has been directed to natural areas is treated as a supplement to precipitation. A series of sensitivity analyses was completed to evaluate water surplus as a function of annual and monthly precipitation (data provided by Environment Canada – Barrie Climate Station). Surplus is directly proportional to both rainfall and total precipitation, and within a narrow statistical range. Comparison based on rain surplus and total rainfall is most conservative compared to total surplus or total precipitation since it negates the influence of snow and the potential for infiltration through the winter. As shown below in Chart 1, rain surplus increases at a rate of approximately 66% of total rain increase.

Chart 1: Barrie Climate Station Rainfall Comparison



This methodology identifies a single value for infiltration / runoff partitioning and this is incorporated here. Again, this is conservative since it assumes the same proportion of surplus is required to overcome soil moisture deficit, however, it is already met. Based on Chart 1, it is assumed that discharging rooftop pavement run-off to grassed areas will capture 66% of the potential infiltration loss.

Pre-Development Infiltration Values

To determine the pre-development direct infiltration amount, the area of each land use was multiplied by the surplus amount (426mm) and by the infiltration coefficient. The total direct pre-development infiltration for the study area is ~10,895m^3.

Post-Development Infiltration Values

The post-development direct infiltration was determined using the same steps as outlined above for a direct infiltration amount of 7,325m^3.

Additional runoff will be incorporated into the site utilizing indirect measures. One such indirect measure is directing rooftop downspouts from each structure into the adjacent landscape/open space instead of into the stormwater collection system. This indirect infiltration is therefore found by multiplying the structure area (9,000m^2) by the rainfall (658mm), by the rainfall recovery from Chart 1 (66%), and by the infiltration coefficient of the receiving land use (landscaped/open space, IC of 0.70). A 20% reduction is also included to account for evaporation prior to collection. Diverting rooftop downspouts into landscaped/open space therefore reduces the runoff by approximately 46%. This is comparable to the 50% runoff reduction recommended by TRCA & CVC (2010) for type A and B soils. The infiltration gained from rooftop diversion is ~2,735m^3.

The total post-development infiltration for the Site is therefore 10,060m^3. Stormwater within Burbank Circle currently collects within road side ditches for conveyance, and this method will continue for the post-development condition. Runoff from the rear lots of the homes on the north and east side of the road within the proposed development will likely continue to drain into the adjacent wetland. Additional infiltration will therefore occur at the Site when runoff from impervious surfaces is collected within naturalized channels (i.e. road side ditches). According to the Preliminary Stormwater Management Report (CCTA, 2017) the implementation of LID techniques will be analyzed during final design and may include individual soak-away pits on each lot, enhanced roadside ditches, bio-swales, property line swales and lot level controls.

Pre and Post Development Comparison

Using the climate model data and calculations mentioned above, pre and post development infiltration values have been determined (Table E).

The amount of direct infiltration has decreased from pre- to post-development by approximately 3,570m^3 due to the increase in impervious cover associated with the paved road, driveways, and homes. The percent impervious cover increased from 0% in the pre-development condition to 42% in the post-development condition.

The amount of indirect infiltration actually increased from pre- to post-development by approximately 2,735m^3 due to directing runoff into more pervious areas. This was obtained by directing rooftop downspouts toward the landscaped/open area and the

calculation for this value is shown above.

The calculated pre-development infiltration is 10,895m^3, and the calculated post-development infiltration is 10,060m^3. The water balance therefore shows that the proposed development may decrease infiltration by about 835m^3 when compared to the pre-development scenario. This amounts to a decrease of approximately 8 % and represents approximately 20mm of infiltration across the development area. Additional indirect infiltration is expected when roadway and driveway runoff is directed into the adjacent wetland or conveyed via the naturalized road side ditches.

Table E: Water Balance Summary

Parameters	**Values**
Average Annual Climatic Data	
Rainfall (mm)	658
Total Precipitation (mm)	914
Evapotranspiration (mm)	487
Surplus (mm)	426
Site Area (m^2)	42,786
Pre-Development	
Direct Infiltration (m^3/year)	10,895
Indirect Infiltration (m^3/year)	0
Total Infiltration (m^3/year)	10,895
Runoff (m^3/year)	7,332
Post Development	
Direct Infiltration (m^3/year)	7,325
Indirect Infiltration (m^3/year)	2,735
Total Infiltration (m^3/year)	10,060
Runoff (m^3/year)	8,167
Infiltration Comparison	
Pre-Development and Post Development Differential (m^3)	- 835
Pre-Development and Post Development Differential (%)	- 8

5.0 SUMMARY AND CONCLUSIONS

The calculated water balance shows that the proposed development may decrease pre-development ground water infiltration by up to 8% within the proposed development area. Although the amount is moderate when shown as a percentage, it equates to 20mm/m, which means that the water table has the potential to decline by less than 15-20mm, which is inconsequential, and will not alter ground water flow or quantities. This decrease is primarily due to the presence of sandy native soils since the infiltration volume is significantly reduced when the ground surface becomes impermeable.

Based upon our interpretation of the available data it is concluded that the present hydrogeological conditions of the Site and surrounding area will not experience a significant change due to the proposed development of 45 residential units.

If you require further information or have any questions do not hesitate to contact us.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Jennifer Thompson, M.A.Sc., P.Geo.
Hydrogeologist

6.0 REFERENCES

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