Environmental Impact Study
and Management Plan
Laurelpark Subdivision

Part of Lot 19, Concession 9
Town of Caledon, Regional Municipality of Peel

Prepared for:
Laurelpark Inc.

Prepared by:
Azimuth Environmental
Consulting, Inc.

July 2017

AEC 08-019

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

July 5, 2017 AEC 08-019

Ventawood Management Inc.
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Attention: Carmen Jandu, MCIP RPP

Re: **Environmental Impact Study and Management Plan**
Laurelpark Subdivision
Part of Lot 19, Concession 9
Town of Caledon, Regional Municipality of Peel

Azimuth Environmental Consulting, Inc. is pleased to submit the Environmental Impact Study and Management Plan investigating potential natural heritage impacts of the proposed Laurelpark Subdivision located on the property defined above. This assessment is based on consultation with the relevant agencies, a review of background natural heritage information as well as site-specific information collected during site visits to the property.

Should you have any questions or wish to discuss our findings and recommendations in greater detail, please do not hesitate to contact us directly.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

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1.0 INTRODUCTION

Azimuth Environmental Consulting, Inc. (Azimuth) was retained by Laurelpark Inc. to complete an Environmental Impact Study and Management Plan (EIS & MP) for the proposed estate residential development on a property located along Mount Pleasant Road on Part of Lot 19, Concession 9, Town of Caledon (Town) in the Regional Municipality of Peel (Region) (Figure 1). Since the proposed estate residential development site occurs within the Oak Ridges Moraine Conservation Plan (ORMCP) Area the EIS & MP incorporates a Natural Heritage Evaluation (NHE) which is a requirement of both the Oak Ridges Moraine Conservation Plan (ORMCP) and the Town of Caledon Official Plan (TCOP, 2016). The assessment of the Hydrologically Sensitive Features (HSF) within this report relies on the Hydrogeological Assessment Report prepared under a separate cover (Azimuth, 2017b).

2.0 STUDY AREA

The proposed development is located in the Toronto and Region Conservation Authority (TRCA) watershed (Ecoregion 6E) within the Oak Ridges Moraine (ORM). This property is located on Part of Lot 19, Concession 9, Town of Caledon, Region of Peel, the boundaries of which are delineated in Figure 1.

For the purpose of this project, the 'property' refers to the entire assessment parcel as described above. As per the ORMCP and the Natural Heritage Reference Manual (NHRM), adjacent lands, also referred to as the Minimum Area of Influence within the ORMCP, shall include all lands within 120m of the property. Both the property and adjacent lands comprise the study area (Figure 1).

3.0 STUDY APPROACH

3.1 Project History and Scope of Work

A meeting was held with the Development Application Review Team (DART) in June 2012 which included the proponent, the Town, Region and TRCA (Town DART submission meeting). Direction was requested from the TRCA on the required scope of the EIS & MP for the property.

Subsequent to the initial DART meeting, a second pre-consultation DART meeting was held on March 7, 2013 between the proponent and staff from the Town, Region and TRCA and the applicant to discuss the submission requirements for a proposed estate residential development. Subsequent to this meeting, Azimuth prepared a Terms of

Reference (TOR) for the Hydrogeological Assessment Report, EIS & MP, Headwaters Assessment and Tree Preservation Plan that was sent to the Town and TRCA (dated March 14, 2013) to confirm the required scope of work for these projects. In response to the proposed TOR, a conference call was held on April 11, 2013 between TRCA [Leilani Lee-Yates (TRCA), Brennan Paul (TRCA), Jehan Zeb (TRCA), M. Liu (TRCA), Carmen Jandu (Ventawood Management Inc.), Lisa Moran (Azimuth), Mike Jones (Azimuth), Drew West (Azimuth), Mary Nordstrom (Town of Caledon) and Geoff Hebbert (Town of Caledon)]. During this meeting a number of details and additional action points were discussed and to be included within the TOR. This in addition to a few minor subsequent comments resulted in the preparation of the updated TOR (Appendix A). On January 12, 2017, a third pre-consultation DART meeting was held between the proponent and staff from the Town of Caledon, Region of Peel and TRCA. The TOR was re-circulated to TRCA staff and a number of additional comments regarding the proposed TOR were provided. These additional requirements can be found within Appendix A.

Information derived from the following studies/data sets were used to complete the EIS & MP:

- Anuran amphibian surveys on May 28, 2008, June 26, 2008, April 17, 2013, April 5 and 20, 2017 (L. Moran, B. Clayton and M. Fuller, Azimuth);
- Dawn breeding bird surveys on June 12, 2008 and July 9, 2008 (L. Moran, Azimuth);
- Bobolink/Eastern Meadowlark dawn surveys on May 30, 2013, June 5, 2013 and June 19, 2013 (J. Broadfoot, Azimuth);
- Vegetation surveys conducted on May 27, 2008, August 11 and 12, 2008, September 19, 2008 and October 6, 2017 (L. Moran and B. Peloso, Azimuth)
- Butternut health assessment (BHA) surveys and site meetings
    - September 19, 2008 - Site meeting between L. Moran (Azimuth) and Bohdan Kowalyk (MNRF);
    - June 2011 - Azimuth conducted BHA (D. West, Azimuth);
    - July 5, 2011 - MNRF audit of assessments (Bohdan Kowalyk attended site)
    - August 2012 - Azimuth conducted BHA on 3 additional individuals (D. West, Azimuth);
    - June 2013 - Azimuth conducted BHA on 1 additional individual (D. West, Azimuth); and
    - July 8, 2013 - MNRF (B. Kowalyk) attended property to review potential Butternut compensation planting areas.

- Wetlands were identified and staked by Steve Varga, MNRF on July 10, 2012. Subsequently, these features were surveyed;
- MNRF wetland flora and fauna data provided on November 27, 2012. Data collected on July 10, 2012;
- Woodland dripline identified and staked by Leilani Lee-Yates (TRCA) and Brennan Paul (TRCA) on July 10, 2012. Subsequently, the dripline was surveyed;
- Geotechnical Investigation (Terraprobe Inc., 2017);
- Preliminary Engineering and Stormwater Management Report (Calder Engineering Ltd. 2017)
- Headwater Drainage Report (Azimuth, 2017a)
- Hydrogeologic Assessment Report (Azimuth, 2017b); and
- Tree Inventory and Assessment Report (Azimuth, 2017c).

Background and site specific data were used to: identify existing ecosystem forms, functions; conduct the EIS & MP required under the ORMCP; further refine the limits of the EPA; and to identify and assess the function and integrity of Supportive Natural Systems and Linkages as required by the Town of Caledon's Official Plan (TCOP).

3.2 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 study area. This background data review included:

- Aerial images (Google, VuMap);
- Atlas of the Breeding Birds of Ontario (OBBA) [website];
- MNRF's Natural Heritage Information Centre (NHIC) Make-A-Map: Natural Heritage Areas application [website];
- MNRF Species at Risk (SAR) Information Request;
- MNRF's SAR Ontario list; and
- Ecological Land Classification (ELC) for Southern Ontario (Lee *et al*., 1998. Ecological land classification for southern Ontario: first approximation and its applications. SCSS Field Guide FG-02);
- Ontario Nature – Ontario Reptile and Amphibian Atlas [website]; and
- Atlas of the Mammals of Ontario (Dobbyn, J., 1994).

According to the MNRF Make a Map (Natural Heritage Areas) online tool, there are five rare species records within the NHIC database within the general area (*i.e.*, within 1km of

site). NHIC records indicate that Awnless Graceful Sedge (*Carex Formosa*, S4), Bobolink (Threatened, THR), Brush-tipped Emerald (*Somatochlora walshii*, S4), Cerulean Warbler (THR), Clamp-tipped Emerald (*Somatochlora tenebrosa*, S2S3), Delta-spotted Spiketail (*Cordulegaster diastatops*, S4), Eastern Amberwing (*Perithemis tenera*, S4), Snapping Turtle (Special Concern, SC) and Woodland Pinedrops (*Pterospora andromedia*, S2), have been documented within the general area (Appendix B).

3.3 Vegetation Community Mapping and Surveys

Ontario ELC for Southern Ontario (Lee *et al*., 1998) was used as a general guide to the classification of vegetation community types. ELC and mapping was completed during site visits in 2008. The boundaries of the wetland features were determined using the method outlined in the Ontario Wetland Evaluation System (OWES): Southern Manual (MNRF, 2014b), which directs that the boundary of the wetland should be placed where 50% of the plant community consists of upland species and 50% consists of wetland species.

Table 1 describes the ELC communities identified on site and provides detailed explanations for the ELC community codes used in this report (*e.g*. FOD, MAM). Table 2 lists the vegetation species documented on the property and within each vegetation community. Figure 2a depicts the locations of each community classified on the property.

3.4 Wildlife Surveys

3.4.1 General

Incidental observations of mammals, birds, amphibians and reptiles were recorded during all field investigations.

3.4.2 Amphibians

Azimuth completed evening calling amphibian surveys, following the protocol for Amphibian Surveys laid out for the Marsh Monitoring Program (Bird Studies Canada, 2008). Surveys were carried out at the sampling locations shown on Figure 2a. According to the methodology, surveys are to be conducted 3 times in a year, between April and July 5th, with at least 15 days between each survey; beginning one half-hour after sunset and ending by midnight during evenings with suitable conditions (light winds and minimum night air temperatures of 5ºC, 10ºC and 17ºC for each of the three respective survey periods), with an observation period of 3 minutes carried out at each

point count station. The dates and conditions of Azimuth's evening amphibian surveys can be found in Table 3.

3.4.3 Birds

Surveys were comprised of a combination of the point count protocol based on the Ontario Breeding Bird Atlas Guide for Participants (OBBA, 2001) and a roving (non-systematic) survey methodology. Eight point count stations were established to cover all habitat types on the property (Figure 2a) and all birds identified through visual or auditory confirmation were recorded at each station during a 5- minute period. Any species observed while on-route to the next station were also recorded and included within our results. Breeding evidence was assessed based on the criteria of the OBBA (2001). The dates and conditions of Azimuth's dawn breeding bird surveys can be found in Table 4.

3.4.4 Aquatics

A total of five field surveys were completed to assess the drainage features on the property in accordance with the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines (TRCA/CVC, 2014)*. These field surveys occurred on the following dates: May 1, 2008, May 27, 2008, July 15, 2008, and October 9, 2008, and June 15, 2009. During these surveys, the property was inspected to delineate potential headwater drainage features, flow permanence, and presence of direct/indirect fish habitat.

3.4.5 Species at Risk

The SAR screening included an analysis of the habitat requirements of SAR reported to occur in the Aurora District MNRF planning area. The assessment is intended to identify those species having potential to occur on or adjacent to the property based on habitats present. The MNRF, Aurora District, was contacted to request SAR and natural heritage information that may be relevant to this project (Appendix B). MNRF responded to indicate that there are several SAR that recorded within the general area including Butternut (Endangered, END), Bobolink (THR), Eastern Meadowlark (THR), Black Tern (SC), Snapping Turtle (SC), Eastern Wood-pewee (SC) and Wood Thrush (SC). There is also potential for END bat species to occur. MNRF confirmed that an IGF form has been submitted for the property and that compensation is required for the removal of four Butternut trees on the property (Appendix B).

The following field and species specific studies helped to determine if any SAR are utilizing the property and/or adjacent lands:

- Dawn breeding bird surveys as outlined in Section 3.4.3 of this report to determine if any SAR birds are utilizing the property and/or adjacent lands;
- Bobolink/Eastern Meadowlark surveys were completed as per MNRF Aurora District's 2013 protocol. Dates, location and results of these surveys can be found within Table 4; and
- A survey for Butternut (END) was completed in conjunction with Azimuth's field investigations. BHAs were completed for the Butternut documented on site. BHA's were submitted and accepted by MNRF. MNRF attended the site on two occasions to audit the BHA.

Habitat requirements and appropriate designations (END, THR or SC) for all species is included in the screening are outlined in Table 5.

4.0 EXISTING CONDITIONS

4.1 Land Use

4.1.1 On-site Land Use

The property is approximately 10.38 hectares (ha) in size and fronts onto Mount Pleasant Road. The majority of the property is composed of row-crop agricultural lands (*i.e.*, corn/soy), woodland, and wetland communities. Deciduous hedgerows run along portions of the perimeter of the property in addition to a hedgerow which runs through the interior of the site, parallel to Mount Pleasant Road. In the past, the property has been used as a small scale borrow pit operation which, in part, led to the formation of a least one of the wetlands on site (#7, Figure 2a). Six wetlands have been identified on site by MNRF and have been evaluated. Subsequent to their evaluation, they have been included within the Mount Wolfe Provincially Significant Wetland (PSW) Complex. There are currently no structures on property. The topography of the property is undulating with moderate to steep slopes.

4.1.2 Adjacent Land Use

The Diamondwood Subdivision currently resides to the north and west of the site.

Estate residential homes are common within the general area (*i.e.*, Palgrave Estate Residential Area) and exist on either side of the property fronting onto Mount Pleasant Road.

A small forest unit abuts the property with row-crop agricultural lands composing the remainder of the lands adjacent to the property.

4.2 Vegetation

Approximately 208 species of vascular plants have been documented within the property. Within this list of vascular plants, Butternut (END) was the only observed SAR. The property contains 17 identified Butternut trees (Figure 2a and 2c). Butternut is designated as END according to Ontario's ESA.

There were seventeen (17) plant species documented on the property during Azimuth's 2008 and MNRF's 2012 field investigations that are classified as rare in the TRCA watershed (TRCA, 2014). These species include Short-awn Foxtail, Wild Calla, Highbush Cranberry, Meadow Horsetail, Stiff Marsh Bedstraw, Small-floating Manna-grass, Floating Pondweed, Flatstem Pondweed, White Oak, Bristly Crowfoot, Smooth Gooseberry, Swamp Red Currant, Butternut, Indian-pipe, Shining Willow, Large Bur-reed and Dotted Watermeal (Table 2 and Figure 2b). Figure 2b depicts the community in which the species was documented, not the precise location of each species.

There were nine (9) plant species documented on the property during Azimuth's 2008 and MNRF's 2012 field investigations that are classified as rare in the ORM (ORMCP, 2004). They include Short-awn Foxtail, Bristly Crowfoot, Meadow Horsetail, Large Bur-reed, Dotted Watermeal, Columbia Watermeal, Purple-leaf Willow Herb, Black Walnut and Smooth Gooseberry (Table 2 and Figure 2b). Figure 2b depicts the community in which the species was documented, not the precise location of each species.

4.3 Wetlands

As per the TCOP: '*where the feature is a wetland….proposed refinements to the boundary or the extent of the feature requires formal confirmation from the Province or delegated authority prior to any development*' (Section 7.1.9.2 Palgrave Estate Residential Community Secondary Plan). Based on this requirement, the MNRF was invited on the property to identify and delineate the wetland features on July 11, 2012.

The location of these communities is shown on Figure 2a. Table 1 provides a description of their composition and structure and Table 2 reports plant species observed in each community in addition to a general list of species documented collectively within the wetlands. Data for the wetland communities was collected both by Azimuth and MNRF.

During a site visit (July 11, 2012) with MNRF staff the boundaries of each of the wetland features was delineated and subsequently surveyed. A total of 6 wetland communities were identified on the property (Figure 2a, Appendix B). The approved surveyed

wetland boundaries are shown on Figures 2a and 3b. Detailed wetland evaluation information provided by MNRF is located in Appendix B. The MNRF has designated all wetland units as being Provincially Significant and are a part of the Mount Wolfe PSW Complex (MNR, 2012) (Appendix B).

4.4 Woodland

Woodland, in part, extends on the property. The woodlot community is connected to two of the wetland features on the property (Figure 2a). The dripline of the woodlot was determined with TRCA staff during a site visit (July 10, 2012). Since the woodlot largely exists off of the site, through air photo interpretation it is determined that that woodlot is approximately 2.4ha in size.

4.5 Wildlife Habitat

4.5.1 Mammals

Mammal species detected using the property include White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*), Eastern Cottontail (*Sylvilagus floridanus*), Grey Squirrel (*Sciurus carolinensis*) and Raccoon (*Procyon lotor*).

None of the mammals observed on the property are of federal or provincial conservation concern. None of the mammals are considered to be rare within the TRCA watershed or ORM.

4.5.2 Herptiles

Amphibian activity was documented at Amphibian Survey Stations No. 1, 3, 4, 6 and 7. Several of these species are considered to be rare within the TRCA watershed including Spring Peeper (L2), Western Chorus Frog (L2), Gray Treefrog (L2) and Wood Frog (L2). Amphibian species observed on the property are listed within Table 3.

Chorus Frog is designated as THR by the Committee on the Status of END Wildlife in Canada (COSEWIC) and is ranked S3 by the province.

A Midland Painted Turtle (*Chrysemys picta marginata*) was observed within wetland #4 that abuts Mount Pleasant Road (Figure 2a). Midland Painted Turtle is considered to be rare within the TRCA watershed as it is ranked L3. A Snapping Turtle was observed adjacent to wetland #7 (Figure 2a). Snapping Turtle is designated as SC according to Ontario's ESA and is considered to be rare within the TRCA watershed as it is ranked L2.

As indicated above, the TRCA list of species rare in the watershed does not differentiate based on land use types (*e.g.*, urbanized vs. rural agricultural), many of the species listed would be expected to be common in rural areas in Central Ontario. Based on previous studies within the area Spring Peeper, Gray Treefrog, Wood Frog, Snapping Turtle and Midland Painted Turtle are common within the general area.

With the exception of Snapping Turtle, none of the herptile species observed is considered to be rare federally or provincially. None of the herptile species observed is considered to be rare on the ORM.

4.5.3 Birds

Two dawn breeding bird surveys were conducted on the property utilizing a total of 8 point count stations. Additionally, a survey for Bobolink (THR) and Eastern Meadowlark (THR) was conducted within the southwest portion of the property (Figure 2a). A total of 35 bird species were observed on the property during these surveys. Nine additional birds were observed on the property (or sign of bird presence [*i.e.*, Wild Turkey tracks]) but outside of the formal breeding bird surveys. Bird species observed on the property are listed in Table 4.

Six bird species are considered to be rare within the TRCA watershed boundaries including the Alder Flycatcher, American Woodcock, Bobolink (THR), Chestnut-sided Warbler, Great Blue Heron and Wild Turkey (TRCA, 2015). The TRCA list of species rare in the watershed does not differentiate based on land use types (*e.g.*, urbanized vs. rural agricultural), many of the species listed would be expected to be common in rural areas in Central Ontario.

None of the bird species observed are considered to be rare on the ORM.

Barn Swallow and Bobolink are designated as THR according Ontario' ESA. Barn Swallow (THR) was observed flying over and within the general vicinity of the property several times during Azimuth's field investigations. Bobolink (THR) was documented during one of the 2008 breeding bird surveys but was not documented during the three 2013 Bobolink (THR) /Eastern Meadowlark (THR) breeding bird surveys and therefore was not confirmed to be breeding on the property. With the exception of Barn Swallow (THR) and Bobolink (THR), none of the bird species observed on the property are considered rare federally or provincially.

Two species are considered to be area sensitive species including the Red-breasted Nuthatch and Savannah Sparrow (OMNR, 2000). The term area sensitive means that the

species requires a large tract of suitable habitat in order to sustain their populations (OMNR, 2000). Red-breasted Nuthatch is a woodland bird that requires at least 10ha of forest habitat (OMNR, 2000). Savannah Sparrow is a grassland bird that requires tracts of suitable habitat >50ha in size (OMNR, 2000). The property does not provide suitable habitat for either species.

4.6 Aquatics

The study area is within the Upper Main Humber subwatershed. The features on the property eventually drain into Cold Creek to the north of the Town of Bolton. Cold Creek (located on adjacent lands) is known to provide fish habitat for coldwater fish species (*i.e.*, Brook Trout) according to the Humber River State of the Watershed Report – Aquatic System (TRCA, 2008). However, no permanently flowing watercourses are present on the property as determined through Azimuth's field visits. Additionally, the only fish habitat present on the property is located in the offline pond feature in the northwest corner (i.e. wetland #4), which is described further below.

To assist the TRCA in evaluating this EIS & MP, the recommendations of the Evaluation, Classification and Management of Headwater Drainage Features Guidelines (CVC/TRCA, 2014) were used to document the attributes and ecological functions of the headwater features on the property. The results of this assessment can be found within Azimuth's 2017 letter report, "Headwater Drainage Feature Assessment". A summary of the identified aquatic features as shown on Figure 2a is provided below:

<u>North Ephemeral Drainage Feature</u>

This ephemeral drainage feature conveys flow through a poorly defined agricultural swale from an upland pond feature in the northwest corner of the property, to another pond feature off the property to the east (Figure 2a). The swale is actively farmed with no natural aquatic or riparian vegetation, substrate sorting, or seasonal flows observed. The ephemeral drainage feature does not have fish habitat present and is an ephemeral system that provides minimal overland flow to the downstream pond.

<u>Central Intermittent Stream</u>

The central stream is an intermittent system that conveys flow through the centre of the property (Figure 2a). Two small branches of the central feature converge and exit the property to the east where it eventually enters an actively farmed agricultural swale further downstream. Where present, riparian vegetation can be characterized as a thicket swamp, although no direct fish habitat was observed during the field visits.

South Ephemeral Drainage Feature

Similar to the central drainage feature, riparian vegetation for this feature can be characterized as a thicket swamp within the limits of the property and continues through the deciduous forest. However, the feature is characterized as having ephemeral flows. The south drainage feature originates in the southern portion of the property and flows in a southeast direction off the property (Figure 2a). It continues to flow outside the northeast boundary of the property before connecting with the central intermittent stream.

Offline Pond

One small offline pond was identified on the property in the northeast corner and has been identified as wetland #4 (Figure 2a). This pond was historically dug for agricultural purposes. The pond provides marginal direct fish habitat with the possibility to host a resilient warmwater baitfish community (Brook Stickleback, Fathead Minnow, *etc*.). The overflow from the pond drains through a culvert under Mount Pleasant. In 2012, this culvert was damaged due to watermain works along the road. It was then discovered that the culvert was blocked. Subsequent to this discovery, the culvert has been repaired and cleaned out, effectively lowering the water level of the pond.

4.7 Species at Risk

SAR and their preferred habitat were screened to determine whether there is potentially suitable habitat on/or adjacent to the property (Table 5) for the SAR having the potential to occur within the general area. Of the species identified with potential to exist within the general area, the following were identified based on habitat requirements to have potential to exist on/or adjacent to the property.

- Mammals: Little Brown Myotis (END), Northern Long-eared Myotis (END) and Tri-colored Bat (END);
- Insects: Monarch (SC);
- Reptiles: Blanding's Turtle (THR) and Snapping Turtle (SC);
- Birds: Barn Swallow (THR), Canada Warbler (SC), Eastern Wood-pewee (SC), Golden-winged Warbler (SC) and Wood Thrush (SC); and
- Plants: Butternut (END).

The results of breeding bird surveys revealed the presence of the following SAR: Barn Swallow (THR), Bobolink (THR) and Eastern Wood-pewee (SC). The results of our vegetation survey and search for Butternut revealed the presence of 17 Butternut (END) trees on site (Figure 2a and 2c). With the exception of those species listed above, no other SAR were confirmed to be present on site or to be utilizing the property.

4.7.1 Bobolink

Bobolink (THR) breeds in open, grassland habitats where there is a mixture of relatively tall grasses, some broad-leaved plants and a moderate amount of plant litter which includes hayfields, lightly grazed pastures and some abandoned fields. Bobolink (THR) does not usually breed on roadsides or areas that are dominated by shrubs or trees nor do they prefer monocultural agricultural fields. Typically, Bobolink (THR) will nest in larger patches of suitable habitat (*i.e.* >3ha) (MNR, 2011).

In 2008, the majority of the property was being farmed on a rotation for corn/soy and therefore does not represent potentially suitable habitat. The southwest portion of the property was composed of a cultural meadow community and was <2ha in size composed of typical old-field species including Brome Grass, Tufted Vetch and Goldenrod. It was surrounded by lands that are currently being developed (*i.e.,* Diamondwood Subdivision), row crop agriculture, wetlands, hedgerow and forest habitat thus making the meadow habitat on the property potentially suitable, albeit not optimal, Bobolink (THR) habitat.

A single singing Bobolink (THR) was observed during one of Azimuth's 2008 dawn breeding bird surveys which is indicative of Possible Breeding according to OBBA. Possible breeding evidence (as outlined in the OBBA) on its own does not demonstrate that Bobolink (THR) are using a particular area of habitat. MNRF accepts both probable and confirmed breeding evidence as outlined in the OBBA 2001-2005 as breeding evidence (MNR, 2011).

In order to ascertain the current bird use, in particular, to determine whether Bobolink (THR) /Eastern Meadowlark (THR) were utilizing the meadow habitat on the property, dawn breeding bird surveys were conducted in 2013 field season as per MNRF (Aurora District) Bobolink survey protocol (Appendix B). A single point count station was utilized for these surveys (Figure 2a) within the former cultural meadow community. There were no Bobolink (THR) or Eastern Meadowlark (THR) observed on site or on adjacent lands during these surveys therefore there is no breeding evidence to suggest that they were utilizing the property for breeding. Table 4 documents the species observed during these 2013 surveys. Subsequent to the 2013 survey, the entire property (outside of the identified KNHF/HSF) has been converted to cultivated agricultural lands. There is currently no suitable habitat for Bobolink (THR) or Eastern Meadowlark (THR) on the property.

5.0 NATURAL HERITAGE FEATURES AND FUNCTIONS

5.1 Woodland

The woodland, in its entirety, is located within the Palgrave Estate Residential Community (Countryside) therefore on its own it does not meet the size criteria for significance. However, this woodland abuts two wetland features that have been identified as PSW which are considered both a KNHFs and HSFs and would therefore be considered to be a KNHF according to the ORMCP (Figure 2a and 3c).

5.2 Wetland

The wetlands identified on the property are a part of the provincially significant Mount Wolfe Wetland Complex. Therefore, these wetland units are KNHFs and HSFs according to the ORMCP and hence would be considered to be a Wetland Core Area according to the Town of Caledon (Figure 2a and 3b, Appendix B).

Several wetlands, including MNRF identified wetlands exist within 120m of the proposed development including wetlands located to the west and the east of the property (Appendix B).

5.3 Niagara Escarpment Natural Areas

The property is not located on the Niagara Escarpment and therefore policies related to this planning area do not apply.

5.4 ANSI

There are no ANSI's identified on or adjacent to the property according to MNRF (Appendix B).

5.5 Environmentally Sensitive Area

There are no known Environmentally Sensitive Areas on or adjacent to the property.

5.6 Species at Risk (Threatened and Endangered Species)

Potential habitat for species listed as THR or END was identified on and adjacent to the property (Table 5). Our preliminary screening considered in combination with data acquired through species specific surveys has identified habitat potential as follows:

- Potential habitat for END bat species;
- Confirmed presence of 17 Butternut (END);
- Potential habitat for Blanding's Turtle (THR); and

- Potential foraging habitat for Barn Swallow (THR).

5.6.1 END Bat Species

Little Brown Myotis (END), Northern Long-eared Myotis (END) and Tri-colored Bat (END) 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 within coniferous, deciduous and mixed forest/swamp communities (MNRF 2015, COSEWIC 2013). Large snag trees within second growth forest communities (FOD/SWD FOC) within the KNHF/HSF (Figure 2a) may provide suitable roosting habitat for these END bat species.

5.6.2 Butternut

As indicated above, BHAs have been completed, submitted and accepted by MNRF for each of the 17 Butternut (END) individuals. The MNRF (Bohdan Kowalyk, Technical Specialist, Aurora District) attended the site on several occasions to assess/audit the Butternut trees identified on site. Dates of site meetings include September 19, 2008 and July 5, 2011. Subsequent to these meetings in 2012 and 2013, four additional Butternut trees were identified on site. The 17 Butternut trees were assessed as per MNRF guidelines and the assessments were submitted and accepted by MNRF. Based on our BHAs and MNRF consultation, it was determined which trees were deemed to be retainable (good health) and non-retainable (poor health) (Figure 2a and 2c). Eleven of the 17 Butternut trees on site were deemed to be retainable.

A Butternut (END) tree deemed to be retainable must be protected in addition to a protective buffer surrounding the tree. The size of buffer adjacent to a retainable tree is determined through consultation with the MNRF. Activities that may kill, harm or take up to a maximum of ten (10) retainable trees (*i.e.*, Category 2) are eligible to follow the rules in section 23.7 of Ontario Regulation (O. Reg.) 242/08. Therefore the proponent may register the proposed activity using the "Notice of Butternut Impact" form on the MNRF Registry. Rules of the regulation include planting of replacement trees to benefit Butternut using best management practices outlined in the regulation, conduct monitoring and tending of planted seedlings and keeping the required records as per section 23.7 of O. Reg. 242/08.

Subsequent to the acceptance of the BHAs, an error was made and four of the Butternut (END) trees that were assessed as 'retainable' were removed (Trees #2, 3 9 and 16) (Figure 2c,). MNRF was contacted as soon as Azimuth became aware of this and is aware of the situation. MNRF has indicated that a Butternut (END) Planting Plan should be prepared as per O. Reg. 242/08 under the ESA for the trees that have already been

removed. The proponent is seeking to provide compensation for the removal of four Butternut trees with the potential to register to remove a 5th tree (Tree #6) (Appendix B). Compensation in the form of planting will be required for the removal of these trees as per MNRF guidelines. The remaining Butternut (END) trees that have been assessed as retainable (Tree #7, 12, 13, 14 and 15) will not be removed and 25m buffer (or greater) will remain adjacent to each of these trees (Figure 2c and Figure 5). The minimum 25m setback is consistent with current MNRF guidelines (Poisson *et al*., 2013). The proponent will continue to correspond with MNRF to ensure that the proper measures are taken with respect to the Butternut (END) registration and compensation.

5.6.3 Blanding's Turtle

The Blanding's Turtle is listed as THR under Ontario's ESA. Blanding's Turtle (THR) is an aquatic turtle that occurs in a variety of wetland habitats. Largely a habitat generalist, the species is described as inhabiting 'lakes, permanent ponds, temporary ponds, slow flowing brooks, creeks, marshes, river sloughs, marshy meadows, man-made channels, farm fields, coastal areas and the bays of Lake Erie' (COSEWIC, 2005). Key habitat also includes areas of fen, marsh, swamp, open areas of sand or fine gravel and rock barrens.

The General Habitat Description Guidance document produced by the MNRF for the Blanding's Turtle (THR) describes habitat as follows:

- Category 1 habitat is considered to be a confirmed nesting or overwintering location and an area within 30m of that site.
- Category 2 habitat as the wetland complex that extends up to 2km from an occurrence, and the area within 30m around those suitable wetlands or water bodies.
- Category 3 habitat is considered to be an area between 30m and 250m around suitable wetlands/waterbodies identified in Category 2, within 2km of an occurrence.

Although potentially suitable habitat for Blanding's Turtle (THR) exists on the property, the MNRF has no confirmed occurrences of this species within 2km of the site. This species was not observed during any of Azimuth's field investigations. At this time, no action is required as it relates to Blanding's Turtle.

5.6.4 Barn Swallow

Barn Swallow (THR) was observed during each of Azimuth's 2008 dawn breeding bird surveys flying over and within the vicinity of the property. Typically, Barn Swallow (THR) selects nesting and foraging habitat close to open habitats including farmland.

Barn Swallows will nest primarily on artificial surfaces including open barns, garages, sheds, boathouses, bridges, road culverts, beams, posts, light structures, ledges *etc*. (COSEWIC, 2011). Therefore, given the open characteristic of the landscape and the presence of suitable nesting habitat within the general area (*i.e.* barns, culverts), it is expected that this species would be present within the general area.

The property does not contain any potential nesting habitat (*i.e.*, anthropogenic structures) but may be utilized as general foraging habitat. Residential homes and associated structures exist off site. Of particular interest is a barn that is located approximately 120m NW of the property. Although not confirmed, this barn has the potential to provide nesting habitat for Barn Swallow (THR). Based on this information, the property would likely be categorized as "Category 3" habitat according to MNRF's General Habitat Description for Barn Swallow (MNRF, unknown date). Category 3 habitat includes the area between 5 and 200m of a nest due to the presence of a Barn located approximately 120m from the property. Category 3 habitat has a high tolerance to alteration that may be used for rearing, feeding and resting (MNRF, 2013). Foraging habitat includes rural residential areas (MNRF, 2014).

5.7 Candidate Significant Wildlife Habitat

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). Candidate SWH functions were also evaluated according to provincial criteria and according to ORMCP Technical Paper No. 2 – Significant Wildlife Habitat (ORMCP, unknown date). Tables 6a and 6b provide an assessment of candidate SWH functions within the property and adjacent lands. Our findings indicate several potential candidate SWH related to the property including:

- Bat Maternity Colony (Table 6a, MNRF, 2015);
- Turtle Overwintering Habitat (Table 6a, MNRF, 2015 and Table 6b, ORMCP 2007);
- Reptile Hibernaculum (Table 6a, MNRF, 2015);
- Turtle Nesting Area (Table 6a, MNRF, 2015 and Table 6b, ORMCP 2007);
- Marsh Breeding Bird Habitat (Table 6a, MNRF, 2015); and
- Habitat for Species of Special Concern and Rare Wildlife Species.

5.7.1 Bat Maternity Colony

Any of the forest (FOD/SWD) communities (Figure 2a) offer habitat potentially suitable for bats to give birth to and rear young (*i.e.*, maternity colony).

5.7.2 Turtle Overwintering Habitat

Potentially suitable turtle wintering habitat within wetland habitat containing standing water for much or all of the year. These wetlands are considered to be KNHFs and HSFs according to the ORMCP and are Wetland Core Area according to the Town. A Snapping Turtle and Midland Painted Turtle were observed at wetland #4 and #7 respectively (Figure 2a).

5.7.3 Reptile Hibernaculum

The thicket swamp (SWT, Figure 2a) present on the property could provide potentially suitable over-wintering habitat for reptiles. No snakes or congregations of snakes were observed during Azimuth's field investigations.

5.7.4 Turtle Nesting Area

Potential Turtle Nesting Areas have been identified on the property within and/or in proximity to wetland #4 and #7 (Figure 2a). An open sandy area exists immediately adjacent to wetland #7. This sandy feature has the potential to provide suitable turtle nesting habitat. During 2013 field investigations, one Snapping Turtle (SC) was observed adjacent to wetland # 7 while one Midland Painted Turtle was at wetland #4. Potential turtle nesting in proximity to wetland #4 would likely be associated with the gravel road shoulder (off-property).

5.7.5 Marsh Breeding Bird Habitat

Potential marsh breeding bird habitat present on the property at wetland #7 (Figure 2a). A Green Heron was incidentally observed on the property. Breeding function for the Green Heron was not confirmed.

5.7.6 Habitat for Species of Special Concern and Rare Wildlife Species

According to the SWHTG Ecoregion 6E Criteria Schedules (MNRF, 2015), Significant Wildlife 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 Ontario's ESA. Species of SC identified within the property, and those with potential to be present within the property are addressed in Table 5 of this report.

Common Nighthawk

Potentially suitable habitat for Common Nighthawk (SC) can be found within any relatively open natural areas.

Eastern Wood-pewee
Eastern Wood-pewee (SC) was observed during Azimuth's 2008 breeding bird surveys. Eastern Wood-pewee is of SC under Ontario's ESA but is considered to be secure, common, widespread, and abundant in Ontario (*i.e.,* SRANK 5). Eastern Wood-pewee (SC) utilizes mature and intermediate-age deciduous and mixed forests having an open understorey and is often associated with forests dominated by Sugar Maple and oak (COSEWIC, 2012). Suitable habitat for this species exists within the woodlot that in-part exists on the property (Figure 2a).

Monarch
Potentially suitable habitat for Monarch (SC) exists within the Cultural Meadow (CUM) community located on the property (Figure 2a).

Snapping Turtle
A Snapping Turtle (SC) was observed during Azimuth's 2013 field investigations adjacent to wetland #7. Snapping Turtle is a species designated as SC according to Ontario's ESA but considered to be Secure, common, widespread, and abundant in Ontario (*i.e.,* SRANK 5). Wetlands #7 and 4 represents confirmed and potentially suitable habitat for Snapping Turtle (SC) since these features contain water throughout the year in most years (Figure 2a).

Western Chorus Frog
A single Western Chorus Frog was documented to be utilizing wetland #7 (Table 3). Western Chorus Frog is provincially ranked by MNRF as an S3 species. The S3 ranking indicates that the species is Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation. The S3 ranking of this species may qualify the wetland pocket which it was found as candidate SWH.

The Ontario ESA created an independent body, the Committee on the Status of Species at Risk in Ontario (COSSARO), which considers whether a plant or animal should be designated as at risk, and its status. COSSARO has indicated that 'Because apparently healthy populations still occur in many areas of southern Ontario and evidence for more than one genetically distinct unit is incomplete, Western Chorus Frog is treated as a single Designatable Unit in Ontario. It is classified as Not at Risk because healthy populations occur in many areas of southern Ontario'. The Western Chorus Frog is not protected under any provincial legislation in Ontario.

5.8 Permanent and Intermittent Streams

An intermittent stream has been identified as traversing through the central portion of the property (Figure 2a).

A tributary of the Humber River named Cold Creek is located within 120m to the west of the property. The watercourse is within the Upper Humber River catchment (Humber River Fisheries Management Plan, MNR and TRCA, 2005). The watercourse is known to sustain permanent coldwater fish species (*i.e.*, Brook Trout) as a result of ground water seepage.

5.9 Fisheries

Wetland #4 represents potential marginal direct fish habitat with the possibility to host resilient warmwater baitfish communities (*i.e.,* Brook Stickleback/Fathead Minnow). Proposed works around this pond would have limited impact on any potential fish habitat, and would be considered "low risk" under DFO's risk management framework.

Similarly, the pond (MNRF evaluated wetland) located off-property to the southeast of the property (Figure 2a) contains water that persists throughout all of the growing season, thus making it potentially suitable habitat for fish.

Cold Creek (off-property) provides direct fish habitat and would be classified as fish habitat in accordance with the definition as such under the *Federal Fisheries Act.* The detailed environmental evaluation of the Humber River Watershed completed by the TRCA (OMNR and TRCA, 2005) categorized Cold Creek as being within the habitat category of 'small riverine coldwater habitat'.

5.10 Valley and Stream Corridors

There are no Valley and Stream Corridors or Significant Valleyland on the property as per the Town and the ORMCP. However, Significant Valleyland is located on adjacent lands and is associated with Cold Creek.

5.11 Ground Water System and Native Soils

The property is located within the physiographic region referred to as the ORM (Chapman and Putnam, 1984). The ORM is a prominent physiographic feature in south-central Ontario forming a west to east trending ridge that is approximately 160 km long and 2 to 11 km wide. Extending from the Niagara Escarpment to the Trent Talbot River, the ORM consists of several distinct sections. The property is located within the Albion Hills area of the Town of Caledon, where the hills consist of deep beds of evenly graded

fine sand. However, in the vicinity of the property, the physiographic setting consists of a Till Moraine.

The key geological units found within the property are the Thorncliffe Formation, the Northern Till, the ORM sediments, and the Halton Till. The property is located on the southern flanks of Mount Wolfe, which is an inlier of the Northern Till, which extends up through the younger deposits of the ORM.

Please refer to the Hydrogeologic Assessment Report (Azimuth, 2017b) for the property for further details of the local geology, hydrology and hydrogeology.

5.12 Natural Slopes

The topography of the property is undulating. The topographic relief on the property is approximately 15m, ranging between 269.5 metres above sea leavel (masl) in the southwest corner of the property to 285.5 masl at the peak of a knoll located within the central portion of the property. Consideration of the natural slopes is incorporated into the site engineering and grading plans.

5.13 Sand Barrens, Savannahs and Tallgrass Prairies

There are no sand barrens, savannahs or tallgrass prairies within the property.

5.14 Landform Conservation Area – Category 2

The entire property is classified as Landform Conservation Area – Category 2. As per Section 30 of the ORMCP, planning, design and construction practices shall keep disturbance to landform character to a minimum. The engineering and grading assessment that currently is in progress preserves the majority of the site grades, with small local changes for building envelopes and road grades. Thus, the overall landform is not being subjected to significant alteration.

5.15 ORM Hydrologically Sensitive Features

Wetlands and an intermittent watercourse were identified on the property. The identified wetlands are a part of the provincially significant Mount Wolfe Wetland Complex and would be considered to be a HSF according to the ORMCP. The hydroperiod of the wetlands is controlled primarily by surface runoff and precipitation, with little influence due to interaction with the ground water table. Most of the wetland features undergo extended dry periods during drought conditions, and are not sustained by ground water discharge.

5.16 Key Natural Heritage and Hydrologically Sensitive Features

Based on our field studies and habitat assessment, these Natural Heritage Features and Candidate Features are included within our Impact Assessment:

- Significant Woodland;
- Significant Wetland;
- Potential and confirmed habitat for END or THR Species: END bat species, Butternut (END), Blanding's Turtle (THR) and Barn Swallow (THR);
- Candidate SWH (Bat Maternity Colony, Turtle Overwintering, Reptile Hibernaculum, Turtle Nesting, Marsh Breeding Bird Habitat and Habitat for Species of Conservation Concern);
- Permanent and Intermittent Streams;
- Fish Habitat
- Significant Valleylands (off-property); and
- HSFs (wetland, permanent stream (off-property) and intermittent stream).

Table 7 summarizes the KNHF and HSF identified on the property and within the Minimum Area of Influence as per the ORMCP.

6.0 PLANNING CONTEXT

The relevant environmental planning policies are generally outlined below. Each policy reference includes a brief summary of how the environmental features of the property and the proposed development relates to the policy described above. Azimuth's summary is provided in italics. Specific details of the results of our field investigations and a detailed assessment can be found within the body, figures and tables of the EIS and MP.

6.1 Provincial Policy Statement (2014)

Section 2.1 Natural Heritage

Subsection 2.1.1: Natural heritage features shall be protected for the long term.

Azimuth comment:
There is no development proposed within Significant Wetland, Significant Woodland, Significant Valleyland or candidate SWH. There is no development within any habitat for END or THR species, except in accordance with provincial requirements.

Subsection 2.1.2: The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.

Azimuth comment:
A naturalized buffer will remain adjacent to the natural heritage features identified on the property. Over time, as the buffer naturalizes and succeeds, this will increase the diversity of natural cover within the area and provide greater connectivity between the features themselves thus aligning with Subsection 2.1.2 of the PPS.

Subsection 2.1.3: Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.

Azimuth comment:
The property is not located within a Natural Core Area or Natural Linkage Area according to the ORMCP. The property is located within the Palgrave Estates Residential Community within the Countryside designation of the ORMCP.

Subsection 2.1.4: Development and site alteration shall not be permitted in:

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

Section 2.1.5 of the PPS states that, 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 woodlands* in Ecoregions 6E and 7E;
- *Significant valleylands* in Ecoregions 6E and 7E;
- *Significant wildlife habitat*;
- *Significant Areas of Natural and Scientific Interest* (ANSI); and
- *Coastal wetlands* in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4 (b)

Azimuth comment:
Detailed information regarding the wetlands and woodland can be found within the body of this report.

Table 6a provides an assessment of the potential for SWH features and functions, as defined by the province (i.e. Significant Wildlife Habitat Criterion Schedules for Ecoregion 6E, Ministry of Natural Resources and Forestry [MNRF] 2015a) to be present within and property and adjacent lands. Several SWH features (confirmed and candidate) were identified for the property.

As indicated and described in detail above, the natural heritage features identified on the property including the PSW, significant woodland and SWH will be maintained post-development.

Subsection 2.1.6: Development and site alteration is not permitted within fish habitat except in accordance with provincial and federal requirements.

Azimuth comment:
No development is proposed within any identified fish habitat.

Subsection 2.1.7: Development and site alteration shall not be permitted in habitat of END species and THR species, except in accordance with provincial and federal requirements.

Azimuth comment:
An Information Gathering Form (IGF) has been submitted to the MNRF for review on March 17, 2014. The purpose of the IGF is to inform MNRF of the habitat features of the property, inform them of any SAR documented on site and to ascertain whether additional SAR permits/approvals are required to move forward with the proposed development. As indicated within this report, several Butternut (END) trees were identified and assessed on the property. The Butternut trees removed/to be removed from the property will be registered with MNRF and compensation as required by O. Reg. 242/08 of Ontario's Endangered Species Act, 2007 (ESA) will be provided for the loss of these trees.

Subsection 2.1.8: Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 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.

Azimuth comment:
The impacts to adjacent lands as outlined within Section 4.2 of the NHRM have been evaluated in the EIS and MP. Adjacent lands as outlined in Section 30 of the O. Reg. 140/02 of the Oak Ridges Moraine Conservation Act, 2001 (ORMCA) have been considered. There is no expectation that the proposed work would result in impacts to the features considered adjacent to the property.

Section 2.2 Water
Section 2.2.of the PPS pertains to sensitive surface and ground water features.

Subsection 2.2.2: Development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored.

Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features and their hydrologic functions.

Azimuth comment:
As per the ORMCP, Azimuth has prepared a Hydrogeologic Assessment Report (2017b) to identify and assess HSF on property. According to the ORMCP, HSF include permanent and intermittent streams, wetlands, kettle lakes, seepage areas and springs. An intermittent stream and wetlands have been identified on the property.

Each of the six significant wetlands on the property are a part of the Mount Wolfe PSW and will be protected with a 30m buffer MPVZ surrounding the outer edge of each feature, which will preserve the existing vegetation and natural slope within each buffer area. Grading within each wetland catchment area will also be minimal in an attempt to replicate existing drainage conditions within the property. The property is not considered a significant ground water recharge area, thus the proposed development is not anticipated to have a significant impact on local ground water quality/quantity. Details of the hydrogeologic assessment can be found within Azimuth's Hydrogeologic Assessment Report (2017b).

6.2 Provincial Greenbelt Plan (2017)

Section 2.1 Lands Within the Oak Ridges Moraine Area
The requirements of the ORMCP (*O. Reg.* 140/02), made under the *ORMCA*, continue to apply and the Protected Countryside policies do not apply with the exception of section 3.3. Section 3.3 of the Greenbelt Plan deals with Parkland, Open Space and Trails.

Where, by the operation of subsection 2(4) of the ORMCP, lands are within the ORMCP Area but are not governed by the policies of the ORMCP, the lands are deemed to be within the Protected Countryside and all of the polices of the Greenbelt Plan, except section 6, apply to the lands unless the lands:

a) Would be subject to the Countryside or Settlement Area designations of the ORMCP if that plan applied; and
b) Do not connect the lands subject to the ORMCP to the Protected Countryside.

The property, in its entirety, is governed by the ORMCP.

Azimuth comment:
The property is entirely within the limits of the ORMCP. Based on the provisions outlined within the Greenbelt Plan, only Section 3.3 of the Greenbelt Plan as it deals with Parkland, Open Space and Trails apply to the property.

6.3 Oak Ridges Moraine Conservation Plan (2017)

The property is located within the limits of the ORM (ORM; ORMCP, 2017) (Appendix C).

Section 10. (1) Land Use Designations
Subsection 1. defines Natural Core Areas, which are areas with a high concentration of key natural heritage features, hydrologically sensitive features or landform conservation areas.

Azimuth comment:
The property is not within an area defined as a Natural Core Area as per the ORMCP (Appendix C).

Subsection 2. defines Natural Linkage Areas, which are areas forming part of a central corridor system that support or have the potential to support movement of plants and animals among the Natural Core Areas, Natural Linkage Areas, river valleys and stream corridors.

Azimuth comment:
There is no Natural Linkage Area on the property. Natural Linkage Area exists off-site and appears to be associated with the Cold Creek corridor.

Subsection 3. defines Countryside Areas, which are areas of rural land use such as agriculture, recreation, residential development, Rural Settlements, mineral aggregate operations, parks and open space.

Azimuth comment:
The property is within the Palgrave Estate Residential Community which is a component of the Countryside Area (Appendix C). Estate residential development is a permitted use within the Palgrave Estate Residential Community designation.

Subsection 4. defines Settlement Areas, which are areas designated for development of an urban type permitting a range of residential, commercial, industrial and institutional uses.

Azimuth comment:
The property is not within an identified Settlement Area (Appendix C).

Section 12 Natural Linkage Areas

Subsection (1) states that the purpose of the Natural Linkage Area as identified in the ORMCP is to maintain, and where possible improve or restore the ecological integrity of the area and to maintain, and where possible improve and restore, regional scale linkages between Natural Core Areas and along river valleys and stream corridors, by,

(a) Maintaining, and where possible improving or restoring, the health, diversity, size, and connectivity of KNHF, HSFs and the related ecological functions;
(b) Maintaining, and where possible improving or restoring natural self-sustaining vegetation over large parts of the area to facilitate movement of plants and animals;
(c) Maintaining a natural continuous east-west connection and additional connections to river valleys and streams north and south of the Plan Area;
(d) Maintaining the quantity and quality of ground water and surface water;
(e) Maintaining ground water recharge;
(f) Maintaining natural stream form and flow characteristics;
(g) Protecting landform features; and
(h) Protecting and restoring natural areas and features that sequester carbon and provide ecological functions, including water storage, to help reduce the impacts of climate change.

Subsection (2) indicates that Natural Linkage Areas also have the objectives of,

(a) Accommodating a trail system through the Plan Area and trail connections to it; and

(b) Providing for limited economic development that is compatible with clauses (a) to (a.2) and subsection (1).

Subsection (3) states that the following uses are permitted with respect to land in Natural Linkage Areas, subject to Parts III and IV:

1. Fish, wildlife and forest management.
2. Conservation projects and flood and erosion control projects.
3. Agricultural uses.
4. Infrastructure uses.
5. Home businesses.
6. Home industries.
7. Bed and breakfast establishments.
8. On-farm diversified uses, subject to subsection (4).
9. Low-intensity recreational uses as described in section 37.
10. Unserviced parks.
11. Mineral aggregate operations.
12. Wayside pits.
13. Agricultural-related uses, subject to subsection (4).
14. Uses accessory to the uses set out in paragraphs 1 to 13.

Azimuth comment:
There is no Natural Linkage Area identified on the property. A portion of the lands immediately to the north and west are located within the Natural Linkage Area.

6.3.1 Section 13 Countryside Areas

Subsection (1) states that the purpose of the Countryside Area is to encourage agricultural and rural uses that support the Plan's objectives, by,

(a) Protecting prime agricultural areas;
(b) Promoting and protecting agricultural and other rural land uses and normal farm practices;
(c) Maintaining, the rural character of the Rural Settlements;
(d) Protecting and restoring natural areas and features that sequester carbon and provide ecological functions, including water storage, to help reduce the impacts of climate change; and
(e) maintaining existing public service facilities and adapting them, where feasible, to meet the needs of the community.

Azimuth comment:
The property is not located within an identified agricultural area according to Schedule A: Town of Caledon Land Use Plan (Appendix D). The lands have not been identified as Class 1, 2 or 3 according to the Canada Land Inventory. The property is within the identified Palgrave Estate Residential Community which is a part of the ORM Countryside Area. Estate residential development is a permitted use within this designation. The property is not within an identified Rural Settlement according to the ORMCP (Appendix C).

Subsection (2) states that Countryside Areas also have the objectives of,

(a) Maintaining, and where possible improving or restoring, the ecological integrity of the Plan Area;
(b) Maintaining, and where possible improving or restoring, the health, diversity, size, and connectivity of KNHFs, HSFs and the related ecological functions;
(c) Maintaining the quantity and quality of ground water and surface water;
(d) Maintaining ground water recharge
(e) Maintaining natural stream form and flow characteristics;
(f) Protecting landform features;
(g) Accommodating a trail system through the Plan Area and trail connections to it; (g.1) Conserving cultural heritage resources; and
(h) Providing for economic development that is compatible with subsection (1) and with clauses (a) to (g.1).

As per the ORMCP, "ecological integrity", which includes hydrological integrity, means the condition of ecosystems in which,

a) the structure, composition and function of the ecosystems are unimpaired by stresses from human activity,
b) natural ecological processes are intact and self-sustaining, and
c) the ecosystems evolve naturally;

Azimuth comment:
KNHFs identified on the property include woodland, wetlands, potential habitat for END and THR species, significant wildlife habitat (candidate and confirmed), intermittent stream and fish habitat. HSF identified on the property include an intermittent stream and wetlands. There is no development proposed within of any of the identified KNHF and HSF features, leaving the structure, composition and functions unimpaired post-development. A 30m MVPZ will remain adjacent to the identified KNHF and HSF post-development. The natural heritage features that will remain on the property post-development are intact and self-sustaining and will evolve naturally as the features

mature. As per Azimuth's Hydrogeologic Assessment Report (2017b), no negative post-construction impacts are predicted to occur to the quality / quantity of surface and ground water, ground water recharge, or natural sensitive features. Details relating to quantity/quality of ground water and surface water and ground water recharge can be found within Azimuth's above noted 2017 report. The natural form and function of the intermittent watercourse will be maintained post-development. The existing slopes, landforms, and topographic features have been considered and generally preserved and incorporated into the proposed Draft Plan. There is no trail system proposed within any of the MVPZ. There are currently no trail systems on adjacent lands to connect to.

Subsection (3) states that the following uses are permitted with respect to land in Countryside Areas, subject to Parts III and IV:

1. Fish, wildlife and forest management;
2. Conservation projects and flood and erosion control projects;
3. Agricultural uses;
4. Infrastructure uses;
5. Home businesses;
6. Home industries;
7. Bed and breakfast establishments;
8. On-farm diversified uses;
9. Low-intensity recreational uses as described in section 37;
10. Unserviced parks;
11. Mineral aggregate operations;
12. Wayside pits;
13. Agriculture-related operations;
14. Small-scale commercial, industrial, and institutional uses. In accordance with Section 40 (5);
15. Major recreational uses, in accordance with Section 38 (5);
16. Residential development, in accordance with Section 14; and
17. Uses accessory to those noted above.

Azimuth comment:
Within the ORMCP the property is within the Palgrave Estates Residential Community (Appendix D). The Palgrave Estate Residential Community is a component of the Countryside Area, and as detailed in the ORMCP, residential development is permitted on the lands. Subsequent to the completion of the initial ORM mapping, the TCOP further delineates the extent of the Palgrave Estates Residential Community (Appendix D).

6.3.2 Section 14 Residential Development in Certain Parts of the Countryside Area

Subsection (1) states that residential development is permitted with respect to land in the Palgrave Estates Residential Community as shown on the land use designation map referred to in Section 2, subject to the TCOP, as amended from time to time, and to the following provisions of this Plan: Sections 20 to 26, Subsection 27 (3), Sections 28 and 29, Subsections 30 (1), (12) and (13), Subsections 41 (1), (4) and (5), Sections 42 to 47 and the Table to Part III.

Azimuth comment:
The property is located within the Palgrave Estates Residential Community; hence, the provisions listed above in Section 14 of the ORMCP apply.

6.3.3 Section 16 Plans of Subdivision, Site Plan Approval and Lot Creation in Countryside Areas

Subsection (2) states that with respect to land in Countryside Areas, the approval authority shall ensure that a condition requiring the applicant to ensure that natural self-sustaining vegetation is maintained or restored for the long-term protection of any KNHF or HSF on the lot or lots created is imposed (a) on every subdivision and site plan approval.

Azimuth comment:
As per the ORMCP, a NHE and Hydrologic Evaluation (within Hydrogeologic Assessment Report prepared by Azimuth, 2017b) have been prepared for this property that identifies the KNHF and HSF on the property. A 30m natural self-sustaining MVPZ will remain adjacent to each of these key features as described further in this report.

6.3.4 Section 20 Supporting Connectivity

Every application for development or site alteration shall identify planning, design and construction practices that ensure that no buildings or other site alterations impede any hydrological functions or the movement of plants and animals among key natural heritage features, key hydrologic features, and adjacent land within Natural Core Areas and Natural Linkage Areas.

Azimuth comment:
Connectivity between the KNHF and HSF will be maintained and between Natural Core/Linkage Areas (where applicable) to the greatest extent possible.

6.3.5 Section 21 Minimum Area of Influence and Minimum Vegetation Protection Zone

Subsection (1) states that for the purposes of this part,

a) the minimum area of influence that relates to a KNHF or HSF described in Column 2 is the area referred to in the corresponding item in Column 3 of the Table; and
b) the minimum vegetation protection zone (MVPZ) that relates to a KNHF or HSF described in Column 2 of the Table is the area determined in accordance with the corresponding item in Column 4 of the Table.

Subsection (2) states if land falls within more than one item in Column 2 of the Table*, the provisions that are more restrictive apply.

*This is referring to table entitled "Key Natural Heritage Features, Hydrologically Sensitive Features and Areas of Natural and Scientific Interest (Earth Science); Minimum Areas of Influence and MVPZ on page 42 of the ORMCP. Table can be found within Appendix C of this report.

Azimuth comment:
For subsection 21 (a) and (b), please note that Table 7.1 ORM KNHF, HSF and ANSI (Earth Science) Minimum Areas of Influence and MVPZ is also found within the TCOP which is consistent with the table referred to within the ORMCP (Appendix C).

Woodland, wetlands, potential and confirmed habitat of END and THR Species, SWH (candidate and confirmed), intermittent stream and fish habitat, have been identified on the property. As per Table 7.1, the minimum area of influence is 120m adjacent to these features. The MVPZ is 30m for each of these key features which is sufficient to protect the form and function of each of the identified key features on site unless otherwise determined through the completion of the NHE. The suitability of the recommended 30m MVPZ is further discussed below.

6.3.6 Section 22 Key Natural Heritage Features

Subsection (1) states that the following are key natural heritage features:

1. Wetlands.
2. Habitat of endangered and threatened species.
3. Fish habitat.
4. Areas of Natural and Scientific Interest (life science).
5. Significant valleylands.
6. Significant woodlands.

7. Significant wildlife habitat (including habitat of special concern species).
8. Sand barrens, savannahs, and tallgrass prairies.

Wetlands

Wetland Defined in the ORMCP is: "wetland" means land such as a swamp, marsh, bog or fen (not including land that is being used for agricultural purposes and no longer exhibits wetland characteristics) that, (a) is seasonally or permanently covered by shallow water or has the water table close to or at the surface,(b) has hydric soils and vegetation dominated by hydrophytic or water-tolerant plants, and (c) has been further identified, by the Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time.

As per the ORMCP Technical Paper 1, a wetland is deemed to be significant if it is evaluated as provincially significant according to MNRF, greater than 0.5ha in size or a wetland that is less than 0.5ha in size but has a permanent or intermittent surface water connection between wetland and adjacent HSF, significant recharge to the underlying aquifer, direct hydraulic connections between the wetland and an underlying aquifer, is a KNHF other than a wetland, provides an important ecological linkage to adjacent KNHF or between KNHFs or provides habitat for a diverse range of native plant and animal species.

Azimuth comment:
MNRF has identified six wetland features on the property (Figure 2a). None of the wetlands on site meet the ORM size criteria for significance. One of these wetlands have the potential to provide fish habitat and therefore would be deemed to be a KNHF for fish habitat (Wetland #4, Figure 2a). Of these two wetlands, one contains an intermittent watercourse which would also qualify the wetland as a KNHF/HSF (Figure 2a). The MNRF has designated all six wetland units as being Provincially Significant and have been complexed into the Mount Wolfe PSW Complex (MNRF, 2012) (Appendix B). Therefore, all of the identified wetland units would be considered to be a KNHF and HSF since they have been evaluated by MNRF as provincially significant.

Significant Portions of Habitat of Endangered, Rare and Threatened Species

Habitat of END, rare and THR species is an area where individuals of an endangered species, a rare species or a threatened species live or have the potential to live and find adequate amounts of food, water, shelter and space needed to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species and has been

further identified by the MNRF or by any other person, according to evaluation procedures established by the MNRF.

Azimuth comment:
MNRF has not identified any portions of the property or on adjacent lands as containing habitat for END, rare and THR species. Azimuth undertook a SAR habitat screening for species listed as THR or END according to the ESA and is further discussed within this report.

Fish Habitat
The ORMCP defines 'fish habitat' as: 'the spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out the life processes, as further identified by Fisheries and Oceans Canada (DFO).' Where no detailed fish habitat mapping has been completed, all permanent or intermittent streams, kettle lakes, and all ponds other than off stream constructed ponds shall be deemed to be fish habitat unless it can be demonstrated to the satisfaction of the approval authority under the *Planning Act* that the features does not constitute fish habitat as defined by DFO.

Azimuth comment:
The wetland features on the property that contain standing water for all or a large portion of the growing season have the potential to offer potential marginal direct fish habitat (i.e. wetland #4). The intermittent stream offers indirect fish habitat. A 30m MVPZ will remain adjacent to the fish habitat. This 30m natural buffer is sufficient to protect the form and function of the fish habitat and is further discussed below.

Areas of Natural and Scientific Interest – Life Science
MNRF is responsible for identifying life science ANSIs and provides available mapping of these features to the municipalities.

Azimuth comment:
There have been no ANSIs identified on site or on adjacent lands according to MNRF (Appendix B).

Significant Valleylands
As per the ORMCP, a valleyland is means a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year. As per the ORM Technical Paper 1, Significant valleylands consist of streams, valleys and associated stream-derived features (*i.e.*, floodplains, valley slopes, meander

belts) and includes all streams with well-defined valley morphology having an average width of 25m or more, all spillways and ravines with the presence of flowing or standing water for a period of no less than two months in an average year (greater than 50m in length, 25m in width and overall area of 0.5ha or greater) and additional features identified by the approved authority that are consistent with one or more of the above functions.

Azimuth comment:
There are no significant valleyland features identified on site. Significant valleylands associated with Cold Creek (off-site) represent on lands within 120m of the property.

Significant Woodland

Within the ORMCP a woodland is defined as "… a treed area, woodlot or forested area, other than a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees."

As per the ORM Technical Paper 7, Significant woodlands shall mean woodlands that have either:
(a) a tree crown cover of over 60% of the ground, determinable from aerial photography ("forest" of Lee *et al*. 1998); or
(b)a tree crown cover of over 10% of the ground, determinable from aerial photography ("treed community" of Lee *et al*. 1998), together with on-ground stem estimates of:

- 1,000 trees of any size per hectare, or
- 750 trees measuring over five centimetres (cm) in diameter per ha, or
- 500 trees measuring over 12 cm in diameter, per ha, or
- 250 trees measuring over 20 cm in diameter, per ha (based on the Forestry Act of Ontario, 1998).

And, which have a minimum average width of 40 metres or more measured to crown edges.

And, which are:
(c) 4 ha or larger in size located in the Countryside or Settlement Areas of the ORMCP; or
(d) 0.5 ha or larger in size located in the Natural Core or Natural Linkage Areas of the ORMCP; or
(e) 0.5 ha or larger located within or intersecting with a key natural heritage feature or hydrologically sensitive feature or their vegetation protection zone".

Azimuth comment:
The woodland that has, in part, been identified on the property does not meet the size criteria alone for significance within the Countryside area. However, since the woodland intersects with wetlands that have been identified and deemed to be provincially significant by MNRF, fish habitat and an intermittent stream, the woodland would be considered to be a KNHF.

As per the ORMCP, the MVPZ consists of all land within 30m of the dripline of the woodland. The 30m setback is more than adequate to protect the root zone of the individual trees within the woodland in addition to the overall form and function of the woodland itself. This will be further discussed below.

Significant Wildlife Habitat

Wildlife habitat is defined within the ORMCP as an area where plants, animals and other organisms live or have the potential to live and find adequate amounts of food, water, shelter and space to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species. "Significant" means identified as significant by the MNRF. The ORMCP Technical Paper #2 – SWH aims to emphasize potential SWH that are found outside the boundaries of already protected KNHF and HSFs. Proponents are required to identify and protect SWH in accordance with Technical Paper #2 which identifies four sub-sections:

1. Seasonal concentration areas
2. Rare vegetation communities or specialized habitat for wildlife
3. Habitat for species of conservation concern (not including endangered, rare and threatened species)
4. Animal movement corridors

Azimuth comment:
An assessment was completed as it relates to Seasonal Concentration Areas, Habitat for Species of Conservation Concern and Animal Movement Corridors as per the ORM Technical Paper #2 Guidelines (Significant Wildlife Habitat). This assessment can be found within Table 6b.

Subsection (2) states that all development and site alteration with respect to land within a KNHF or the related MVPZ is prohibited, except the following:

1. Forest, fish, and wildlife management.

2. Conservation and flood or erosion control projects, but only if they have been demonstrated to be necessary in the public interest after all alternatives have been considered.
3. Transportation, infrastructure, and utilities as described in Section 41, but only if the need for the project has been demonstrated and there is no reasonable alternative.
4. Low-intensity recreational uses as described in Section 37.

Azimuth comment:
There is no development proposed within any of the identified KNHF or the related MVPZ. The MVPZ represents the amount of land in proximity of the identified feature that should be left in its natural state. In the case of wetland, fish habitat, significant woodlands and intermittent streams, the Minimum MVPZ is 30m.

Subsection (3) further states that an application for development or site alteration with respect to land within the minimum area of influence that relates to a KNHF, but outside the KNHF itself and the related MVPZ, shall be accompanied by a NHE under Section 23.

As indicated above, a minimum area of influence adjacent to the abovementioned KNHF and HSF is 120m. This EIS and MP incorporated the components of a NHE and will address all KNHF located within the minimum area of influence of the property.

6.3.7 Section 23.Natural Heritage Evaluation

Subsection (1) states that a NHE shall,

(a) Demonstrate that the development or site alteration applied for will have no adverse effects on the KNHF or on the related ecological functions;
(b) Identify planning, design and construction practices that will maintain and, where possible, improve or restore the health, diversity and size of the KNHF and its connectivity with other KNHFs;
(c) In the case of an application relating to land in a Natural Core Area, Natural Linkage Area or Countryside Area, demonstrate how connectivity within and between KNHF will be maintained and, where possible, improved or restored before, during and after construction;
(d) If the Table* to Part III specifies the dimensions of a MVPZ, determine whether it is sufficient, and if it is not sufficient, specify the dimensions of the required MVPZ and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it; and

(e) If the Table* to Part III does not specify the dimensions of a MVPZ, determine whether one is required, and if one is required, specify the dimensions of the required MVPZ and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it; and
(f) In the case of a KNHF that is fish habitat, ensure compliance with the requirements of DFO (Canada).

Subsection (2) states that in the case of item 4 of the Table* to this Part, the basis on which the determination and specification mentioned in clause (1) (e) is done shall include, without limitation, an analysis of land use, soil type, slope class and vegetation type, using criteria established by the Government of Ontario, as amended from time to time.

*This is referring to table entitled "Key Natural Heritage Features, Hydrologically Sensitive Features and Areas of Natural and Scientific Interest (Earth Science); Minimum Areas of Influence and MVPZ on page 53 of the ORMCP. Table can be found within Appendix C of this report.

Azimuth comment:
The components of the NHE as described above (Section 23.[1]) will be included and discussed within this EIS & MP report.

6.3.8 Section 26 Hydrologically Sensitive Features

Subsection (2) states the following are HSFs:

1. Permanent and intermittent streams
2. Wetlands
3. Kettle lakes
4. Seepage areas and springs

Azimuth comment:
On the property an intermittent stream and wetlands have been identified by MNRF and are protected with the required 30m MVPZ.

Subsection (2) states that development and site alteration with respect to land within a HSF or the related MVPZ is prohibited, except the following:

1. Forest, fish, and wildlife management.
2. Conservation and flood or erosion control projects, but only if they are determined to be necessary in the public interest after all alternatives have been considered.

3. Transportation, infrastructure, and utilities as described in section 41, but only if the need for the project has been demonstrated and there is no reasonable alternative.
4. Low-intensity recreational uses as described in section 37.

Azimuth comment:
There is no development proposed within any of the identified HSF or the related MVPZ.

Subsection (3) states that an application for development or site alteration with respect to land within the minimum area of influence that relates to a HSF, but outside the HSF itself and the related MVPZ, shall be accompanied by a HE under subsection (4).

Azimuth comment:
Azimuth has prepared a Hydrogeologic Assessment Report (2017b) under a separate cover. According to Azimuth (2017b), HSF on the property include an intermittent stream and wetlands. As indicated above, a minimum area of influence adjacent to the abovementioned HSF is 120m. The MVPZ represents the amount of land in proximity of the identified feature that should be left in its natural state. In the case of the identified HSFs, the MVPZ is 30m. The 30m MVPZ will provide the appropriate protection to the HSFs.

6.3.9 Section 29.Areas of High Aquifer Vulnerability

A Reference Map for Ontario Regulation 140/02 (ORMCP made under the ORMCA, 2001) identifies the Areas of High and Low Aquifer Vulnerability (Appendix C). Subsection (5) states that the following uses are prohibited with respect to land in areas of high aquifer vulnerability

1. Generation and storage of hazardous waste or liquid industrial waste
2. Waste disposal sites and facilities, organic soil conditioning sites, and snow storage and disposal facilities.
3. Underground and above-ground storage tanks that are not equipped with an approved secondary containment device
4. Storage of a contaminant listed in Schedule 3 (Severely Toxic Contaminants) to Regulation 347 of the Revised Regulations of Ontario, 1990.

Azimuth comment:
The property is primarily within an Aquifer Low Vulnerability Area (Appendix C and D) therefore, policies with respect to areas of high aquifer vulnerability do not apply. Nonetheless, the property will not be utilized for any of the above listed uses as outlined in Section 29.(5).

6.3.10 Section 30.Landform Conservation Areas

As a part of the ORMCP, maps have been prepared that identify the Landform Conservation Areas of the ORM (Appendix C). Subsection (6) states that an application for development or site alteration with respect to land in a landform conservation area (Category 2) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including,

(a) maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;
(b) limiting the portion of the net developable area of the site that is disturbed to not more than 50 per cent of the total area of the site; and
(c) limiting the portion of the net developable area of the site that has impervious surfaces to not more than 20 percent of the total area of the site.

Subsection (8) states that an application for major development (creation of four or more lots) with respect to land in a landform conservation area of either category shall be accompanied by a landform conservation plan that shows, on one or more maps,

(a) elevation contours in sufficient detail to show the basic topographic character of the site, with an interval of not more than two metres;
(b) analysis of the site by slope type (for example, moderate or steep);
(c) significant landform features such as kames, kettles, ravines and ridges; and
(d) all water bodies including intermittent streams and ponds.

Subsection (9) states that the landform conservation plan shall also include a development strategy that identifies appropriate planning, design and construction practices to minimize disruption to landform character, including,

(a) retention of significant landform features in an open, undisturbed form;
(b) road alignment and building placement to minimize grading requirements;
(c) concentration of development on portions of the site that are not significant;
(d) use of innovative building design to minimize grading requirements; and
(e) use of selective grading techniques.

Azimuth comment:
The property is considered to be a part of the Landform Conservation Area 2 (Appendix B and C). A Landform Conservation Plan has been prepared by Calder Engineering Ltd. The proposed grading for the property involves only local cut and fill to facilitate building houses and it maintains the general landform.

6.4 Region of Peel Official Plan (Office Consolidation December 2016)

6.4.1 Section 2.2 Large Environmental Systems

Subsection 2.2.1.1 states that general objectives within this section are to recognize and promote the connections between local ecosystem functions and large environmental systems and contribute to the protection of these larger non-localized systems

Subsection 2.2.1.2 identifies the objective to conserve, restore and enhance the integrity of Peel's air, water and land resources.

Section 2.2.9 Oak Ridges Moraine

The Region's Official Plan indicates that municipal official plans and zoning bylaws must conform to the ORMCP. The major provisions that are relevant at the Regional level have been incorporated into this section (Section 2.2.9) of the Regional Official Plan. However, these policies must be read in conjunction with the detailed provisions of the ORMCP, all other applicable policies of this Plan, and the Town Official Plan (OP).

Subsection 2.2.9.1 states that it is the Goal of the Region's OP to implement the Provincial Oak Ridges Moraine Conservation Plan to protect the ecological and hydrological features and functions of the Oak Ridges Moraine and the associated benefits to Peel residents.

Subsection 2.2.9.3.7 (Land Use Designations) states that one should identify the boundaries of the land use designations on Schedule D1 and to recognize that the boundaries may be further refined by the Town of Caledon when the Town's OP and Zoning By-law are amended in accordance with Sections 9 and 10 of the ORMCA.

Subsection 2.2.9.3.7 (c) of the Region's OP states that the Palgrave Estate Residential Community, the boundary of which is shown on Schedule D1, is an additional component of the Countryside Area and residential development is permitted, subject to the TCOP, as amended from time to time, and specified provisions of the ORMCP.

Azimuth comment:
The property is located within the Palgrave Estate Residential Community on the ORM (Schedule D1, Region of Peel Official Plan, 2016) (Appendix D). Residential development is permitted within the Palgrave Estate Residential Community subject to the TCOP and the ORMCP.

Since the Region's OP states that municipal official plans and zoning bylaws must conform to the ORMCP, our EIS & MP assumes that in addressing conformity to

environmental policies on the part of the Town of Caledon we also address environmental policy conformity on the part of the Region.

Subsection 2.2.9.3.8 (Natural and Hydrological Features) defines KNHF and HSFs in accordance with Policy 2.2.9.3.9 and Policy 2.2.9.3.10 of this Plan. Where KNHF and HSF coincide with components of the Greenlands System in Peel, the policies of Section 2.3 of this Plan shall also apply.

Subsection 2.2.9.3.9 states that as outlined in the ORMCP, the Region OP defines KNHF as:
a) Wetlands;
b) Significant portions of the habitat of endangered, rare and threatened species;
c) Fish habitat;
d) Areas of natural and scientific interest (life science);
e) Significant valleylands;
f) Significant woodlands;
g) Significant wildlife habitat; and
h) Sand barrens, savannahs and tallgrass prairies.

Subsection 2.2.9.3.10 states that as outlined in the ORMCP, the Region OP defines HSF as:
a) Permanent and intermittent streams;
b) Wetlands;
c) Kettle lakes; and
d) Seepage areas and springs

Azimuth comment:
KNHF and HSF have been identified on the property and are further discussed within this report.

Subsection 2.2.9.3.11 directs the Town to identify the location of known KNHF and known HSF in its Official Plan and Zoning By-law where such identification is technically feasible.

Azimuth comment:
The Environmental Zoning Summary can be found on Schedule I of the TCOP whereby the more sensitive environmental features (EZ1) and supporting environmental features (EZ2) have been identified (Appendix D). Based on our site field investigations, we have refined the EZ1 and EZ2 accordingly.

Subsection 2.2.9.3.12 directs the Town to include in its Official Plan, appropriate policies to protect unevaluated and unmapped KNHF and HSF. Further, the Town to requires all applicants for new development or site alteration to identify potential KNHF and HSF and ensure that such features are appropriately evaluated and protected in accordance with any requirements of this Plan, the Town's OP, and the ORMCP.

Azimuth comment:
This EIS & MP in conjunction with Azimuth's Hydrogeologic Assessment Report (2017b) have identified all of the potential KNHF and HSF on the property. The KNHF and HSF have been identified on the property utilizing existing background information and mapping, site specific surveys over multiple seasons on the property and in conjunction with the MNRF as it relates to the wetland features on the property. These identified KNHF will be protected in accordance with the requirements of the Region, Town and ORMCP.

Subsection 2.2.9.3.13 directs the Town to prohibit development and site alteration within a KNHF and/or a HSF and within the associated MVPZ, in accordance with the Table in Part III of the ORMCP, except as permitted by the ORMCP (*e.g.* existing uses and existing lots of record).

Azimuth comment:
Based on this assessment, there will be no development or site alteration within any of the identified KNHF or HSF or within their associated MVPZ (i.e. 30m to each of the identified features). A 30m MVPZ will remains adjacent to each of these identified KNHF and HSF in accordance with the Table in Part III of the ORMCP.

Subsection 2.2.9.3.14 directs the Town to require that an application for new development or site alteration within the minimum area of influence of a KNHF or a HSF be accompanied by a NHE and/or a HE, as detailed in the ORMCP. The evaluation shall be prepared to the satisfaction of the Town, in consultation with the Region and the applicable conservation authority, as appropriate. The Town may develop guidelines to assist in the interpretation of this policy including appropriate mechanisms for refining and scoping evaluation requirements. These guidelines are to be developed in consultation with the Region of Peel and the applicable conservation authorities.

Azimuth comment:
The Town and the Region in conjunction with the TRCA have been consulted at the onset of this project and have been involved in refining and scoping the evaluation

requirements. The property is located within the minimum area of influence of a number of KNHF and HSF. The property is within 120m (area of influence) to wetlands, fish habitat, significant valleyland, significant woodland, SWH and permanent and intermittent streams.

Subsection 2.2.9.3.15 directs the Town to include, in its Official Plan, appropriate policies that support connectivity. These policies should include that applications for development or site alteration identify planning, design, and construction practices that ensure no buildings or other site alterations impede the movement of plants and animals along KNHF, HSF, and adjacent land within Natural Core Areas and Natural Linkage Areas.

Azimuth comment:
This report will demonstrate that the proposed development will not impede the movement of plants and animals along KNHF, HSF, and adjacent land within Natural Core Areas and Natural Linkage areas where applicable.

Subsection 2.2.9.3.18 (Landform Conservation Areas) states that Figure 12 of this Plan identifies Landform Conservation Areas in the Region of Peel for the ORMCPA.

Azimuth comment:
The property is located within an area identified as Landform Conservation Area 2 (Appendix C).

Subsection 2.2.9.3.18 directs the Town require development or site alteration application in a landform conservation area (Category 1 and 2) to identify planning, design and construction practices that will keep disturbance to landform character to a minimum, as required by Section 30 of the ORMCP. Further, it directs the Town to encourage applications for development and site alteration in the Settlement Area to adopt planning, design and construction practices that will keep disturbance to landform character to a minimum, as per Section 30 (13) of the ORMCP.

Azimuth comment:
The EIS & MP will address the proposed development as it pertains to the landform conservation area (Category 2).

Subsection 2.2.9.3.19 directs the Town to require applicants for development or site alteration with respect to land in a provincially significant ANSI (Earth Science), or

within the associated minimum area of influence, to complete to the Town's satisfaction an earth science evaluation in accordance with Section 30 (12) of the ORMCP.

Azimuth comment:
There are no Earth Science ANSI's on or within 50m (minimum area of influence) of the property.

Section 2.2.10 Greenbelt Plan

Section 2.2.10 of the Region's OP provides policy direction within an area extending from Niagara Falls to Durham Region that fall within the Greenbelt Plan area. However, for lands within the ORMCP Area, the requirements of the ORMCP, made under the ORMCA, 2001, continue to apply, and the Protected Countryside policies within the Greenbelt Plan do not apply with the exception of the policies related to parkland, open space and trails.

Azimuth comment:
The property is contained within the ORMCP Area and therefore the Protected Countryside policies within the Greenbelt Plan do not apply with the exception of the policies related to parkland, open space and trails.

6.4.2 Section 2.3 Greenlands System in Peel

The Greenlands System in the Region of Peel, which consists of Core Areas, Natural Areas and Corridors, and Potential Natural Areas and Corridors, is intended to support and express the Region's vision for the protection of the natural environment.

The elements of the Greenlands System in Peel include ANSIs, Environmentally Sensitive or Significant Areas (ESAs), Escarpment Natural Areas, Escarpment Protection Areas, fish and wildlife habitat, habitats of threatened and endangered species, wetlands, woodlands, valley and stream corridors, shorelines, natural lakes, natural corridors, ground water recharge and discharge areas, open space portions of the Parkway Belt West Plan, and other natural features and functional areas.

Reference should be made to the area municipal official plans and related documents for a detailed interpretation of the location and extent of the Core Areas, Natural Areas and Corridors and Potential Natural Areas and Corridors.

Azimuth comment:
Through adhering to the policies as outlined within the TCOP and the ORMCP, we will be identifying and protecting all of the KNHF on the property that would be a part of the Region's Greenlands System.

6.5 Town of Caledon Official Plan November, 2016 Consolidation

Azimuth comment:
The property is within the Palgrave Estate Residential Community within the TCOP Consolidated November, 2016) (Appendix D).

6.5.1 Section 3.2 Ecosystem Planning and Management

3.2.1 Introduction

The Ecosystem Objectives, Ecosystem Planning Strategy, General Policies and Performance Measures contained in this Section of the Plan establish a broad framework for ecosystem planning and management in Caledon. The provisions of Section 3.2 apply to the entire land base of the Town, and all land use planning considerations. These Town-wide provisions are supplemented by detailed environmental and open space/recreation land use policies and designations contained in Sections 5.7 and 5.8 respectively. Within the ORMCP, these Town-wide provisions are also supplemented by detailed policies and designations contained in Section 7.10.

Azimuth comment:
The provisions of Section 3.2 apply to the property as they are within the Town of Caledon.

3.2.3 Ecosystem Planning Strategy

Subsection 3.2.3.1 within the Ecosystem Framework states that the Ecosystem Framework outlined on Table 3.1* organizes ecosystem components into four categories:

Natural Core Areas
Natural Corridors
Supportive Natural Systems
Natural Linkages

It should be noted that this Ecosystem Framework incorporates and refines the components of the Regional Greenlands System, as defined in the Region of Peel Official Plan, in a manner which conforms with the environmental policy directions contained in the Region of Peel Official Plan. Within the ORMCPA, this framework incorporates

KNHFs and HSFs, and their related MVPZ and Minimum Area of Influence (MAI), as defined in the ORMCP.

*Table 3.1 as found within the Town's OP.

Azimuth comment:
Table 3.1 as described above can be found within Appendix D.

Subsection 3.2.3.1.1 state that the ecosystem components identified as Natural Core Areas and Natural Corridors on Table 3.1* represent the fundamental biological and physical building blocks of ecosystems in the Town. In addition to being subject to the general environmental policies and performance measures of this Plan, these lands are designated Environmental Policy Area (EPA) and are subject to the detailed land use policies in Section 5.7. Within the ORMCPA, in addition to being subject to the general environmental policies and performance measures in this Plan, these lands are designated EPA and are subject to the detailed land use policies in Section 5.7.

*Table 3.1 as found within the Town's OP (Appendix D).

Azimuth comment:
As per Table 3.1 as found within the Town's OP (Appendix D), all KNHF and HSF and their associated MVPZ as per the ORMCP are considered to be Natural Core Areas and Natural Corridors. KNHF and HSF identified on the property include woodlands, wetlands, potential and confirmed habitat of END and THR species, SWH (candidate and confirmed), and an intermittent stream.

Subsection 3.2.3.1.2 states that the ecosystem components identified as Supportive Natural Systems and Natural Linkages on Table 3.1* of this Plan perform vital local ecosystem functions, and play a crucial role in supporting and enhancing the form, function and integrity of Natural Core Areas and Natural Corridors. These systems are subject to the general environmental policies and performance measures of this plan. Through further review of these systems, as required by the general environmental policy performance measures, appropriate levels of protection and management will be identified. It may be determined upon this review that components of Supportive Natural Systems and Natural Linkages satisfy the criterion for Natural Core Areas or Natural Corridors, or should be incorporated into the core/corridor due to identified ecosystem functions, sensitivities and linkages. Such areas will be re-designated in accordance with the applicable provisions of this plan, particularly Sections 3.2.5 and 5.7 and will be subject to the provisions of this Plan relating to Natural Core Areas and Natural

Corridors. Within the ORMCPA, these Performance Measures are supplemented by the detailed policies contained in Section 7.10.

*Table 3.1 as found within the Town's OP (Appendix D).

Azimuth comment:
Supportive Natural Systems and Natural Linkages would include components of the ground water systems including surficial aquifers, recharge areas, productive soils (Class1: Soils in this class have no significant limitations to use for crops) and erosion prone soils.

Subsection 3.2.3.2 pertaining to Environmental Performance Measures states that since not all of the ecosystem components in Table 3.1* are identified on current mapping, and to provide clear and consistent Town-wide policy direction with respect to these components, performance measures are provided for all of these ecosystem components, and are detailed in Section 3.2.5.

*Table 3.1 as found within the Town's OP (Appendix D).

Azimuth comment:
Through the completion of our detailed biological and hydrogeological field studies, review of available background information/mapping, consultation with MNRF/TRCA (including on-site meeting (s)) to identify features, all components of the Town's Ecosystem Framework have been identified on the property.

Subsection 3.2.3.3 pertaining to EIS & MPs states that Policies are required to provide consistent direction regarding environmental study requirements. The preparation of Environmental Impact Studies and Management Plans for development adjacent to EPA provides a mechanism for identifying how a proposal satisfies the Town's ecosystem policies and performance measures. Specific policies with respect to EIS and MP requirements are contained in Sections 3.2.4, 3.2.5 and 5.7.3.7. Within the ORMCPA, these EIS & MP requirements shall also address the applicable study requirements as detailed in Section 7.10, and in particular 7.10.5.4.

Azimuth comment:
This EIS & MP will address the specific requirements as outlined in the above listed policies.

3.2.4 General Policies

The policies outlined within Section 3.2.4 establishes general policies regarding implementation of the Town's ecosystem principle, goal, objectives and planning strategy. These general policies are supplemented by the Town-wide performance measures established in Section 3.2.5, and the detailed environmental land use policies in Section 5.7, and, within the ORMCPA, the detailed policies of Section 7.10.

3.2.5 Performance Measures

Subsection 3.2.5.3 pertains to woodlands and states that new development within Woodland Core Areas is prohibited in accordance with Section 5.7, with the exception of the permitted uses as specified in policy 5.7.3.1.2.

Azimuth comment:
The woodland located in part on the property is considered to be a KNHF according to the ORMCP and hence would be considered to be a Woodland Core Area. There is no development proposed within the limits of the woodland or within the 30m MVPZ.

Subsection 3.2.5.3.4 states that the re-establishment of native forest ecosystems in currently non-wooded areas is strongly encouraged. Such reforestation initiatives should be guided by the ecosystem principle, goal and objectives of this Plan and should be implemented through an approved EIS & MP, Forest Management Plan, Environmental Management Plan, or comparable document.

Azimuth comment:
At this time, there is no reforestation plantings proposed as a part of this application.

Subsection 3.2.5.4.1 pertains to wetlands and states that new development within Wetland Core Areas is prohibited in accordance with Section 5.7, with the exception of the permitted uses as specified in policy 5.7.3.1.2.

Azimuth comment:
The wetlands identified on the property are considered to be KNHF and HSFs according to the ORMCP and hence would be considered to be a Wetland Core Area. There is no development proposed within the limits of the wetlands or within the 30m MVPZ.

Subsection 3.2.5.4.4 states that unevaluated wetlands shall be studied and evaluated through joint initiatives potentially involving the Town, the Conservation Authority, the MNRF, the Region, a development proponent or other appropriate parties.

Azimuth comment:
The wetlands on the property were identified and subsequently evaluated by the MNRF. Subsequent to their evaluation, they have been deemed to be a part of the Mount Wolfe PSW Complex.

Subsection 3.2.5.5.1 states that new development within Life Science ANSI's is prohibited in accordance with Section 5.7, with the exception of the permitted uses as specified in policy 5.7.3.1.2.

Azimuth comment:
There are no Life Science ANSI's identified on or adjacent to the property according to MNRF (Appendix B).

3.2.5.5.2 states that New development may be permitted in Earth Science ANSI's, subject to the policies of this Plan as well as any applicable policies or guidelines established by the MNRF, and within the Niagara Escarpment Plan, the applicable provisions of Section 2.5.5.3.14 of the Niagara Escarpment Plan.

Azimuth comment:
There are no Earth Science ANSI's identified on or adjacent to the property according to MNRF (Appendix B).

Subsection 3.2.5.6.1 states that new development within Environmentally Significant Areas is prohibited in accordance with Section 5.7, with the exception of the permitted uses as specified in policy 5.7.3.1.2.

Azimuth comment:
Correspondence from MNRF Aurora District (March 28, 2013; Appendix B) indicated that natural heritage features recorded for the area include identified wetlands as well as an unnamed Environmentally Sensitive Area. MNRF was unable to provide any additional details regarding the unnamed Environmentally Sensitive Area and directed us to the Lands Information Ontario (LIO) for this data. Personnel at LIO could not find any Environmentally Sensitive Area on the property. Therefore, there are no confirmed Environmentally Significant Areas on or adjacent to the property.

Subsection 3.2.5.9.1 states that new development within the Significant Habitat of THR and END species is prohibited in accordance with Section 5.7, with the exception of the permitted uses as specified in policy 5.7.3.1.2 or as may be permitted in accordance with provincial and federal legislation and policies (*e.g.* ESA).

Azimuth comment:
Based on a thorough investigation of available background data and site specific data, there has been potentially and confirmed habitat identified on the property for THR or END species. Please refer to EIS & MP report for additional details.

Subsection 3.2.5.10.1 states that new development within Core Fishery Resource Areas is prohibited in accordance with Section 5.7, with the exception of the permitted uses as specified in policy 5.7.3.1.2.

Azimuth comment:
Fish habitat has been identified on the property would be considered to be a KNHF according to the ORMCP and hence would be considered to be a Core Fishery Resource Area. There is no development proposed within the identified fish habitat or within the 30m MVPZ.

Subsection 3.2.5.10.2 states that no new development will be permitted on lands adjacent to Core Fishery Resource Areas which will harm fully alter, disrupt or destroy fish habitat. There will be no net loss of productive capacity of fish habitat, and a net gain of productive capacity wherever possible.

Azimuth comment:
As indicated above, there will be no development within the identified fish habitat and at least a 30m MVPZ will remain adjacent to these features. This MVPZ will protect the form and function of the fish habitat to ensure that fish habitat is not altered, disrupted or destroyed.

Subsection 3.2.5.10.4 states that the quality and quantity of surface water entering Core Fishery Resource Areas shall be maintained and, where appropriate, enhanced and restored, to the satisfaction of the Town, the relevant Conservation Authority, the Niagara Escarpment Commission, where applicable, and the MNRF.

Azimuth comment:
The present hydrologic and hydrogeologic conditions, including the surface/ground water quality and quantity, upon the property will not experience a significant change due to do the proposed development. No negative post-construction impacts are predicted to occur to the quality and/or quantity of surface and ground water, ground water recharge, or natural sensitive features. The quality and quantity of water entering into the natural heritage features, including the Core Fishery Resource Area will be

maintained post-development. The detailed surface/ground water assessment will be addressed in detail within the Hydrogeologic Assessment Report (Azimuth, 2017b) and Functional Servicing Report (Calder Engineering Ltd. 2017).

Subsection 3.2.5.10.5 states that restoration and enhancement of Fishery Resource Areas is encouraged. Where appropriate, a riparian habitat zone shall be maintained or established on lands abutting Fishery Resource Areas to the satisfaction of the Town, the Ministry of Natural Resources, the relevant Conservation Authority, and the Niagara Escarpment Commission, where applicable.

Azimuth comment:
Lands adjacent to the Fishery Resource Areas (i.e. ponds) will be maintained post-development. A 30m natural self-sustaining buffer (MVPZ) will remain adjacent to these features.

Subsection 3.2.5.12.1 states that new development is prohibited within Valley and Stream Corridors, in accordance with Section 5.7, with the exception of the permitted uses as specified in policy 5.7.3.1.2 and areas within the Humber River Valley Corridor within the existing settlement of Bolton as exempted through policies 5.7.3.1.10 to 5.7.3.1.15 .

Azimuth comment:
There are no valley and stream corridors identified on the property. The Cold Creek valley corridor exists on adjacent lands. There is no development proposed within the Valley and Stream Corridor.

Subsection 3.2.5.13.1 states that New development must ensure that the quality and quantity of ground water recharge and discharge and the flow distribution of ground water (including ground water - surface water interconnections and contributions to stream base flow) are protected, maintained, and, where appropriate, enhanced and restored.

Azimuth comment:
The present hydrologic and hydrogeologic conditions, including the surface/ground water quality and quantity, upon the property will not experience a significant change due to do the proposed development. No negative post-construction impacts are predicted to occur to the quality and/or quantity of surface and ground water, ground water recharge, or natural sensitive features. The quality and quantity of water entering into the natural heritage features will be maintained post-development. The detailed

surface/ground water assessment will be addressed in detail within the Hydrogeologic Assessment Report (Azimuth, 2017b).

Subsection 3.2.5.14.1 states that due to their contribution to ecosystem integrity, the Town encourages the conservation and protection of productive soils and native soils vulnerable to erosion.

Azimuth comment:
The conservation and protection of productive soils and native soils vulnerable to erosion has been considered with the proposed Draft Plan. No native soils or topsoil is anticipated to be exported from the site and the conversion from agricultural use to estate residential use will result in a potential decrease in soil erosion on the site (Whyte, 2017).

3.2.5.15.3 Slopes which possess inherent instabilities or other characteristics that may pose a serious threat to human health and property shall generally be excluded from development and placed in an appropriate restrictive designation such as EPA.

Azimuth comment:
No slopes that possess inherent instabilities or other characteristics that may pose a serious threat to human health and property have been identified or included in the lot fabric associated with the proposed Draft Plan (Whyte, 2017).

Subsection 3.2.5.15.4 states that the alteration of existing slopes and landforms shall be minimized, and significant topographic features shall generally be preserved and incorporated into new developments as appropriate.

Azimuth comment:
The existing slopes, landforms, and topographic features have been considered and generally preserved and incorporated into the proposed Draft Plan and associated preliminary servicing and grading design (Whyte, 2017).

Section 3.2.5.16 deals with KNHF on the ORM. Subsection 3.2.5.16.1 states that ORM KNHF and their related MVPZ are designated EPA.

Azimuth comment:
Figure 4 of the EIS and MP identifies the recommended EPA. This encompasses all KNHF and HSF and their associated MVPZ.

Subsection 3.2.5.16.2 states that new development within ORM KNHF and their related MVPZ is prohibited in accordance with Sections 5.7 and 7.10, with the exception of uses permitted in accordance with Section 5.7.3.1.2.

Azimuth comment:
There is no development proposed within the identified KNHF or their associated MVPZ (Figure 4 and 5).

Subsection 3.2.5.16.3 states that new development within the Minimum Area of Influence associated with a KNHF but outside the KNHF itself, and the related MVPZ may be permitted subject to the provisions of the applicable land use designation and the provisions of Section 7.10.

Azimuth comment:
The minimum area of influence for the KNHF would be 120m from wetland, fish habitat, significant valleylands (adjacent lands), significant woodland, and SWH. Development is proposed within the minimum area of influence to the abovementioned features and is subject to the provisions of the applicable land use designations and the provisions of Section 7.10.

Subsection 3.2.5.17.2 states that new development within ORM HSF and their related MVPZ is prohibited in accordance with Sections 5.7 and 7.10, with the exception of uses permitted in accordance with Section 5.7.3.1.2.

Azimuth comment:
There is no development proposed within the identified HSF or their associated MVPZ (Figure 4 and 5).

Subsection 3.2.5.17.3 states that new development within the Minimum Area of Influence associated with a HSF but outside the HSF itself and the related MVPZ may be permitted subject to the provisions of the applicable land use designation and the provisions of Section 7.10.

Azimuth comment:
The minimum area of influence for the HSF would be 120m from wetland and permanent and intermittent streams. Development is proposed within the minimum area of influence of the abovementioned features and is subject to the provisions of the applicable land use designations and the provisions of Section 7.10.

6.5.2 Section 5.7 Environmental Policy Area

Subsection 5.7.1 states that in keeping with the ecosystem planning strategy described in Section 3.2.3, EPA includes all Natural Core Areas and Natural Corridors as outlined on Table 3.1*, except for those areas exempted through Sections 5.7.3.1.10 to 5.7.3.1.15.

*Table 3.1 as found within the Town's OP (Appendix D).

Azimuth comment:
All of the identified KNHF and HSF are included within the Natural Core Area and Natural Corridors categories and therefore would be designated EPA.

6.5.3 Section 7.1 Palgrave Estate Residential Community

7.1.5 Development Pattern

Subsection 7.1.5.1 indicates that Schedule G, Palgrave Estate Residential Community Development Pattern, establishes the following land use areas in the Palgrave Estate Residential Community: Policy Area 1, Policy Area 2, Policy Area 3 and Policy Area 4. It also recognizes existing and committed estate residential plans of subdivision and an existing licensed extractive industrial area.

Subsection 7.1.5.2 states that Policy Area 1 is the prime area for future estate residential development.

Azimuth comment:
The property is designated as Policy Area 1, which is prime for future estate residential (Appendix D).

Subsection 7.1.5.3 states that Policy Areas 2 and 3 are suitable for estate residential development at lower densities and higher minimum net lot sizes than Policy Area 1.

Azimuth comment:
According to the Town's OP, there are no areas of Policy Area 2 and 3 on the property (Appendix D).

Subsection 7.1.5.4 states that Policy Area 4 is unsuitable for estate residential development and no density will be allocated to it. Notwithstanding the development pattern depicted on Schedule G, applications that were commenced but not decided upon as of November 17, 2001, in accordance with Section 15 of the *ORMCA*, shall be considered for approval subject to the provisions prescribed in Section 48 of the ORMCP, and the policies of Section 7.1 that would have been applicable on November 16, 2001.

In the case of conflict between the provisions of the ORMCP and Section 7.1, the more restrictive policies shall apply.

Azimuth comment:
There is no Policy Area 4 on the property. A portion of the lands immediately to the north and west are located within the Policy Area 4 designation, which coincide with the buffering lands adjacent to the valley feature located to the west.

Subsection 7.1.5.5 states that Policy Areas 1, 2 and 3 correspond to the ORMCP Countryside Area designation on Schedule P, and Policy Area 4 corresponds to the ORMCP Natural Core Area and Natural Linkage Area designations on Schedule P. Within the ORMCPA, the boundaries of the Policy Areas 1, 2, 3 and 4, as delineated on Schedule G, have been further defined in accordance with the applicable provisions of the ORMCP. No further amendments to the Policy Areas 1, 2, 3 and 4 on Schedule G will be considered until the time of the 10-year review of the ORMCP.

Azimuth comment:
The property is designated as Palgrave Estate Residential Community which is a component of the Countryside Area designation.

7.1.9 Environmental Policies
Subsection 7.1.9.1Schedule I, Palgrave Estate Residential Community Environmental Zones, establishes the following Environmental Zones based on existing natural features of the area and based on the applicable policies of the Oak Ridges Moraine Conservation Plan:

(a) Environmental Zone 1 (EZ 1): EZ 1 includes more sensitive biological communities; valley and stream corridors and their associated floodplains; native upland and lowland woodlands; natural water bodies; Provincially and locally significant wetlands; and, Environmentally Significant/Sensitive Areas.
(b) Environmental Zone 2 (EZ 2): EZ 2 includes areas of high ground water table (where the water table is usually within 1.5mor less of the ground surface); areas of seasonal flooding (not including regulated floodplains); dry swale lowlands and natural depressions which perform natural runoff, detention and ground water recharge functions; and, smaller hedgerows and strips of native vegetation.
(c) EZ 1 and EZ 2 shall be zoned in a separate classification in the implementing Zoning By-law which conforms to the provisions of this Plan.
(d) If an area contains both EZ 1 and EZ 2 features, it shall be treated as EZ 1 and subject to all provisions applicable to EZ 1.

Azimuth comment:
Schedule I outlines the Environmental Zoning Summary for the Palgrave Estate Residential Community (Appendix D). The recommended EZ1 areas have been refined to include all ORMCP KNHF, HSF and their associated MVPZ (Figure 4).

EZ 2 areas has been identified on the property (Appendix D). The refined EZ2 areas correlate with the areas of high ground water (Figure 4).

Subsection 7.1.9.2 states that the general locations of EZ 1 and EZ 2 are shown on Schedule I, however the individual EZ 1 and EZ 2 features are not shown separately on the Schedule. The specific type(s) of individual EZ 1 and EZ 2 features and refinements to their boundaries shall be determined through detailed studies, such as a Natural Heritage Evaluation and/or Hydrological Evaluation, or the requirements of Section 7.1.18 where applicable.

Minor changes and refinements to EZ 1 and EZ 2 shown generally on Schedule I, based on updated information from the Province or as a result of detailed studies, such as those noted above, will not require an amendment to this Plan. However, where the feature is a wetland, an Area of Natural and Scientific Interest and/or significant portions of the habitat of endangered, rare and threatened species, or their related MVPZ, proposed refinements to the boundary or the extent of the feature requires formal confirmation from the Province or delegated authority prior to any development.

Azimuth comment:
EZ1 areas depict the most constraining identified KNHF/HSF: wetlands, significant woodland and an intermittent stream. The wetlands have been identified and confirmed by MNRF as per the requirements of the Town. The EZ2 areas represent areas with a high ground water table. Figure 4 depicts the proposed refinements to the EZ1 and EZ2 mapping.

Subsection 7.1.9.3 states that a Structure Envelope must be shown for each lot on any proposed plan of subdivision. The Structure Envelope shall identify the optimal area of the lot for structures and shall provide ample space for estate residential and accessory uses including all associated necessary lot grading. The proposed house and driveway locations and soil absorption area for sewage disposal shall be shown within the Structure Envelope. Structure Envelopes will generally be sized in the range of 0.3 hectares (0.74 acres) to 0.5 hectares (1.24 acres). Structure Envelopes slightly outside this range will be discouraged unless site conditions warrant a minor deviation from this range.

Azimuth comment:
Please refer to Figure 5 that depicts the proposed structure envelope.

Subsection 7.1.9.4 states that no part of a Structure Envelope will be permitted in EZ 1or in Policy Area 4.

Azimuth comment:
No part of the structure envelope extends into the EZ1.

Subsection 7.1.9.5 states that no part of a Structure Envelope will be permitted in EZ 2 except for short sections of driveways which may cross short sections of EZ 2 if necessary to obtain reasonable access to a lot. Individual lot services will not be permitted to cross Policy Area 4 or EZ1 and EZ 2 unless included within the driveway portion of a structural envelope crossing EZ 2.

Azimuth comment:
No part of a structure envelope is proposed within EZ 2 zones.

Subsection 7.1.9.6 states that plans of subdivision shall:

a) Design the layout of roads, lots and structural envelopes to establish large, contiguous open space blocks which provide continuous connections between EZ1 and 2, to the greatest extent practical; and,
b) Notwithstanding any other provisions of this Plan, within the EZ 1 areas that are subject to the overlay hatch, as depicted on Schedule I, the layout of roads and lots shall be designed to minimize stream crossings and extensions into KNHF.

Azimuth comment:
The design of the proposed subdivision creates a contiguous block of EZ1 and EZ2 features to the greatest extent practical. There are no extensions into any of the identified KNHF.

Subsection 7.1.9.27 states that stormwater management facilities and structures will not be located within EZ 1. The Town may require easements over stormwater management facilities and stormwater conveyance systems. Detention and recharge areas will not normally qualify as a credit towards environmental bonus lots unless these areas are to be reforested or environmentally managed in accordance with Section 7.1.9.12.

Azimuth comment:
The proposed bioretention block is located outside of all EZ1 areas.

Subsection 7.1.9.29 states that a buffer of natural vegetation, a minimum of 30 metres wide over at least 90 per cent of the shore frontage, will normally be required around every pond and stream and its inlet water courses to minimize the impacts of development. If the existing buffer of natural vegetation covers less than 90 percent of the shore frontage, rehabilitative plantings will be required to the satisfaction of the Town and Conservation Authority in order to achieve this standard. Rehabilitation plantings will normally qualify as a credit towards environmental bonus lots and will be included on the Environmental Management/Reforestation Plan.

Azimuth comment:
In order to satisfy subsection 7.1.9.29 of the TCOP, rehabilitation plantings in the form of native seeding will be provided around the pond (i.e. wetland #4).

Subsection 7.1.9.38 states new subdivision roads and services will not be permitted in Policy Area 4 or EZ 1, except in accordance with Section 7.1.9.6.b, or if they are part of the planned new east-west collector roads described in Section 7.1.14.1, and then only in accordance with all other applicable provisions of this Plan.

Azimuth comment:
There are no roads or services proposed within EZ.

Subsection 7.1.9.39 Plans of subdivision shall be designed so as to minimize road crossings and extensions into EZ 2. Short sections of roads and associated subdivision services will be permitted to cross or extend into EZ 2 if necessary to allow economically efficient road or subdivision design, provided such road crossing is located in Policy Area 1, 2 or 3.

Azimuth comment:
The site is located within a Policy Area 1, which permits short sections of road to cross or extend into EZ 2. A short section of Street A is proposed to cross an ephemeral swale between the pond at Mt. Pleasant and the neighbours dugout pond to the south. This swale directs storm runoff in both directions. As indicated within Azimuth's 2017 Hydrogeologic Assessment Report, site grading for the purpose of road construction will increase the existing grade and this area would not be considered EZ 2 however, the same drainage function would continue. Significant impacts to the EZ 2 will not occur, and the function for ground water flow and surface water runoff will remain unchanged.

None of the structures are located within the pre-construction EZ 2 areas and local grading will cause these areas to shift slightly. As EZ 2 areas are based on a typical depth to the water table of 1.5m, local grading can change these depths

In Lot 1, local grading near the house envelope will modify the EZ 2 line towards the south. This grading will subdue the grading of the depression central to the building envelope and will increase the depth to ground water correspondingly. This is predicted to increase the depth to ground water to more than 1.2m in this area but will not alter the direction nor rate of ground water flow.

In Lot 4, local grading near the house will add fill and shift the drainage swale westward towards the lot boundary with Lot 6. Similar to the other grading, this will maintain the direction and rate of ground water flow and surface water runoff.

7.1.18 Draft Plan Application Requirements

Subsection 7.1.18.9 states that the Environmental Management/Reforestation Report shall document and detail all reforestation and environmental protection and management measures being recommended in accordance with Section 7.1.9 and shall be integrated with the Environmental Management/Reforestation Plan described in Section 7.1.18.2 k.

Azimuth comment:
A component of the EIS & MP will include the details as specified within Subsection 7.1.18.9 and can be found below.

Subsection 7.1.18.11, states that a detailed Environmental and Engineering Summary Report will be prepared which will integrate and summarize the environmental site investigations, mapping and analysis with the findings and recommendations of the preliminary engineering, stormwater management and noise reports. The report shall describe the environmental characteristics of the site including the geology, hydrology, hydrogeology, water quality, vegetation and wildlife ecology and other significant environmental features of the site.

This report will include an overall assessment of the residual environmental impacts of the proposed development. It shall make recommendations for design and construction guidelines for the proposed estate residential development and shall form the basis for the draft plan of subdivision or condominium.

The Environmental and Engineering Summary Report cannot be finally completed until the preliminary engineering and stormwater management reports are available. All

previous reports may be integrated into the Environmental and Engineering Summary Report as individual chapters or appendices.

Azimuth comment:
The Environmental and Engineering Summary Report will be prepared under a separate cover by Calder Engineering.

6.5.4 Section 7.10 Oak Ridges Moraine Conservation Plan

7.10.2 Objectives

Subsection 7.10.2 states that in addition to objectives established elsewhere in this Plan, the Town has established objectives specific for the ORMCPA:

a) To protect the ecological and hydrological integrity of the ORM
b) To ensure that only land and resources uses that maintain, improve or restore the ecological and hydrological functions of the Oak Ridges Moraine Area are permitted;
c) To maintain, improve or restore all the elements that contribute to the ecological and hydrological functions of the ORM Area, including the quality and quantity of its water and its other resources;
d) To ensure that the ORM Area is maintained as a continuous natural landform and environment for the benefit of present and future generations;
e) To provide for land and resource uses and development that are compatible with the other objectives and policies of this Plan;
f) To allow continued development within existing settlement areas and the Palgrave Estate Residential Community provided such development is consistent with all other applicable objectives and policies of this Plan;
g) To permit uses outside of the settlement areas and the Palgrave Estate Residential Community that are consistent with all other applicable objectives and policies of this Plan;
h) To consider recognizing existing uses that were legal conforming uses on the date of adoption of OP Amendment 186 that are compatible with the intent of the ORMCP, and allow them to continue in accordance with all other applicable objectives and policies of this Plan; and,
i) To support the establishment of a continuous, non-intensive recreational trail through the ORMCPA in Caledon that is accessible to all, including persons with disabilities.

Azimuth comment: The intent of the EIS and MP is to fulfill the objectives outlined within Section 7.10.2 of the Town's OP.

7.10.3 General Policies

Subsection 7.10.3.2 states that in the case of conflict between any provision of this Plan and the ORMCP, the ORMCP shall prevail. Subject to Section 7.10.3.4, where the provisions of this Plan are more restrictive than those in the ORMCP, this Plan shall not be considered to be in conflict with the ORMCP, and the more restrictive provisions shall prevail.

Section 7.10.3.3 states that subject to Section 7.10.3.4, in the case of conflict between provisions of Section 7.10 and any other provision of this Plan, the more restrictive provisions shall prevail.

Azimuth comment:
The proposed Laurelpark Subdivision will address the policies within the ORMCP as outlined within this report in conjunction with the Town's OP. Where applicable, the more restrictive provisions of the two will apply. The relevant environmental policy will be addressed within the EIS & MP report.

7.10.5 Protecting Ecological and Hydrological Integrity

Subsection 7.10.5.1 (Protecting Ecological and Hydrological Integrity) identifies KNHF and HSF. KNHF within the ORMCP as wetland, significant portions of the habitat of END, rare and THR species, fish habitat, ANSI (life science), significant valleylands, SWH and sand barrens, savannahs and tallgrass prairies.

HSFs within the ORMCPA are permanent and intermittent streams, wetlands, kettle lakes and seepage areas and springs.

Azimuth comment:
It should be noted, that although not included within this list, significant woodlands are also KNHF as per the ORMCP. On the property, wetland, fish habitat, SWH (candidate and confirmed) and significant woodland have been identified on the property. HSF that have been identified on the property include an intermittent stream and wetlands. The that limits of the wetlands have been confirmed by MNRF. Each of these features are further discussed and assessed within this report.

Subsection 7.10.5.1.2 states that KNHF and HSF and their related MVPZ that are not currently designated EPA on the Schedules to this Plan, but are identified through more detailed investigations, shall be deemed to be designated EPA and shall be subject to Section 5.7 and the applicable provisions of Section 7.10.

The KNHF and HSFs not shown in mapping shall only be identified using the technical series on the ORM prepared by the Province.

These features shall either be identified on a site-by-site basis or through the completion of an appropriate study such as a NHE and/or HE, prior to undertaking any development or site alteration within the ORM.

As new information becomes available this Plan may be amended to identify additional lands that include KNHF and/or HSF described in Section 7.10.5.1. Significant portions of the habitat of END, rare and THR species, fish habitat, ANSI (life science), significant valleylands, SWH, sand barrens, savannahs and tallgrass prairies, permanent and intermittent streams, wetlands, kettle lakes and seepage areas and springs shall be identified using the technical series on the ORM prepared by the province. Where site specific studies or updated information from the province results in refinements to the boundary or extent of a KNHF, or its related vegetation protection zone, such refinement shall be considered in accordance with Section 5.7.3.1.4 and Section 5.7.3.1.5. Fish habitat on the ORM are to include but are not limited to all HSF with surface water characteristics.

Azimuth comment:
Through the field investigations conducted for this EIS & MP in conjunction with the investigations conducted for the Hydrogeologic Assessment Report (Azimuth, 2017b), a number of KNHF and HSF have been identified on the property including woodland, wetland, potential and confirmed habitat of END and THR species, SWH (candidate and confirmed), an intermittent stream and fish habitat as per the guidelines of the ORM technical series papers and are described throughout this report. The identification and/or refinement of these features and their associated MVPZ will result in the refinement of their boundaries within the relevant planning documents.

Subsection 7.10.5.1.3 states that for the purposes of Section 7.10:

(a) As defined in the Glossary of Terms, the minimum area of influence that relates to a KNHF or HSF described in Column 2 of Table 7.1* is the area referred to in Column 3 of the Table that corresponds to the same item;
(b) As defined in the Glossary of Terms, the MVPZ that relates to a KNHF or HSF described in Column 2 of Table 7.1 is the area determined in accordance with the corresponding item in Column 4 of the Table;
(c) If land falls within more than one item in Column 1 of the Table, the provisions that are more restrictive apply;

(d) And (e) apply to land that was within the Caledon East Secondary Plan. These sections are not applicable to this site.

*Table 7.1 is found with the Town's OP.

Azimuth comment:
Please refer to Appendix D for Table 7.1. Based on the information provided within Table 7.1 the minimum area of influence for the KNHF and/or HSF would be 120m from wetland, fish habitat, significant valleylands (adjacent lands), significant woodland, SWH and permanent and intermittent streams. The MVPZ adjacent to each of these key features is 30m as determined within the EIS & MP report.

Subsection 7.10.5.1.4 states that for proposed major development that is within the Minimum Area of Influence associated with a KNHF or HSF but is outside of the feature itself and the related MVPZ, an applicant shall prepare an EIS & MP in accordance with Section 5.7.3.7. In addition to the requirements of Section 5.7.3.7, an EIS & MP prepared on for lands located within the ORMCPA shall:

a) With respect to KNHFs:

i) Demonstrate that the development applied for will have no adverse effects on the KNHF or on the related ecological functions;
ii) Identify planning, design and construction practices that will maintain and, where possible, improve or restore the health, diversity and size of the key natural heritage feature and its connectivity with other KNHF;
iii) In the case of an application relating to land in a ORMCP Natural Core Area, Natural Linkage Area or Countryside Area, demonstrate how connectivity within and between key natural heritage features will be maintained and, where possible, improved or restored before, during and after construction;
iv) If Table 7.5 specifies the dimensions of a MVPZ, determine whether it is sufficient, and if it is not sufficient, specify the dimensions of the required MVPZ and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it;
v) If Table 7.5 does not specify the dimensions of a MVPZ, determine whether one is required, and if one is required, specify the dimensions of the required MVPZ and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it. This shall include, without limitation, an analysis of land use, soil type, slope class and vegetation type, using criteria established by the Government of Ontario, as amended from time to time; and,

vi) In the case of a KNHF that is fish habitat, ensure compliance with the requirements of the Department of Fisheries and Oceans (Canada).

Azimuth comment:
The purpose of the EIS & MP is to address the items listed within section 7.10.5.1.4 *of the Town's OP as it relates to the KNHF on site and within the minimum area of influence of such features.*

b) With respect to HSFs:

i) Demonstrate that the development or site alteration will have no adverse affects on the HSFs or on the related hydrological functions;
ii) Identify planning, design and construction practices that will maintain, and where possible improve or restore, the health, diversity and size of the HSF; and,
iii) Determine whether the MVPZ dimensions specified in Table 7.5 are sufficient, and if not sufficient, specify the dimensions of the required MVPZ and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it. In the case of items 11 and 12 on Table 7.5, the basis on which the determination and specification required by this subsection is done shall include, without limitation, an analysis of land use, soil type and slope class, using criteria established by the Government of Ontario, as amended from time to time.

Azimuth comment:
The Hydrogeologic Assessment Report prepared by Azimuth (2017b) will address the items listed within section 7.10.5.1.4 of the Town's OP as it relates to the hydrologic features and functions of the HSF that have been identified on the property and are located within the minimum area of influence. In summary, the proposed development will not have a significant influence on hydrogeological aspects of the property.

Subsection 7.10.5.3.4 states that applications for major development, commenced prior to April 23, 2007, shall not be approved unless:

a) The Region of Peel has complied with Section 7.10.5.3.3 c); or,
b) The applicant:
i) Identifies any HSF and related hydrological functions on the site and how they will be protected;
ii) Demonstrates that an adequate water supply is available for the development without compromising the ecological integrity of the ORMCPA; and,
iii) Provides, with respect to the site and such other land as the approval authority considers necessary, a water budget and water conservation plan that:

a) characterizes ground water and surface water flow systems by means of modelling;
b) identifies the availability, quantity and quality of water sources; and,
c) identifies water conservation measures.

Azimuth comment:
The application for development of the Laurelpark Subdivision on the property was commenced subsequent to April 23, 2007.

Subsection 7.10.5.5.1 states that within the ORMCP, notwithstanding any other provision of this Plan, except for uses that legally existed on or before November 15, 2001, the following uses are prohibited with respect to land in Areas of High Aquifer Vulnerability as identified on Schedule P-1:

a) Generation and storage of hazardous waste or liquid industrial waste;
b) Waste disposal sites and facilities, organic soil conditioning sites, and snow storage and disposal facilities;
c) Underground and above-ground storage tanks that are not equipped with an approved secondary containment device; and,
d) Storage of a contaminant listed in Schedule 3 (Severely Toxic Contaminants) to Regulation347 of the Revised Regulations of Ontario, 1990.

The uses prohibited by Sections 7.10.5.5.1 shall be restricted by the implementing Zoning By-law (Section 7.10.5.5.2).

Azimuth comment:
The property is primarily within an Aquifer Low Vulnerability Area (Appendix D) therefore, policies with respect to areas of high aquifer vulnerability do not apply. Nonetheless, the property will not be utilized for any of the above listed uses as outlined in Section 7.10.5.5.1.

Subsection 7.10.5.6.1 indicates that in accordance with Section 30 of the ORMCP, Schedule P-2 of this Plan identifies Landform Conservation Areas Category 1 and Category 2.

Azimuth comment:
The property has been identified within a Landform Conservation Area Category 2 (Appendix D).

Subsection 7.10.5.6.2 states that with respect to ORM Natural Core Areas, Natural Linkage Areas, and Countryside Areas, not including estate residential development in the Palgrave Estate Residential Community, an application for development with respect to land in a landform conservation area (Category 1) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including:

a) Maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;
b) Limiting the portion of the net developable area of the site that is disturbed to not more than 25 percent of the total area of the site; and,
c) Limiting the portion of the net developable area of the site that has impervious surfaces to not more than 15 percent of the total area of the site.

Azimuth comment:
As indicated above, the property is located within the Palgrave Estate Residential Community and is within a Landform Conservation Area (Category 2) therefore the above policy does not apply.

Subsection 7.10.5.6.3 states that with respect to ORM Natural Core Areas, Natural Linkage Areas, and Countryside Areas, not including estate residential development in the Palgrave Estate Residential Community, an application for development with respect to land in a landform conservation area (Category 2) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including:

a) Maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;
b) Limiting the portion of the net developable area of the site that is disturbed to not more than 50 percent of the total area of the site; and,
c) Limiting the portion of the net developable area of the site that has impervious surfaces to not more than 20 percent of the total area of the site.

Azimuth comment:
As indicated above, the property is located within a Landform Conservation Area (Category 2). However, since the property is also within the Palgrave Estate Residential Community, the above policy does not apply.

Subsection 7.10.5.6.5 states that with respect to ORM Natural Core Areas, Natural Linkage Areas, and Countryside Areas, not including estate residential development in the Palgrave Estate Residential Community, an application for major development with

respect to land in a landform conservation area of either category shall be accompanied by a landform conservation plan that shows, on one or more maps:

a) Elevation contours in sufficient detail to show the basic topographic character of the site, with an interval of not more than two metres;
b) Analysis of the site by slope type (*e.g.*, moderate or steep);
c) Significant landform features such as kames, kettles, ravines and ridges; and,
d) All water bodies including intermittent streams and ponds.

Azimuth comment:
As indicated above, the property is located within a Landform Conservation Area (Category 2). However, since the property is also within the Palgrave Estate Residential Community, the above policy does not apply.

Subsection 7.10.5.6.9 states that with respect to ORM Natural Core Areas, Natural Linkage Areas, Countryside Areas, including the Palgrave Estate Residential Community, an application for development with respect to land in an area of natural and scientific interest (earth science) or the related Minimum Area of Influence shall be accompanied by an earth science heritage evaluation that:

a) Identifies planning, design and construction practices that will ensure protection of the geological or geomorphological attributes for which the area of natural and scientific interest was identified;
b) Determines whether a MVPZ is required, and if so, specifies the dimensions of that zone and provides for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it.

Azimuth comment:
There is no earth science ANSI located within or adjacent to (i.e. 50m) of the property (Appendix B).

6.6 Endangered Species Act (Ontario)

Ontario's 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 and SC. Only species listed as END and THR receive protection from harm and destruction to habitat on which they depend.

Azimuth comment:
Species listed under O. Reg. 230/08 of the ESA are addressed in this report. The presence of any species listed under Ontario's ESA is discussed within this report. Table 5 summarizes the species of provincial conservation concern potentially and confirmed to be utilizing the property in the context of habitat requirements and the impact of development on their respective habitat. Through our assessment, we have confirmed the presence of Butternut (END) on site. We have also indicated that the general area, including the property, is likely utilized as foraging habitat for Barn Swallow (THR).

6.7 Federal Fisheries Act

On November 25, 2013, amendments to the *Fisheries Act* came into effect, which focused the *Fisheries Act* on protecting the productivity of recreational, commercial and Aboriginal fisheries. The *Fisheries Act* requires projects to avoid causing 'serious harm to fish' unless authorized by the Minister of Fisheries and Oceans Canada. Projects include those being conducted in or near water bodies that support a commercial, recreational or Aboriginal fisheries.

Azimuth comment:
During the design and construction phases of projects, efforts should be made to protect fish and fish habitat in order to comply with the Fisheries Act.

Under the current Department of Fisheries and Oceans (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 acquire either a Letter of Advice or Authorization.

6.8 Toronto and Region Conservation Authority

The property contains areas regulated under the O. Reg. 166/06 under the *Conservation Authorities Act*, 1990 due to the presence of the intermittent stream and wetland communities. This regulation restricts and/or strongly regulates development and/or alteration in and around lands identified as ravines, valleys, steep slopes, wetlands, watercourses, flood plains, valley lands and shorelines. Regulated lands include wetlands and other areas where development could interfere with the hydrologic function of a wetland, including areas within 120m of all PSWs and wetlands on the ORM.

Azimuth comment:
The description of the areas provided in subsection (1) of O. Reg. 166/06 prevails over the regulation limit mapping. The TRCA may grant permission for development, in the form of a permit, within the regulated area if, in its opinion, the conservation of land will not be affected by the proposed development.

7.0 ENVIRONMENTAL POLICY AREA COMPONENTS, PALGRAVE ESTATES POLICY AREA COMPONENTS AND ENVIRONMENTAL ZONING

7.1 Environmental Policy Area

As highlighted above, EPA includes all Natural Core Areas and Natural Corridors as outlined within Table 3.1 of the TCOP (Appendix D). Table 8 within this report highlights all of the EPA present on the property and indicates the setback applied to the feature. Figure 4 depicts the limits of the recommended EPA.

7.2 Palgrave Estates Policy Area 4

There is no Policy Area 4 on the property. A portion of the lands immediately to the north and west are located within the Policy Area 4 designation, which appears to coincide with the buffering lands adjacent to the valley feature located off-property (Appendix D). Policy Area 4 corresponds to the ORMCP Natural Linkage Area designation on Schedule P. The purpose of the Natural Linkage Area is to improve or restore the ecological integrity of the area and to maintain linkages between Natural Core Areas and along river valleys and stream corridors.

As the subject lands are located adjacent to the Policy Area 4 designation, our assessment concludes that the proposed development would have no negative impact to these adjacent lands. The form and function of the Natural Linkage Area would remain intact and function as it has prior to development. The connectivity throughout the stream corridor feature would be maintained. There are no impacts expected from the proposed development on the connectivity of the protected valley feature, associated watercourse (Cold Creek) and fish habitat.

7.3 Environmental Zone 1 and 2

Schedule I outlines the EZ Summary for the Palgrave Estate Residential Community (Appendix D). EZ1 identifies the more sensitive environmental features including wetlands and stream corridors and also includes all ORMCP KNHF and HSF (Town's

OP Section 7.1.9.1). No part of a Structure Envelope will be permitted in EZ1 areas (Town's OP Sections 7.1.9.4). Several areas of the property have been identified as EZ 1, are associated with the identified Significant Wetlands, Significant Woodland and other KNHF/HSF contained within these features (confirmed and candidate) and the associated MVPZs (Figure 4). There is no development located within the EZ 1 areas of the property (Figure 5).

EZ2 includes areas of high ground water table (where the water table is usually within 1.5 metres or less of the ground surface); areas of seasonal flooding (not including regulated floodplains); dry swale lowlands and natural depressions which perform natural runoff, detention and ground water recharge functions; and, smaller hedgerows and strips of native vegetation (TCOP Section 7.1.9.1). EZ2 area has been identified on the property (Appendix D). No part of a Structure Envelope will be permitted in EZ2 except for short sections of driveways which may cross short sections of EZ2 if necessary, no other development is permitted within unless included within the driveway portion of a structural envelope crossing EZ2 (TCOP Section 7.1.9.5). As documented within Azimuth's Hydrogeologic Report (2017b), the EZ 2 boundaries were refined by more detailed ground survey elevations, water level measurements from a combination of monitoring wells, geotechnical boreholes and on-site observations. In addition, local grading for the development will result in small changes to the EZ 2 boundaries as has been shown in Figure 5. As shown in Figure 5, no development feature will cross any of the refined EZ 2 areas within the property.

It is recognized that within the definition of EZ2, it includes smaller hedgerows and strips of native vegetation. Due to the current environmental constraints on the property, and the location of the proposed location of driveways (permitted use within EZ2) identifying the hedgerow running parallel to Mount Pleasant Road towards the northern portion of the property would significantly limit the potential lot configurations for the proposed estate residential development. The following provides rationale for not including the hedgerow as EZ2:

- Are not considered to be a KNHF according to the ORMCP;
- Hedgerows are not an Ecosystem Component according to the TCOP;
- Hedgerows (narrow, linear treed areas) are excluded from the definition of Significant Woodland according to OMNR's Natural Heritage Reference Manual (2010);
- Hedgerows provide an effective windbreak for agricultural operations but provide limited ecological value;
- Narrow, linear hedgerow provides limited cover for wildlife. Primarily suitable for edge adept species; and

- Hedgerow provides no connectivity function as adjacent connecting lands are residential.

Therefore, we would not recommend the inclusion of the hedgerow within the EZ2 lands. Based on our assessment and as per the recommendations outlined within the Tree Inventory and Assessment Report (Azimuth, 2017c), we would recommend that where possible, healthy non-hazard hedgerow trees be preserved within the proposed lots. We would agree with the recommendation of a compensation ratio of 2:1 (*i.e.* 2 compensation trees for every 1 healthy tree removed). The compensation plantings should be placed within the MVPZ that are currently void of native vegetation (*i.e*. currently agricultural lands). Overall, this will benefit the form and function of the identified KNHF/HSF on the property by enhancing the MVPZ and providing additional benefits that may include enhancing water quality function and provision of a screen to edge effects of human disturbances.

Similarly, it is recognized that "dry swale lowlands that perform natural runoff, detention and ground water recharge function" are included within the EZ2 definition. An ephemeral drainage feature has been identified in proximity to Mount Pleasant Road (Figure 2a) that conveys storm flows to a man-made pond at either end of the swale. As per Azimuth's 2017 Headwater Drainage Feature Assessment, this feature represents a topographic low on the landscape and was dry at the time of the site visits, with no visible flows observed. Currently, this area is being actively farmed (*i.e*. cultivated crops). The surficial soils on the property are primarily silty and infiltration is low to moderate (30-50% of surplus). As such, this feature should not be designated as EZ2. Nonetheless, surface flows on the property will be maintained. As per TRCA/CVC guidelines, dry swale is classified as "Mitigation" as this feature only provides a contributing hydrology function. Mitigation recommendations are presented within Azimuth's abovementioned report. Based on the current proposed development, it is concluded that flow conveyance will be maintained via a vegetated swale. Therefore, the function of the dry swale (*i.e.*, flow conveyance) will be maintained as per the TRCA/CVC guidelines (2014).

Contiguous connections between EZ1 and EZ2 should be provided to the greatest extent practical (Town's OP Section 7.1.9.6). In general, new subdivision roads and services will not be permitted in Policy Area 4 or EZ1, except where stream crossings and extensions into KNHF are minimized (Section 7.1.9.38). There is no Policy Area 4 on the property. There are no road or driveway crossings proposed within EZ1 lands (Figure 5). With the exception of the isolated pond adjacent to Mount Pleasant Road and its associated EZ 2 zone, all of the identified EZ1 and EZ2 zones are contiguous.

7.4 Refined EPA and EZ Limits

Figure 4 shows the limits of the EPA defined according to the location of the natural heritage components determined through an analysis of background and site-specific data. The recommended EPA limit includes the full extent of MVPZ setbacks specified by the ORMCP. The limits of the EZ1 and EZ2 areas shown on Schedule I can undergo minor refinements based on site specific condition without amendment to the TCOP (2008) (Section 7.1.9.2) (Figure 4). The EZ1 areas are associated with the PSW (on-property), MNRF identified wetland (off-property), intermittent watercourse, woodland and their associated MVPZ (Figure 4). The EZ2 area associated with the areas of high ground water table (Figure 4).

8.0 PROPOSED DEVELOPMENT

The proposed Laurelpark Subdivision proposes the development of 8 estate residential lots with municipally serviced water and individual septic systems. The proposed lots would be accessed by a municipal road from Mount Pleasant Road and via a Private condo road from Diamondwood Drive (Figure 5).

Drainage and storm water is proposed to be managed using an adaptive storm water management approach and application of Low Impact Development (LID) practices. The Bio retention block is proposed within the northeast corner of the property fronting onto Mount Pleasant Road where it will temporarily detain and then release storm water to the existing ditch on Mount Pleasant Road. The ditch ultimately discharges to a tributary of Cold Creek (Calder Engineering Ltd., 2017).

9.0 IMPACT ASSESSMENT

9.1 Woodland

The woodland on site is considered to be a KNHF and Core Woodland according to the ORMCP and the Town. The concept plan is entirely outside of the limits of the Significant Woodland. A 30m MVPZ will remain from the dripline of the woodland. No direct impacts are expected to occur to the woodland as a result of the development in the areas outlined. Mitigation should be implemented as proposed within this report to assist in reducing potential for indirect impacts associated with the introduction of residents within new units on the property. Indirect impacts are expected to be minimal and mitigable.

9.2 Wetland

The wetland on the property is considered to be a KNHF, HSF and Core Wetland according to the ORMCP and the Town of Caledon. The concept plan is entirely outside of the limits of the Significant Wetland. A 30m MVPZ will remain adjacent to the wetland limits. No direct impacts are expected to occur to the wetland as a result of the development in the areas outlined. Mitigation should be implemented as proposed within this report to assist in reducing potential for indirect impacts associated with the introduction of residents within new units on the study area. Indirect impacts are expected to be minimal and mitigable.

The present hydrologic and hydrogeologic conditions, including the surface/ground water quality and quantity, upon the property will not experience a significant change due to do the proposed development. The proposed construction involves the local grading for individual houses and general matching of the existing site grading along lot boundaries. The roadways will have a rural cross-section and there is no proposed stormwater collection system, and lots are independently serviced. Runoff from rooftops, driveways and roadways is directed to adjacent lawn and natural areas. The future development will not affect local infiltration and runoff regimes. Thus, no negative post-construction impacts are expected to occur to the quality / quantity of surface and ground water, ground water recharge, or natural sensitive features. The quality and quantity of water entering into the natural heritage features, including the wetlands will be maintained post-development (Azimuth, 2017b).

9.3 Potential and Confirmed Habitat for Endangered or Threatened Species

Impacts with regards to Ontario's ESA and Habitat of THR or END species are covered under Section 9 and 10 of the ESA. Section 9 deals directly with killing, harming, or harassing living members of a species while Section 10 covers destruction or damage to habitat of THR or END species. Potential habitat for species listed as THR or END has been identified on the property as outlined in Table 5. An IGF has been submitted to MNRF with all of the SAR information related to the property (submitted August 11, 2014). MNRF responded requesting an update on the status of the Butternut Planting Plan and informed us that the MNRF is awaiting the plan (Appendix B). No additional comments were received from MNRF related to the IGF to inform us of any additional survey or permitting requirements.

9.3.1 SAR Bats

There will be no impact to potential SAR bat habitat as the Significant Woodland and treed Significant Wetland communities will remain on-site post development in addition to a 30m MVPZ.

9.3.2 Butternut

As indicated above, compensation in the form of planting will be required for the 4 Butternut (END) individuals, assessed as retainable, that were inadvertently removed from the property (Figure 2c). Compensation will conform to compensation protocols as outlined within O. Reg. 242/08. A compensation planting plan for Butternut will be prepared at detailed design stage.

The remainder of the Butternut (END) trees identified as retainable will remain on the property post-development. Retainable Butternut (END) trees #12, 13, 7, 14 and 15 are all contained within a KNHF/HSF (Figure 2c). Butternut (END) tree #6 is located within Lot 7 but is located outside of the proposed building envelope. There will be no development within approximately 25m of this individual. The 25m setback is consistent with current MNRF recommendations (Poisson *et al.*, 2013). Should development and/or site alteration (*i.e*. grading) be required within 25m of tree #6, MNRF should be consulted to confirm if resulting buffer is sufficient or a Butternut impact form should be submitted to MNRF prior to the removal of the individual. In this scenario, compensation for the removal of this additional tree would be required as per O. Reg. 242/08.

9.3.3 Blanding's Turtle

While no Blanding's Turtles (THR) were identified on the property during the field surveys, there remains potential that they could be present, or immigrate to the property in future years.

Potential habitat features exist within the property which could meet the definition of habitat for Blanding's Turtle (THR) as outlined within Ontario's ESA, specifically, the PSW units that contain water for a large portion of the growing season. A natural MVPZ will remain adjacent to the PSW post-development. At this time the MNRF has not provided records of known occurrences which would result in the wetland features onsite being characterized as Blanding's Turtle (THR) Habitat. Unless use is demonstrated in these features, or connected wetlands within 2km of the site there is no expectation that the MNRF would consider the features habitat. Blanding's Turtle (THR) habitat is generally protected within the PSW and associated MVPZ.

9.3.4 Barn Swallow

All of the Significant Wetland in addition to a 30m MVPZ will remain post-development. The wetland features represent areas that could produce a high availability of flying insects. Estate residential homes are proposed for the remainder of the property. Foraging habitats used in Ontario include farmland, lakeshore and riparian habitats, road right-of-ways, clearings in wooded areas, parkland, urban and rural residential areas, wetlands and tundra (MNRF, 2014). Based on this information, the property would still be utilized for foraging by Barn Swallow (THR) post-development. Foraging habitat for Barn Swallow (THR) s abundant within the general area.

9.4 Significant Wildlife Habitat

9.4.1 Bat Maternity Colony

There will be no impact to potential bat maternity colonies as the deciduous swamp vegetation (SWD) communities identified as Significant Woodland and Significant Wetland will remain on-site post development in addition to a 30m MVPZ.

9.4.2 Turtle Overwintering Habitat

Potentially suitable turtle wintering habitat within wetland habitat containing standing water for much or all of the year. There is no development proposed within any of the Significant Wetlands that have been identified as a part of the PSW. A natural 30m MVPZ will remain adjacent to the Significant Wetland features. Any potential turtle wintering function will be maintained post-development.

9.4.3 Reptile Hibernaculum

Potential reptile hibernaculum is contained within the PSW which is considered to be a KNHF and HSF. There is no development proposed within the Significant Wetland and a 30m MVPZ will remain adjacent to this feature post-development hence preserving any potential reptile hibernaculum function.

9.4.4 Turtle Nesting Area

The candidate turtle nesting areas are associated with Significant Wetland habitat. These wetland features are KNHF/HSF and will be maintained post-development. A 30m MVPZ will remain adjacent to each of these features. Potential turtle nesting habitat is either contained within the MVPZ or could be found along the roadside. In either scenario, potential turtle nesting habitat will remain post-development.

9.4.5 Marsh Breeding Bird Habitat

Candidate marsh breeding bird habitat is associated within Significant Wetland that is a part of the PSW. The PSW is a KNHF/HSF and will be maintained post-development in addition to a 30m MVPZ. Potential marsh breeding habitat (for Green Heron) will be maintained post-development.

9.4.6 Habitat for Species of Special Concern and Rare Species

Common Nighthawk (SC)
There is no development proposed within any of the open natural areas on the property.

Eastern Wood-pewee (SC)
There is no development proposed within the Significant Woodland. A 30m MVPZ will remain adjacent to the Significant Woodland post-development.

Monarch (SC)
The identified potential habitat for Monarch (SC) is associated with the Cultural Meadow community. This community will be maintained post-development.

Snapping Turtle (SC)
The identified confirmed and potential Snapping Turtle (SC) habitat is associated with wetland habitat that contains standing water throughout most of the year (*i.e.*, wetland #4 and 7) and was documented adjacent to wetland #7 (Figure 2a). Wetland #4 and #7 are identified as PSW are considered a KNHF and HSF. These wetlands and will remain post-development. A 30m MVPZ will remain adjacent to wetland #4 and #7 hence protecting any habitat that may be suitable for Snapping Turtle (SC).

Western Chorus Frog (S3)
There is no development proposed within wetland #7 which is a part of the PSW. A 30m MVPZ will remain adjacent to the Significant Wetland post-development.

9.5 Permanent and Intermittent Streams

An intermittent stream has been identified on the property that traverses through wetland #5 and #6 and is a HSF (Figure 2a). In the case of an intermittent stream, the MVPZ is 30m.

The off-property permanent stream (Cold Creek) is within a Natural Linkage Area as identified in the ORMCP, the purpose of which is to improve or restore the ecological integrity of the area and to maintain linkages between Natural Core Areas and along river

valleys and stream corridors as outlined in Section 12 of the plan. In order to preserve this linkage, the watercourse and associated buffer zone will be protected within the MVPZ (Section 21 (1) b) represents the amount of land in proximity of the identified feature that should be left in its natural state). In the case of fish habitat and watercourses, the MVPZ is 30m. This watercourse is located off-site and the proposed development is therefore located >30m away from the watercourse.

The present hydrologic and hydrogeologic conditions, including the surface/ground water quality and quantity, upon the property will not experience a significant change due to do the proposed development. No negative post-construction impacts are expected to occur to the quality / quantity of surface and ground water, ground water recharge, or natural sensitive features. The quality and quantity of water entering into the natural heritage features, including the permanent (off-site) and intermittent stream will be maintained post-development (Azimuth, 2017b).

9.6 Fisheries

Potential fish habitat resides within the wetland feature that contains water throughout the year (Wetland #4, Figure 2a). This feature in addition to a MVPZ of 30m will remain adjacent to the Fishery Resource Areas. In our experience, a 30m riparian buffer is sufficient in protecting the form and function or a watercourse feature, and is generally accepted by Conservation Authorities as a sufficient riparian width for sensitive watercourses.

The present hydrologic and hydrogeologic conditions, including the surface/ground water quality and quantity, upon the property will not experience a significant change due to do the proposed development. No negative post-construction impacts are expected to occur to the quality / quantity of surface and ground water, ground water recharge, or natural sensitive features. The quality and quantity of water entering into the natural heritage features, including the Wetlands will be maintained post-development (Azimuth, 2017b).

The development is located >30m from Cold Creek (off-property).

9.7 Significant Valleyland

The proposed development is located at least 30m away from the Significant Valleyland associated with Cold Creek (off-property). The adjacent Diamondwood Subdivision represents an intervening land-use between the valley and the property. There will be no impact to the form or function of this valley feature.

9.8 Hydrologically Sensitive Features (wetland, permanent stream (off-property) and intermittent stream).

Assessment of impacts associated with the proposed estate residential plan requires consideration of potential direct, indirect and cumulative impacts to KNHF and HSF and function of the ORM. Table 9 presents a breakdown of information requirements specified under the ORMCP in regard to conducting a Hydrogeological Evaluation. These data were used along with the results of detailed water balance calculation in order to assess the nature of the interaction between the ground water and surface water systems as they influence the integrity of KNHF and HSF of the study area and adjacent lands. This understanding was factored into our impact assessment. Please refer to the Hydrogeologic Assessment Report (Azimuth, 2017b) for the property for further details of the local geology, hydrology and hydrogeology.

9.9 Impact assessment Summary

As per Section 3.2.3.3 of the Town's OP our EIS and MP addresses the Town's performance measures as well as requirements for the preparation of an EIS & MP and Hydrogeologic Assessment Report (Azimuth, 2017b) under the ORMCP. Table 10 summarizes our assessment of potential direct and indirect impacts on key/sensitive environmental features determined through our assessment of background and site specific information.

As per Table 10, the proposed estate residential plan poses no direct impact to KNHF's, EZ1 areas or HSF hence no direct impact to components of the EPA as recommended by this EIS&MP. In addition, the potential minor indirect impacts to ground water can be completely mitigated using standard mitigation procedures as outlined in Table 9.

10.0 POLICY CONFORMITY

10.1 Provincial

10.1.1 Provincial Policy Statement (2014)

The proposed estate residential development as in Figure 5 can be achieved with no direct impact to significant natural heritage features as identified according to Section 2.1 of the PPS. The proposed estate residential development is consistent with the wise use and management of resources section of the PPS.

10.1.2 Provincial Greenbelt Plan

As indicated above, the property is entirely within the limits of the ORMCP. Based on the provisions outlined within the Greenbelt Plan, only Section 3.3 of the Greenbelt Plan as it deals with Parkland, Open Space and Trails apply to the property.

10.1.3 Oak Ridges Moraine Conservation Plan

The property is within the Palgrave Estate Residential Community, a component of the Countryside Area (Appendix C).

The proposed estate residential development can be achieved with no direct impact to any of the KNHF's or HSF's identified through our EIS & MP and Hydrogeologic Assessment Report (Azimuth, 2017b). A 30m MVPZ will remain adjacent to each of these identified features.

Therefore, our EIS & MP indicates that the proposed estate residential development is consistent with the objectives of the ORMCP (Section 12(1) and 13(4)) as they apply to Countryside (Palgrave Estates Residential Community) areas and the connectivity of KNHF's is maintained.

The proposed estate residential development does not occur within a HSF or related MVPZ. The Azimuth Hydrogeologic Assessment Report indicates that there will be little quantifiable impact to ground water infiltration and therefore the source-pathway-receptor profile will be maintained (Azimuth, 2017b). In turn, this will not be quantifiable at any of the downgradient receivers.

The proposed development of the estate residential development property conforms to the Landform Conservation Area 2 designation by keeping disturbance to landform character to a minimum.

The proposed estate residential development conforms to the Aquifer Low Vulnerability Area designation because the development concept does not include any of the prohibited land uses listed by the ORMCP.

10.1.4 Region of Peel

The relevant policies within the Region's OP have been outlined above. Since the Region's OP states that municipal official plans and zoning bylaws must conform to the ORMCP, our EIS & MP assumes that in addressing conformity to environmental policies on the part of the Town of Caledon we also address environmental policy conformity on the part of the Region of Peel.

Through adhering to the policies as outlined within the Town's OP and the ORMCP, we will be identifying and protecting all of the KNHF on the property that would be a part of the Region's Greenlands System.

10.1.5 Town of Caledon

Our EIS & MP has identified a range of features that would be considered Natural Core Areas in the context of the TCOP. All of these features have been fully included in an area that we recommend to be considered an EPA. As per Section 3.2.5 of the TCOP, we have evaluated components of the Environmental Framework identified by the municipality that occur within the property, and have assessed potential impacts on each according to the Town's performance measures. Our assessment indicates that the proposed development can be achieved with no direct, indirect or cumulative impacts to any of the components, all of which are included in the recommended limits of the EPA.

10.1.6 Endangered Species Act, 2007

The results of this EIS, demonstrate that the proposed development will not negatively impact KNHF/HSF or ecological functions present on or adjacent to the property – including habitat of END and THR species assuming that the recommended mitigation measures are followed. MNRF has been consulted through submission of an IGF and have been involved with the discussions surrounding the Butternut prematurely removed from the property. Based on correspondence to date, compensation in the form of a planting plan will be required for the loss of the 4 'retainable' Butternut individuals.

10.1.7 Toronto and Region Conservation Authority

The proposed estate residential development does not affect the Significant Wetland that has been identified on site. All lands within 120m of a PSW are currently regulated by the TRCA under O. Reg. 166/06 (*i.e.*, the "Alteration for Development, Interference with Wetlands & Alterations to Shorelines and Watercourses). Therefore, a permit from the TRCA to build within the "regulated area" appears necessary.

11.0 MANAGEMENT PLAN

11.1 Minimum Vegetation Protection Zones

The KNHF and HSF identified on site include:

- Significant Woodland;
- Significant Wetlands;
- Habitat of Endangered and Threatened Species (Butternut);
- Candidate SWH;

- Permanent and Intermittent Streams;
- Fish habitat; and
- HSFs (wetland and an intermittent stream).

As indicated above, the MVPZ represents the amount of land in proximity of the identified feature that should be left in its natural state. In the case of Significant Woodland, Significant Wetlands, Permanent and Intermittent Streams and Fish Habitat, the MVPZ is 30m. The MVPZ for confirmed SWH is as determined by an EIS carried out under Section 23 of the ORMCP. The EIS must evaluate whether the proposed VPZ are adequate to protect these identified KNHFs.

The purpose of a vegetative buffer is to minimize the ecological impacts to the identified features and functions of the site and to achieve a reasonable balance between the anthropogenic and wildlife based on the best scientific information available (Riley *et al* 1994; Duerksen *et al* 1997; as cited in Bergsma 2000).

11.1.1 Justification for 30m Vegetative Protection Zone Adjacent to Significant Woodland

A 30m setback from staked dripline will ensure protection of the critical root zone for the trees within the woodland. This zone is essential in order to maintain the health of individual trees. According to Johnson (1999), the critical root zone can be estimated through measuring the tree's Diameter Breast Height (DBH) in inches. This number is then multiplied by 1 or 1.5 for sensitive or tolerant species respectively. The resulting number is the number of feet that should be left undisturbed from the base of the tree.

In general, the DBH (in metric measurements) of trees located within the property largely range from 'whip size' to 50cm with limited potential for some to be greater than 50cm. Using 50cm as the max DBH and the critical root zone multiplier for sensitive species (1.5), the following critical root zone equation illustrates that a 30m setback is more than triple the distance required to protect the health of the largest trees within the woodland:

50cm = ~20"
20 x 1.5 = 30 (expressed in feet)
30' = 9.1m
Critical root zone = 9.1m

Currently, active agricultural lands dominate the landscape outside of the Significant Woodland. The 30m MVPZ adjacent to Significant Woodland will provide a screen to the woodland itself and act as a barrier to noise and light associated with the development once the native vegetation is allowed to re-establishes itself.

11.1.2 Justification for 30m Vegetative Protection Zone Adjacent to Wetlands

According to the ORMCP, the proposed development would be considered to be a "Major Development" since the proponent wishes to create more than four lots. Some of the day-to-day disturbances associated the proposed estate residential development would be related to the creation of residential lots that would be utilized by the residents that would contribute to an increase typical 'noise' associated with residential development (*i.e.*, lawn maintenance, pets, children) and lighting along the roadways, driveways and homes.

The MVPZ (*i.e.*, 30m setback from wetland communities) will provide a screen to the wetland features that will act as a barrier to noise and light associated with the residence. The 30m MVPZ to the wetland community will also prevent access and encroachment into the wetland itself.

The MVPZ will also aid in the attenuation of any excess nutrients and pollutants including sediments that may migrate towards the wetland community, and improve the water quality and clarity within the wetland itself (Boyd, 2001). As indicated above, a 30m buffer is more than sufficient to maintain the quality of water by filtering excess sediment/nutrients/pollutants from the surface water runoff.

The buffering lands will input leaf litter and other matter from the vegetation into the system that will provide food for wildlife lower on the food chain (Boyd, 2001) including fish that are likely to exist within the permanent and semi-permanent pooled areas within these wetland features.

Many wildlife species observed on the property not only are dependent on wetland habitat but also utilize the adjacent upland areas during a portion of their life-cycle. This is why it is important to maintain the adjacent upland features in addition to the wetland itself.

The wetland dependent wildlife species observed on site largely utilize wetland habitat only for a portion of their life-cycle (*i.e.*, for breeding). The proposed estate residential development is located well outside of the identified wetland features and is situated at least 30m from the wetland habitat. This 30m MVPZ on-site encompasses primarily open field habitat. Portions of the MVPZ areas will be planted with trees and shrubs which will further enhance the function of the buffering lands (as a part of the Butternut compensation planting areas). Movement of species from the wetland and upland habitats should not be affected by the presence of the proposed development.

11.1.3 Habitat of Endangered and Threatened Species (Butternut)

With the exception of Butternut (END) tree #6, all of the remaining 'retainable' Butternut (END) trees will have a MVPZ of at least 30m. A MVPZ of 30+ m is sufficient to protect the root zones of these trees and will provide sufficient space for potential seed dispersal. As indicated above, depending on the final grading for the site, should any works be proposed within 25m of a Butternut, MNRF should be consulted to determine if the resulting setback from this individual is sufficient or whether compensation will be required.

11.1.4 Justification for Vegetative Protection Zone Adjacent to Significant Wildlife Habitat

The identified SWH functions of the property are largely confined to the identified KNHF/HSF of the site with the exception of potential turtle nesting habitat which has been identified immediately adjacent to wetland #7 (Figure 2a) and along the shoulder of Mount Pleasant Road. A MVPZ of 30m will remain adjacent to each of the identified SWH functions. The form and function of SWH will be preserved post-development and the proposed MVPZ will protect confirmed and potential SWH function.

11.1.5 Justification for Vegetative Protection Zone Adjacent to Intermittent Stream

This tributary may provide seasonal indirect habitat for fish, and would therefore function to contribute organics and maintenance of the thermal regime to direct fish habitat downstream within the system. It is our opinion that a 30m MVPZ is sufficient to contribute to the stabilization of the soils, provide provisions of shading to help regulate temperatures, and contribution organics (in the form of woody debris and leaf litter), in order to maintain the function of primary productivity in this headwaters area.

A naturalized buffer adjacent to the intermittent stream will provide ecological and social value including filtering runoff from adjacent land use (*i.e.,* lawn care products), removing excess sediment/nutrients/pollutants that may be generated from the associated residential homes, provision of canopy and shade from trees, provision of habitat for wildlife (*i.e.,* aquatic insects etc.) and provides aesthetic value (Landowner Resource Centre, 2000).

Table 11 cites a number of studies with the recommended buffer width required to provide the desired benefit including Madison *et al*., (1992) that indicates that a 5m grass buffer strip traps 90% of nitrates and phosphates. Fischer, Martin and Fischenich (2000) also site that a buffer width of 10-30m is most often recommended to improve or protect water quality and tend to differ based on site-specific conditions (*i.e.,* adjacent land use,

vegetation, topography, hydrology). The 30m setback from all identified intermittent watercourse is a requirement according to the ORMCP. This setback should be adequate to mitigate any potential impacts that may be associated with the proposed development, and is generally accepted by Conservation Authorities as a sufficient width to protect watercourses from adjacent land activities.

Table 11 : References Regarding Recommended Widths of Vegetated Buffers to Improve or Protect Water Quality

Reference	Buffer Width (metres)	Buffer Type	Benefit
Castelle *et al* (1991) as cited in District of Muskoka (2003)	30m	Vegetated	Nutrient removal (including bacteria) reduced to "far below drinking water standards"
Hickman *et al* (1982) as cited in District of Muskoka (2003)	30m	Vegetated	Protection of Salmonid habitat
Young *et al*. (1980) as cited in Fischer *et al.*, (2000).	25m	Vegetated	Reduce suspended sediment
Madison *et al* (1992) as cited in Fischer and Fischenich (2000)	5m	Grass Filter Strip	Trapped 90% of nitrates and phosphates
Ghaffarzadeh *et al* (1992) as cited in Fischer and Fischenich (2000)	9m	Grass Filter Strip	Removed 85% of the sediment on 7 and 12% slopes.
Dillaha *et al* (1989) as cited in Fischer and Fischenich (2000)	9m	Vegetated Buffer Strip	Removed 84% of suspended solids, 79% of phosphorus and 73% of nitrogen.
Lawrence *et al* (1992) as cited in Fischer and Fischenich (2000)	7m	Vegetated	Nitrate concentrations almost completely reduced due to microbial denitrification and plant uptake.
Doyle *et al* (1977) as cited in Fischer and Fischenich (2000)	4m	Grass filter strips and forested buffer	Reduced nitrogen, phosphorus, potassium and fecal bacteria from runoff

Where the proposed land-use adjacent to a water body is residential, the MNRF recommends a minimum 15-metre buffer to protect water quality around lakes and

streams supporting warm water species and a 30-metre buffer where the water body supports coldwater species (OMNR, 1994). The intermittent stream is considered to be a part of a coldwater system. The required 30m setback from the intermittent stream meets the OMNR standards and is sufficient to protect this headwater feature.

11.1.6 Justification for 30m Vegetative Protection Zone Adjacent to Fish Habitat

Justification as it relates to the intermittent watercourse (*i.e.*, indirect fish habitat) is described above.

Wetland #4 contains standing water throughout the year and likely provide direct habitat for a variety of tolerant warmwater bait fish. A 30m buffer, similar to that described above, would be sufficient to maintain the fish community present in the wetland feature. Additionally, with the existing active agricultural lands present adjacent to the pond, a 30m buffer should serve as a net benefit for fish habitat by providing riparian shading and filtering of sediment and nutrients from surface runoff.

11.1.7 Justification for 30m Vegetation Protection Zone Adjacent to Hydrologically Sensitive Features

The wetlands on site provide ground water recharge at times during the year, and maintenance of existing slopes in the vicinity of the features is important so that significant changes to runoff flow paths do not occur.

Maintaining a natural self-sustaining vegetative buffer will help to mitigate potential water temperature and sedimentation impacts.

12.0 RECOMMENDATIONS

12.1 General

In order to limit the amount of light directed into the KNHF/HSF, light should be directed at buildings and driveways and limited to that required for safety.

To mitigate for the minor losses of infiltration, mitigative measures such as directing discharge of eave downspouts to grassed areas and utilizing the proposed bioretention area as a ground water infiltration mechanism will be used. Recommended mitigation measures related to infiltration require the direction of runoff from hard surfaces to adjacent lawn and natural areas. Runoff should not be directed off-site. The permeability of the native shallow soils is sufficiently high that additional infiltration devices are not

required to supplement this condition. Ground water infiltration mitigation measures are discussed in detail within the Water Balance section of Azimuth's Hydrogeologic Assessment (2017) and are outlined within Calder Engineering's 2017 report.

12.2 Species at Risk

12.2.1 General

It should be noted that the absence of a protected species at this time 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. Also, SAR lists are subject to change with species being up-listed or down-listed. 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 site 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 site works.

12.2.2 Worker Training

Worker training could be beneficial to assist the on-site workers in the identification of the SAR with potential to occur in the area. Workers should be instructed to stop work immediately and contact the local MNRF office immediately if any SAR are encountered within the work area. Individuals working on site should ensure that SAR are not harmed during construction or killed by heavy machinery, vehicles or other equipment.

The contractor should seek to ensure that all personnel are educated to ensure that, if identified, the species are not wantonly injured or killed, and to ensure that damage to features which could constitute habitat is avoided. Information conveyed through this education should include:

- Species habitat and identification;
- Requirements under the ESA including avoidance of harm to the species and damage to relevant habitat;
- Appropriate action to take if the species is encountered;
- How to record sightings and encounters; and
- That care should be taken when undertaking construction activities in order to avoid harming the species or damaging/destroying habitat.

The expert should be a qualified ecologist with knowledge of SAR in Ontario.

12.2.3 Butternut Planting Plan

A Butternut Planting Plan should be prepared for the loss of the four retainable Butternut individuals. Compensations plantings should be as per *O. Reg.* 242/08.

12.3 General Construction Mitigation

Below is a list of standard construction mitigation measures that should be adhered to for the duration of site alteration and construction activities:

- Install sediment and erosion controls (silt fence) around the KNHF and HSF and buffer, prior to lot clearing and grading. This will protect the feature from sedimentation and also prevent encroachment into the KNHF and HSF and associated buffering lands;
- Monitor and maintain the fencing throughout the development and during construction activities to ensure a protective barrier to sedimentation between any exposed excavations and the KNHF and HSF, of particular concern the wetland features;
- Fuel should be stored away from the KNHF and HSF and machinery should be fuelled away from the wetlands;
- Where sediment and erosion controls are employed, the contractor should avoid the use of wire mesh fencing and erosion control blankets which have the potential to trap reptiles.

12.4 Migratory Breeding Birds

Future construction activities involving the 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 30th of any given year.

13.0 CONCLUSIONS

The results of our EIS and MP have identified KNHF and HSF on and adjacent to the property including:

- Significant Woodland;

- Significant Wetland;
- Potential and confirmed habitat for END or THR Species: END bat species, Butternut (END), Blanding's Turtle (THR) and Barn Swallow (THR);
- Candidate SWH (Bat Maternity Colony, Turtle Overwintering, Reptile Hibernaculum, Turtle Nesting, Marsh Breeding Bird Habitat and Habitat for Species of Conservation Concern);
- Permanent and Intermittent Streams;
- Fish Habitat
- Significant Valleylands (off-property); and
- HSFs (wetland, permanent stream (off-property) and intermittent stream).

The proposed Laurelpark Subdivision will maintain a 30m natural self-sustaining MVPZ adjacent to each of the identified KNHF/HSF. Our assessment of the proposed MVPZ within Section 11.1 of the report indicates that the proposed 30m MVPZ is sufficiently large to protect the overall form and function of the confirmed and candidate features. The recommended EPA lands encompass all of the identified KNHF and HSF in addition to the 30m MVPZ.

Recommendations related to SAR, general construction mitigation and migratory breeding birds have been made within Section 12 of the report. Provided that the recommendations within the EIS and MP are adhered to, our study indicates that proposed Laurelpark Subdivision can be constructed with no negative environmental impacts to the identified ORM KNHF's, HSFs and the resulting recommended EPA lands.

Furthermore, our policy conformity analysis indicates that provided the recommended mitigation measures are adhered to, the proposed Laurelpark Subdivision meets the requirements of the PPS, Ontario's ESA, ORMCP, TRCA and Regional and local Official Plans.

14.0 REFERENCES

Azimuth Environmental Consulting Inc. (Azimuth). 2017a. Headwater Drainage Report. Laurelpark Subdivision Part of Lot 19, Concession 9, Town of Caledon, Region of Peel

Azimuth Environmental Consulting Inc. (Azimuth). 2017b. Hydrogeological Assessment Report. Laurelpark Subdivision. Part of Lot 19, Concession 6, Town of Caledon (Albion). 49pp.

Azimuth Environmental Consulting Inc. (Azimuth). 2017c. Tree Inventory and Assessment Report. Laurelpark Subdivision. Part of Lot 19, Concession 6, Town of Caledon, Region of Peel.

Bergsma, B. 2000. Implementation of buffers: Drawing the line and other site-scale tools. Carolinian Canada.

Best, T., and J. Jennings. 1997. Mammalian Species, Myotis leibii. The American Society of Mammalogists. No. 547, pp. 1-6, 5 figs.

Bird Studies Canada. 2008. Marsh Monitoring Program.

Boyd, Lynn 2001. Wildlife Use of Wetland Buffer Zones and Their Protection under the Massachusetts Wetland Protection Act.

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds.). 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologist, Ontario Ministry of Natural Resources and Ontario Nature, Toronto, xxii + 706pp.

Calder Engineering Ltd. 2017. Preliminary Engineering and Stormwater Management Report for Laurel Park Subdivision. 40pp.

Chapman L.J. and D.F. Putnam, 1984.The Physiography of Southern Ontario. 3rd Edition, OGS Special Volume 2, MNR.

Conservation Authorities Act, R.S.O. 1990, c.C.27

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2003a COSEWIC assessment and status report on the Butternut Juglans cinerea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2005a. COSEWIC assessment and update status report on the Blanding's Turtle *Enydoidea blandingii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii +40 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2006a. COSEWIC assessment and status report on the Golden-winged Warbler Vermivora chrysoptera in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 30 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2007a. COSEWIC assessment and update status report on the Chimney Swift Chaetura pelagica in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2007b. COSEWIC assessment and status report on the Common Nighthawk Chordeiles minor in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2007c. COSEWIC assessment and status report on the Red-headed Woodpecker Melanerpes erythrocephalus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2008a. COSEWIC assessment and status report on the Canada Warbler Wilsonia Canadensis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2008b. COSEWIC assessment and status report on the Snapping Turtle Chelydra serpentina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2009a. COSEWIC assessment and update status report on the Least Bittern Ixobrychus exilisin Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 36 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2009b. COSEWIC assessment and update status report on the Whip-poor-will Caprimulgus vociferus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2010a. COSEWIC assessment and update status report on the Bobolink Dolichonyx oryzivorus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 42 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2010b. COSEWIC assessment and update status report on the Cerulean Warbler Dendroica cerulea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2010c. COSEWIC assessment and status report on the Monarch Danaus plexippus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2011a. COSEWIC assessment and update status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2011b. COSEWIC assessment and update status report on the Eastern Meadowlark Sturnella magna in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2012a. COSEWIC assessment and status report on the Eastern Wood-pewee *Contopus*

virens in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2012b. COSEWIC assessment and status report on the Wood Thrush Hylocichla mustelina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2013a. COSEWIC assessment and update status report on the Bank Swallow Riparia riparia in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2013b. COSEWIC assessment and status report on the Grasshopper Sparrow pratensis subspecies Ammodramus savannarum pratensis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 36 pp.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2013c. COSEWIC Assessment and Update Status Report on the Little Brown Myotis, Northern Myotis, Tri-colored Bat. Committee on the Status of Endangered Wildlife in Canada. Ottawa.

District of Muskoka Planning and Economic Development Department 2003. Shoreline Vegetative Buffers 12pp.

Dobbyn, J. 1994. Atlas of the Mammals of Ontario.

Duerksen, C.J., D. Elliot, N. Thompson Hobbs, E. Johnson, J. R. Miller 1997. Habitat Protection Planning: Where the Wild Things Are. American Planning Association.

Endangered Species Act, Ontario. 2007. An Act to protect species at risk and to make related changes to other Acts. Bill 184 Chapter 6, Statutes of Ontario 2007.

Fisheries Act R.S.C., 1985, c.F-14

Fisheries and Oceans Canada (DFO), 2009.Distribution of Fish Species at Risk, Toronto Region Conservation Authority, Map 1.

Fischer, Richard A, Chester O. Martin and J. Craig Fischenich 2000. Improving Riparian Buffer Strips and Corridors for Water Quality and Wildlife. International Conference on Riparian Ecology and Management in Multi-land Use Watershed, American Water Resources Association

Fischer, Richard A. and J. Craig Fischenich 2000. Design Recommendations for Riparian Corridors and Vegetated Buffer Strips. EMRRP Technical Notes Collection (ERDC TN-EMRRP-SR-24) U.S. Army Engineer Research and Development Centre, Vicksburg, MS.

Government of Canada. 2014. *Migratory Birds Convention Act*. http://laws-lois.justice.gc.ca/eng/acts/M-7.01/

Johnson, Gary; revised 1999. *Protecting Trees from Construction Damage: A Homeowner's Guide.* University of Minnesota Extension Service. 20 p. http://www.extension.umn.edu/distribution/housingandclothing/DK6135.html

Landowner Resource Centre. 2000. Extension Notes: Buffers Protect the Environment. Queens Printer for Ontario.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological Land Classification for Southern Ontario. First Approximation and its Application. Ontario Ministry of Natural Resources.S outhcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

Madison, C.E., R.L. Belvins, W.W. Frye, and B.J. Barfield. 1992. Tillage and grass filter strip effects upon sediment and chemical losses. 31 pp.

Ministry of Municipal Affairs and Housing (MMAH). 2002. Oak Ridges Moraine Conservation Plan (ORMCP).

Ministry of Municipal Affairs and Housing (MMAH). 2005. Provincial Policy Statement.

Ministry of Municipal Affairs and Housing (MMAH). 2005a. The Greenbelt Plan.

Ministry of Natural Resources (MNR). 2011. General Habitat Description under the Endangered Species Act, 2007: *Dolichonyx oryzivorus* (Bobolink). Policy Division Species at Risk Branch.

Ministry of Natural Resources (MNR) 2012. Update to the Provincially Significant Mount Wolfe Wetland Complex at Palgrave South – Diamondwood (parcel roll number: 21240100012061000000), Town of Caledon, Regional Municipality of Peel

Ministry of Natural Resources (MNR). 2013. General Habitat Description for the Barn Swallow (*Hirundo rustica*).

Ministry of Natural Resources and Forestry (MNRF). 2014a. Barn Swallow (*Hirundo rustica*) in Ontario. Ontario Recovery Strategy Series. Recovery strategy rprepared under the *Endangered Species Act*, 2007. 73pp.

Ministry of Natural Resources and Forestry (MNRF). 2014b. Ontario Wetland Evaluation System. Southern Manual 3rd Editions, Version 3.3.

Ministry of Natural Resources and Forestry (MNRF). 2014c. Eastern Small-footed Bat. Queen's Printer for Ontario. https://www.ontario.ca/environment-and-energy/eastern-small-footed-bat

Ministry of Natural Resources and Forestry (MNRF). 2015. Technical Note Species at Risk (SAR) Bats.

Ministry of Natural Resources and Forestry (MNRF). 2015a. Significant Wildlife Habitat criterion schedules for Ecoregion 6E. MNRF Regional Operations Division & Northeast Region Resources Section. 39pp.

Ministry of Natural Resources (MNR) and Toronto and Region Conservation Authority (TRCA). 2005. Humber River Fisheries Management Plan

Natural Heritage Information Centre (NHIC) internet web page, 2017. Ministry of Natural Resources and Forestry. https://www.ontario.ca/page/natural-heritage-information-centre

Oak Ridges Moraine Conservation Act, 2001. S.O. 2001, c. 31. July 25, 2007.

Oak Ridges Moraine Conservation Plan (ORMCP). 2007. Technical Paper Series. 1 – 17

Ontario Ministry of Natural Resources (OMNR). 1994. Fish Habitat Protection Guidelines for Developing Areas

Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide. 151pp.

Ontario Ministry of Natural Resources (OMNR). 2000. Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

Ontario Ministry of Natural Resources (OMNR). 2010. Provincially Significant Mount Wolfe Complex.

Ontario Ministry of Natural Resources (OMNR) and Toronto and Region Conservation Authority (TRCA). 2005.Humber River Fisheries Management Plan. Published by the Ontario Ministry of Natural Resources and the Toronto and Region Conservation Authority. Queens Printer for Ontario.

Ontario Breeding Bird Atlas. 2001. Guide for Participants. 45pp.

Poisson, G., and M. Ursic, 2013. Recovery Strategy for the Butternut (*Juglans cinerea*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. v + 12pp. + Appendix vii +24pp. Adoption of the Recovery Strategy for the Butternut (*Juglans cinerea*) in Canada (Environment Canada 2010).

Regional Municipality of Peel Official Plan. Office Consolidation December 2016.

Riley, John L. and Pat Mohr 1994. The Natural Heritage of Southern Ontario's Settled Landscapes. A review of conservation and restoration ecology for land-use and landscape planning. OMNR, Southern Region, Aurora.

Terraprobe. 2017. Geotechnical Investigation Proposed Residential Development Palgrave Estates II (Part of East Half of Lot 19, Concession 8, Regional Municipality of Peel) Caledon, Ontario.

Toronto and Region Conservation Authority (TRCA) and Credit Valley Conservation (CVC). 2014. Evaluation, Classification and Management of Headwater Drainage Features Guidelines. TRCA Approval July 2013 (Finalized January 2014).

Town of Caledon Official Plan. 2016.

Toronto and Region Conservation Authority (TRCA). 2008. Humber River State of the Watershed Report

Toronto and Region Conservation Authority (TRCA). 2016. Fauna Ranks and Scores for TRCA Jurisdiction.

Toronto and Region Conservation Authority (TRCA). 2016. Flora Ranks and Scores for TRCA Jurisdiction.

Whyte, Robert. 2017. Calder Engineering Ltd. Personal Communication.

Table 1. Ecological Land Classification (ELC) Community Descriptions

ELC Unit	Description
FOREST (FO)	Tree Cover >60%
Deciduous Forest (FOD)	Deciduous tree species comprise >75% of canopy cover.
FOD3-1: Dry-Fresh Poplar Deciduous Forest Type	Community dominated by Trembling Aspen with the occasional American Elm, White Ash, Sugar Maple and White Birch. Sugar Maple and Alternate-leaf Dogwood are found within the understorey layer. Groundcover is largely dominated by Virginia Creeper, Enchanter's Nightshade and Sugar Maple saplings.
FOD4-2: Dry-Fresh White Ash Deciduous Forest Type	Community dominated by young White Ash within the canopy and sub-canopy. Red raspberry is prevalent within the understorey and groundcover. Virginia Creeper is also dominant.
CULTURAL (CU)	Community resulting from or maintained by cultural or anthropogenic-based disturbances.
Cultural Meadow (CUM)	A community where tree cover <25% and shrub cover <25%.
CUM1-1: Dry-Moist Old Field Meadow Type	Community largely located along the margins of the property. Composed of common field species dominated by Awnless Brome with Vetch, Kansas Milkweed and a variety of Goldenrod and Aster species.
SWAMP (SW)	A community dominated by hydrophytic shrubs and trees and where their contribution to cover is >25%.
Thicket Swamp (SWT)	A community where tree cover <25% and shrub cover >25%.
SWT2-5: Red-osier Mineral Thicket Swamp Type	Community dominated by Red-osier Dogwood in addition to a variety of Willow species. A number of wetland species such as Spotted Joe-pye Weed, Water Plantain, Spotted Water-hemlock and Common Boneset can also be found throughout.
Deciduous Swamp (SWD)	Tree cover >25% with trees >5m in height where deciduous tree species >75% of canopy cover.
SWD3-2: Silver Maple Mineral Deciduous Swamp Type	Community composed of Silver Maple (Freeman's Maple [*Acer x freeman*] with tree form Willow and Manitoba Maple. Red-osier Dogwood is a large component of the understorey. Hydrophytic herbaceous species dominate the groundcover layer.
MARSH (MA)	A community dominated by emergent hydrophytic macrophytes whereby tree and shrub cover < 25%.
Shallow Marsh (MAS)	
MAS2-1: Cattail Mineral	Community composed Common Cattail.

Shallow Marsh Type	
MAM3-2: Reed-canary Grass Organic Meadow Marsh Type	Community dominated by Reed Canary Grass with other wetland adept species such as shrub form willow, Spotted Joe-pye Weed and Jewelweed.
SHALLOW WATER (SA)	Community composed of submerged or floating-leaved macrophytes. Emergent vegetation may be present byt never dominant. No tree or shrub cover.
Floating-leaved Shallow Aquatic (SAF)	A community dominated (>25%) by floating-leaved macrophytes.
SAF1-3: Duckweed Floating-leaved Shallow Aquatic Type	Open water community composed of Columbian Water-meal and Water Smartweed.
SAS1-3: Stonewort Submerged Shallow Aquatic Type	Open water community of submerged Stonewort.

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Aceraceae	*Acer negundo*	Box Elder	X		X		X	X	X	X			X	G5	S5			N		
Aceraceae	*Acer saccharinum*	Silver Maple					X						X	G5	S5			N		
Aceraceae	*Acer saccharum var. saccharum*	Sugar Maple	X		X			X						G5T5	S5			N		
Aceraceae	*Acer spicatum*	Mountain Maple					X							G5	S5			N		
Aceraceae	*Acer x freemanii*	Hybrid Maple					X						X	GNA	SNR			**N**		
Alismataceae	*Alisma triviale*	Northern Water-plantain						x		X			X	G5	S5			N		
Alismataceae	*Sagittaria latifolia*	Broadleaf Arrowhead											X	G5	S5			N		
Anacardiaceae	*Rhus typhina*	Staghorn Sumac											X	G5	S5			N		
Apiaceae	*Cicuta maculata*	Spotted Water-hemlock					X	X					X	G5	S5			N		
Apiaceae	*Daucus carota*	Wild Carrot	X	X						X			X	GNR	SNA			N		
Apiaceae	*Sium suave*	Hemlock Water-parsnip						X					X	G5	S5			N		
Apocynaceae	*Apocynum androsaemifolium*	Spreading Dogbane		X						X				G5	S5			N		
Apocynaceae	*Apocynum cannabinum*	Clasping-leaf Dogbane											X	GNR	S5			N		
Araceae	***Calla palustris***	**Wild Calla**									**X**			**G5**	**S5**			**N**		**L2**
Asclepiadaceae	*Asclepias syriaca*	Kansas Milkweed	X	X		X				X			X	G5	S5			N		
Asteraceae	*Achillea millefolium var. millefolium*	Common Yarrow											X	G5T5?	SNA			N		
Asteraceae	*Ambrosia artemisiifolia*	Annual Ragweed	X	X						X			X	G5	S5			N		
Asteraceae	*Arctium lappa*	Greater Burdock											X	GNR	SNA			N		
Asteraceae	*Arctium minus ssp. minus*	Common Burdock	X										X	GNRT NR	SNA			N		
Asteraceae	*Bidens cernua*	Nodding Beggar-ticks					X							G5	S5			N		
Asteraceae	*Bidens frondosa*	Devil's Beggar-ticks											X	G5	S5			N		

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Asteraceae	*Bidens tripartita*	Beggar-ticks											X	G5	S5			N		
Asteraceae	*Centaurea nigra*	Black Starthistle												GNR	SNA			N		
Asteraceae	*Cichorium intybus*	Chicory	X							X				GNR	SNA			N		
Asteraceae	*Cirsium arvense*	Canada Thistle		X						X			X	GNR	SNA			Y		
Asteraceae	*Cirsium vulgare*	Bull Thistle		X		X				X				GNR	SNA			N		
Asteraceae	*Erigeron annuus*	White-top Fleabane											X	G5	S5			N		
Asteraceae	*Erigeron canadensis*	Canada Horseweed		X										G5	S5			N		
Asteraceae	*Erigeron hyssopifolius*	Daisy Fleabane		X						X				G5	S5			N		
Asteraceae	*Erigeron philadelphicus*	Philadelphia Fleabane		X										G5	S5			N		
Asteraceae	*Eupatorium maculatum*	Spotted Joe-pye Weed					X	X	X				X	G5TNR	S5			N		
Asteraceae	*Eupatorium perfoliatum*	Common Boneset						X					X	G5	S5			N		
Asteraceae	*Eurybia macrophylla*	Large-leaf Wood-aster	X											G5	S5			N		
Asteraceae	*Euthamia graminifolia*	Grass-leaved Goldenrod	X	X			X		X	X			X	G5	S5			N		
Asteraceae	*Hieracium aurantiacum*	Orange Hawkweed	X											GNR	SNA			N		
Asteraceae	*Lactuca sp.*	Lettuce								X										
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy			X								X	GNR	SNA			N		
Asteraceae	*Rudbeckia hirta*	Black-eyed Susan											X	G5	S5			N		
Asteraceae	*Solidago altissima*	Eastern Late Goldenrod		X										GNR	S5			N		
Asteraceae	*Solidago canadensis*	Canada Goldenrod	X	X	X	X	X	X	X	X			X	G5T5	S5			N		
Asteraceae	*Solidago gigantea*	Smooth Goldenrod											X	G5	S5			N		

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Asteraceae	*Solidago juncea*	Early Goldenrod												G5	S5			N		
Asteraceae	*Sonchus arvensis ssp. arvensis*	Field Sow-thistle		X						X				GNRT NR	SE5			N		
Asteraceae	*Sonchus oleraceus*	Common Sow-thistle	X										X	GNR	SNA			N		
Asteraceae	*Symphyotrichum ericoides var. ericoides*	White Heath Aster												G5T5	S5			N		
Asteraceae	*Symphyotrichum lanceolatum ssp. hesperium*	Western Panicled Aster					X	X	X	X			X	G5T5?	S5			N		
Asteraceae	*Symphyotrichum lanceolatum ssp. lanceolatum*	Panicled Aster	X	X		X				X				G5T5	S5			N		
Asteraceae	*Symphyotrichum lateriflorum*	Starved Aster		X	X					X				G5	S5			N		
Asteraceae	*Symphyotrichum novae-angliae*	New England Aster	X	X	X	X	X	X		X			X	G5	S5			N		
Asteraceae	*Symphyotrichum puniceum*	Swamp Aster											X	G5	S5			N		
Asteraceae	*Taraxacum officinale*	Brown-seed Dandelion				X		x					X	G5	SNA			N		
Asteraceae	*Tragopogon dubius*	Meadow Goat's-beard												GNR	SNA			N		
Asteraceae	*Tussilago farfara*	Colt's Foot	X							X			X	GNR	SNA			N		
Balsaminaceae	*Impatiens capensis*	Spotted Jewel-weed					X	X	X				X	G5	S5			N		
Betulaceae	*Betula papyrifera*	Paper Birch	X		X	X							X	G5	S5			N		
Betulaceae	*Ostrya virginiana*	Eastern Hop-hornbeam											X	G5	S5			N		
Brassicaceae	*Alliaria petiolata*	Garlic Mustard	X		X			X					X	GNR	SNA			N		

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Brassicaceae	*Barbarea vulgaris*	Yellow Rocket	X							X				GNR	SNA			N		
Brassicaceae	*Erysimum cheiranthoides*	Worm-seed Mustard											X	G5	SNA			N		
Brassicaceae	*Thlaspi arvense*	Field Penny-cress											X	GNR	SNA			N		
Caprifoliaceae	*Lonicera tatarica*	Tartarian Honeysuckle	X		X	X				X				GNR	SNA			N		
Caprifoliaceae	*Lonicera x bella*	Hybrid											X	GNA	SNA			N		
Caprifoliaceae	*Sambucus nigra*	Common Elderberry	X					X					X	G5T5	S5			N		
Caprifoliaceae	***Viburnum opulus***	**Highbush Cranberry**	**X**											**GNR**	**S5**			**N**		**L3**
Caryophyllaceae	*Silene latifolia*	A Catchfly					X							GNR	SNA			N		
Caryophyllaceae	*Silene vulgaris*	Maiden's Tears	X	X									X	GNR	SNA			N		
Chenopodiaceae	*Chenopodium album*	Lamb's-quarters (Goosefoot)	X	X						X			X	G5	SNA			Y		
Clusiaceae	*Hypericum perforatum*	A St. John's-wort											X	GNR	SNA			N		
Convolvulaceae	*Convolvulus arvensis*	Field Bindweed	X	X										GNR	SNA			N		
Cornaceae	*Cornus alternifolia*	Alternate-leaf Dogwood	X		X								X	G5	S5			N		
Cornaceae	*Cornus sericea*	Red-osier Dogwood	X	X	X		X	X	X	X			X	G5	S5			N		
Cucurbitaceae	*Echinocystis lobata*	Wild Mock-cucumber			X	X	X		X				X	G5	S5			N		
Cupressaceae	*Thuja occidentalis*	Eastern White Cedar	X							X				G5	S5			N		
Cyperaceae	*Carex bebbii*	Bebb's Sedge						X					X	G5	S5			N		
Cyperaceae	*Carex cristatella*	Crested Sedge											X	G5	S5			N		
Cyperaceae	*Carex pseudocyperus*	Cyperus-like Sedge											X	G5	S5			N		
Cyperaceae	*Carex retrorsa*	Retrorse Sedge											X	G5	S5			N		
Cyperaceae	*Carex vulpinoidea*	Fox Sedge					X	X					X	G5	S5			N		

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Cyperaceae	*Eleocharis erythropoda*	Bald Spikerush											X	G5	S5			N		
Cyperaceae	*Schoenoplectus tabernaemontani*	Soft-stem Club-rush						X					X	G5	S5			N		
Cyperaceae	*Scirpus atrovirens*	Dark-green Bulrush					X	X					X	G5?	S5			N		
Cyperaceae	*Scirpus cyperinus*	Cottongrass Bulrush											X	G5	S5			**N**		
Dryopteridaceae	*Dryopteris carthusiana*	Spinulose Shield Fern			X								X	G5	S5			N		
Dryopteridaceae	*Matteuccia struthiopteris*	Ostrich Fern			X		X						X	G5	S5			N		
Dryopteridaceae	*Onoclea sensibilis*	Sensitive Fern			X		X	X					X	G5	S5			N		
Elaeagnaceae	*Elaeagnus umbellata*	Autum Olive											X	GNR	SNA			N		
Equisetaceae	*Equisetum arvense*	Field Horsetail		X						X			X	G5	S5			N		
Equisetaceae	***Equisetum pratense***	**Meadow Horsetail**					**X**	**X**						**G5**	**S5**			**N**	**X**	**L3**
Fabaceae	*Coronilla varia*	Common Crown-vetch												GNR	SNA			N		
Fabaceae	*Lotus corniculatus*	Birds-foot Trefoil											X	GNR	SNA			N		
Fabaceae	*Medicago lupulina*	Black Medic	X							X				GNR	SNA			N		
Fabaceae	*Medicago sativa ssp. falcata*	Yellow Alfalfa		X									X	GNRT NR	SNA			N		
Fabaceae	*Melilotus albus*	White Sweet Clover		X									X	G5	SNA			N		
Fabaceae	*Trifolium pratense*	Red Clover	X	X						X			X	GNR	SNA			N		
Fabaceae	*Vicia cracca*	Tufted Vetch		X		X	X	X		X			X	GNR	SNA			N		
Fagaceae	***Quercus alba***	**White Oak**	**X**											**G5**	**S5**			**N**		**L3**
Fagaceae	*Quercus macrocarpa*	Bur Oak	X											G5	S5			N		

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Geraniaceae	*Geranium robertianum*	Herb-robert	X										X	G5	SNA			N		
Grossulariaceae	*Ribes americanum*	Wild Black Currant											X	G5	S5			N		
Grossulariaceae	*Ribes cynosbati*	Prickly Gooseberry			X								X	G5	S5			N		
Grossulariaceae	***Ribes hirtellum***	**Smooth Gooseberry**	**X**											**G5**	**S5**			**N**	**X**	**L3**
Grossulariaceae	*Ribes rubrum*	Northern Red Currant											X	G4G5	SNA			N		
Grossulariaceae	***Ribes triste***	**Swamp Red Currant**						**X**						**G5**	**S5**			**N**		**L3**
Hydrophyllaceae	*Hydrophyllum virginianum*	John's Cabbage			X		X							G5	S5			N		
Juglandaceae	***Juglans cinerea***	**Butternut**	**X**		**X**								**X**	**G4**	**S3?**	**END**	**END**	**Y**		**L3**
Juglandaceae	***Juglans nigra***	**Black Walnut**	**X**											G5	S4			N	**X**	
Juncaceae	*Juncus dudleyi*	Dudley's Rush											X	G5	S5			N		
Lamiaceae	*Leonurus cardiaca*	Common Mother-wort	X		X								X	GNR	SNA			N		
Lamiaceae	*Lycopus americanus*	American Bugleweed											X	G5	S5			N		
Lamiaceae	*Lycopus uniflorus*	Northern Bugleweed											X	G5	S5			N		
Lamiaceae	*Mentha arvensis*	Corn Mint											X	G5	S5			N		
Lamiaceae	*Nepeta cataria*	Catnip	X											GNR	SNA			N		
Lamiaceae	*Prunella vulgaris ssp. lanceolata*	Self-heal			X								X	G5T5	S5			N		
Lamiaceae	*Scutellaria galericulata*	Hooded Skullcap											X	G5	S5			N		
Lamiaceae	*Scutellaria lateriflora*	Mad Dog Skullcap						X					X	G5	S5			N		
Lemnaceae	*Lemna minor*	Lesser Duckweed									X		X	G5	S5			N		
Lemnaceae	*Spirodela polyrrhiza*	Common Water-flaxseed									X		X	G5	S5			N		
Lemnaceae	***Wolffia borealis***	**Dotted Watermeal**									**X**	**X**	**X**	**G5**	**S4S5**			**N**	**X**	**L3**

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Lemnaceae	***Wolffia columbiana***	**Columbia Watermeal**									**X**	**X**	**X**	**G5**	**S4S5**			**N**	**X**	
Liliaceae	*Asparagus officinalis*	Garden Asparagus-fern		X										G5?	SNA			N		
Liliaceae	*Erythronium americanum*	Yellow Trout-lily			X									G5	S5			N		
Liliaceae	*Maianthemum racemosum*	False Soloman's Seal	X										X	G5	S5			N		
Monotropaceae	***Monotropa uniflora***	**Indian-pipe**			**X**									**G5**	**S5**			**N**		**L3**
Oleaceae	*Fraxinus americana*	White Ash	X	X	X	X		X					X	G5	S5			N		
Oleaceae	*Fraxinus pennsylvanica*	Green Ash								X			X	G5	S5			N		
Onagraceae	***Epilobium coloratum***	**Purple-leaf Willow-herb**								**X**				**G5**	**S5**			**N**	**X**	
Onagraceae	*Circaea lutetiana*	Southern Broadleaf Enchanter's Nightshade	X		X	X		X					X	G5	S5			N		
Onagraceae	*Oenothera biennis*	Common Evening-primrose		X						X			X	G5	S5			N		
Orchidaceae	*Epipactis helleborine*	Eastern Helleborine	X											GNR	SNA			N		
Oxalidaceae	*Oxalis stricta*	Upright Yellow Wood-sorrel				X								G5	S5			N		
Pinaceae	*Picea abies*	Norway Spruce											X	G5	SNA			N		
Pinaceae	*Pinus strobus*	Eastern White Pine			X								X	G5	S5			N		
Pinaceae	*Tsuga canadensis*	Eastern Hemlock	X										X	G4G5	S5			N		
Plantaginaceae	*Plantago lanceolata*	English Plantain								X				G5	SNA			N		
Plantaginaceae	*Plantago major*	Common Plantain		X										G5	S5			N		
Poaceae	*Agrostis gigantea*	Black Bentgrass								X			X	G4G5	SNA			N		
Poaceae	*Agrostis stolonifera*	Spreading Bentgrass											X	G5	S5			N		

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Poaceae	***Alopecurus aequalis***	**Short-awn Foxtail**								**X**			**X**	**G5**	**S4S5**			**N**	**X**	**L3**
Poaceae	*Bromus inermis*	Awnless Brome	X	X		X		X		X			X	GNR	SNA			N		
Poaceae	*Dactylis glomerata*	Orchard Grass	X	X	X								X	GNR	SNA			N		
Poaceae	*Echinochloa crus-galli*	Barnyard Grass	X											GNR	SNA			N		
Poaceae	*Elymus repens*	Creeping Wild-rye		X			X						X	GNR	SNA			N		
Poaceae	***Glyceria borealis***	**Small Floating Manna-grass**								**X**			**X**	**G5**	**S5**			**N**		**L3**
Poaceae	*Glyceria grandis*	American Mannagrass											X	G5	S4S5			N		
Poaceae	*Leersia oryzoides*	Rice Cutgrass											X	G5	S5			N		
Poaceae	*Panicum capillare*	Witchgrass		X										G5	S5			N		
Poaceae	*Phalaris arundinacea*	Reed Canary Grass					X	X	X				X	G5	S5			N		
Poaceae	*Phleum pratense*	Meadow Timothy	X	X		X							X	GNR	SNA			N		
Poaceae	*Poa compressa*	Canada Bluegrass											X	GNR	SNA			N		
Poaceae	*Poa palustris*	Fowl Bluegrass					X	X		X			X	G5	S5			N		
Poaceae	*Poa pratensis ssp. alpigena*	Alpine Meadow Grass	X										X	G5T5	S4S5			N		
Poaceae	*Setaria pumila*	Yellow Foxtail	X	X						X				GNR	SE5			N		
Polygonaceae	*Persicaria maculosa*	Lady's Thumb											X	G3G5	SNA			N		
Polygonaceae	*Polygonum amphibium*	Water Smartweed					X					X	X	G5	S5			N		
Polygonaceae	*Polygonum hydropiper*	Marshpepper Smartweed											X	GNR	SNA			N		
Polygonaceae	*Rumex acetosa*	Garden Sorrel				X								G5	SNA			N		
Polygonaceae	*Rumex crispus*	Curly Dock					X						X	GNR	SNA			N		
Potamogetonaceae	***Potamogeton natans***	**Floating Pondweed**									**X**		**X**	**G5**	**S5**			**N**		**L3**
Potamogetonaceae	***Potamogeton zosteriformis***	**Flatstem Pondweed**									**X**		**X**	**G5**	**S5**			**N**		**L3**
Ranunculaceae	*Anemone canadensis*	Canada Anemone	X			X			X				X	G5	S5			N		

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Ranunculaceae	*Anemone virginiana*	Virginia Anemone											X	G5	S5			N		
Ranunculaceae	*Ranunculus acris*	Tall Buttercup											X	G5	SNA			N		
Ranunculaceae	***Ranunculus pensylvanicus***	**Bristly Crowfoot**						**X**					**X**	**G5**	**S5**			**N**	**X**	**L3**
Rhamnaceae	*Rhamnus cathartica*	Buckthorn				X							X	GNR	SNA			N		
Rosaceae	*Agrimonia striata*	Woodland Agrimony			X		X							G5	S4?			N		
Rosaceae	*Crataegus monogyna*	English Hawthorn	X											G5	SNA			N		
Rosaceae	*Fragaria vesca*	Woodland Strawberry			X									G5	S5			N		
Rosaceae	*Fragaria virginiana*	Virginia Strawberry	X										X	G5	S5			N		
Rosaceae	*Geum canadense*	White Avens											X	G5	S5			N		
Rosaceae	*Geum sp.*	Avens sp.	X		X	X								G5	S5			N		
Rosaceae	*Malus sp.*	Crabapple	X																	
Rosaceae	*Malus pumila*	Common Apple	X											G5	SNA			N		
Rosaceae	*Potentilla recta*	Sulphur Cinquefoil	X										X	GNR	SNA			N		
Rosaceae	*Prunus serotina*	Wild Black Cherry	X		X					X			X	G5	S5			N		
Rosaceae	*Prunus virginiana*	Choke Cherry	X					X					X	G5	S5			N		
Rosaceae	*Rubus idaeus ssp. idaeus*	Common Red Raspberry	X			X		X					X	G5T5	SNA			N		
Rosaceae	*Rubus occidentalis*	Black Raspberry						X					X	G5	S5			N		
Rosaceae	*Sorbus aucuparia*	European Mountain-ash								X			X	G5	SNA			N		
Rosaceae	*Spiraea alba*	Narrow-leaved Meadow-sweet							X					G5	S5			N		
Rubiaceae	*Galium palustre*	Marsh Bedstraw					X	X						G5	S5			N		
Rubiaceae	***Galium tinctorium***	**Stiff Marsh Bedstraw**						**X**					**X**	**G5**	**S5**			**N**		**L3**

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Salicaceae	*Populus balsamifera*	Balsam Poplar											X	G5	S5			N		
Salicaceae	*Populus tremuloides*	Trembling Aspen			X			X					X	G5	S5			N		
Salicaceae	*Salix amygdaloides*	Peach-leaved Willow											X	G5	S5			N		
Salicaceae	*Salix bebbiana*	Bebb's Willow						X	X				X	G5	S5			N		
Salicaceae	*Salix discolor*	Pussy Willow					X	X	X				X	G5	S5			N		
Salicaceae	*Salix eriocephala*	Heart-leaved Willow						X					X	G5	S5			N		
Salicaceae	*Salix exigua*	Sandbar Willow											X	G5	S5			N		
Salicaceae	*Salix interior*	Sand Dune Willow					X							G4	S4S5			N		
Salicaceae	***Salix lucida***	**Shining Willow**						**X**					**X**	**G5**	**S5**			**N**		**L3**
Salicaceae	*Salix petiolaris*	Meadow Willow						X	X				X	G5	S5			N		
Salicaceae	*Salix x rubens*	A Willow					X						X	GNA	SNA			N		
Scrophulariaceae	*Linaria vulgaris*	Butter-and-eggs								X				GNR	SNA			N		
Scrophulariaceae	*Mimulus ringens*	Square-stem Monkeyflower											X	G5	S5			N		
Scrophulariaceae	*Verbascum thapsus*	Great Mullein	X										X	GNR	SNA			N		
Solanaceae	*Solanum dulcamara*	Climbing Nightshade					X	X	X				X	GNR	SNA			N		
Sparganiaceae	***Sparganium eurycarpum***	**Large Bur-reed**								**X**			**X**	**G5**	**S5**			**N**	**X**	**L3**
Tiliaceae	*Tilia americana*	American Basswood	X										X	G5	S5			N		
Typhaceae	*Typha angustifolia*	Narrow-leaved Cattail			X			X		X			X	G5	SNA			N		
Typhaceae	*Typha latifolia*	Broad-leaf Cattail			X		X	X		X			X	G5	S5			N		
Ulmaceae	*Ulmus americana*	American Elm	X		X	X							X	G5?	S5			N		
Ulmaceae	*Ulmus pumila*	Siberian Elm	X											GNR	SNA			N		
Urticaceae	*Urtica urens*	Burning Nettle						X					X	GNR	SNA			N		
Verbenaceae	*Verbena hastata*	Blue Vervain						X					X	G5	S5			N		
Verbenaceae	*Verbena urticifolia*	White Vervain		X									X	G5	S5			N		

Family	Scientific Name	Common Name	Hedge row	CUM1-1	FOD 3-1	FOD 4-2	SWD 3-2	SWT 2-5	MAM 3-2	MAS 2-1	SAS 1-3	SAF 1-3	Wetlands (General)	G-rank	S-rank	COSEWIC Status	SARO Status	Track	ORM	TRCA
Vitaceae	*Parthenocissus quinquefolia*	Virginia Creeper	X		X	X	X	X					X	G5	S4?			N		
Vitaceae	*Vitis riparia*	Riverbank Grape	X		X		X			X			X	G5	S5			N		
	Chara spp.	Stonewort									X									

Table 3: Results of Amphibian Surveys and Incidental Amphibian Observations

											April 5, 2017[1]		April 17, 2013 [2]		April 20, 2017[3]		May 28, 2008 [4]		June 26, 2008 [5]		
Family	**Scientific Name**	**Common Name**	**G-rank**	**S-rank**	**I-rank**	**COSEWIC**	**SARO**	**Track**	**ORM Rare**	**TRCA Rare**			**Sampling Location [6]**	**Call Code [7]**	**Sampling Location [6]**	**Call Code [7]**	**Sampling Location [6]**	**Call Code [7]**	**Sampling Location [6]**	**Call Code [7]**	**Observed [8]**
Bufonidae	*Bufo americanus*	American Toad	G5	S5	null			N													X
Hylidae	*Hyla versicolor*	Gray Treefrog	G5	S5	null			N		L2									1	2 (24)	
																			4	2 (28)	
																			6	2 (18)	
																			7	1 (22)	
Hylidae	*Pseudacris crucifer*	Spring Peeper	G5	S5	null			N		L2	4	2 (15)	1 [7]	1(1)	1	1 (5)	1	2 (6)			
													4	3	3	1 (2)	6	2 (4)			
													6	3	4	3					
													7	2 (11)							
Hylidae	*Pseudacris triseriata*	Western Chorus Frog	G5TNR	S3	null	THR		N		L2					4	1 (1)					
Ranidae	*Rana clamitans*	Green Frog	G5	S5	null			N											1	1 (2)	
																			4	1 (2)	
																			6	1 (3)	
																			7	1 (4)	
Ranidae	*Rana sylvatica*	Wood Frog	G5	S5	null			N		L2	4	3	3 [8]	1 (2)	1	1 (1)					
													4	3	3	1 (6)					
													7	1 (3)	4	1 (3)					
															6	1 (1) [9]					

[1] Observed: L.Moran, Temperature 5.5°C, Wind Speed = 3, Cloud %: 50%, Precipitation: Nil, Background Noise: 1 Start Time: 20:00 End Time: 20:30 (Only wetland #8 and #9 were

[2] Observed: M. Fuller, Temperature 8°C, Wind Speed = 1, Cloud %: 100%, Precipitation: Nil, Background Noise: 1 Start Time: 20:37 End Time: 21:50

[3] Observed: M. Fuller, Temperature 8°C, Wind Speed = 1, Cloud %: 30%, Precipitation: Nil, Background Noise: 0 Start Time: 20:10 End Time: 21:45 (Only wetland #9, 8, 7, 6 and 4 were

[4] Observer: L.Moran, Temperature 9°C, Wind Speed = 0, Cloud %: 0%, Precipitation: Nil, Background Noise: 2 Start Time: 21:07 End Time: 21:45

[5] Observer: B.Clayton, Temperature 20°C, Wind: Speed= 0, Cloud: 100%, Precipitation: Nil (foggy), Background Noise: 1 Start Time: 21:45 End Time: 22:50

[6] Refer to Figure 2 for sampling station locations (Note: Sampling station #6 and 7 refer to calls heard off site on adjacent lands)

[7] Call Code Levels: 0 = None Heard, 1 = Males could be individually counted, 2 = Calls overlap but numbers could be estimated, 3 = Overlapping calls, not possible to estimate numbers involved in chorus.

[8] Incidental observation on site.

[9] One Wood Frog was documented from within wetland No. 8

			Conservation Rankings[2]									June 12, 2008 [6]								July 9, 2008 [7]								2013		
FAMILY[1]	**Scientific Name**	**Common Name**	**G-RANK**	**S-RANK**	**COSEWIC**	**SARO**	**Ontario General Status**	**TRACK**	**TRCA Rare [3]**	**ORM Rare [4]**	**Obser-ved [5]**	1 [8]	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	May 30	June 6	June 19
																												B/M[9]	B/M	B/M
Accipitridae	*Buteo jamaicensis*	Red-tailed Hawk	G5	S5			Secure	N																						H
Alcedinidae	*Megaceryle alcyon*	Belted Kingfisher	G5	S4B			Secure	N							S															
Anatidae	*Aix sponsa*	Wood Duck	G5	S5			Secure	N			X																			
Anatidae	*Anas platyrhynchos*	Mallard	G5	S5			Secure	N			X																	FO	H	
Anatidae	*Branta canadensis*	Canada Goose	G5	S5			Secure	N																				VO	FO	
Ardeidae	***Ardea herodias***	**Great Blue Heron**	**G5**	**S4**			**Secure**	**N**	**L3**											**FO**										
Ardeidae	*Butorides virescens*	Green Heron	G5	S4B			Secure	N			X																			
Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing	G5	S5B			Secure	N			X																			
Cardinalidae	*Passerina cyanea*	Indigo Bunting	G5	S4B			Secure	N							S	S														
Cardinalidae	*Pheucticus ludovicianus*	Rose-breasted Grosbeak	G5	S4B			Secure	N																S						
Charadriidae	*Charadrius vociferus*	Killdeer	G5	S5B,S5			Secure	N			X																	H		H
Columbidae	*Zenaida macroura*	Mourning Dove	G5	S5			Secure	N				S																		
Corvidae	*Corvus brachyrhynchos*	American Crow	G5	S5B			Secure	N				X		S	X				S	FO	S					S			VO	
Corvidae	*Cyanocitta cristata*	Blue Jay	G5	S5			Secure	N											S	S	S							H		H
Emberizidae	*Melospiza melodia*	Song Sparrow	G5	S5B			Secure	N					S		S	S		S	S	S			H	S	S	S		S	S	S
Emberizidae	*Passerculus sandwichensis*	Savannah Sparrow	G5	S4B			Secure	N					S		S				S		S					S	S	S		
Emberizidae	*Spizella passerina*	Chipping Sparrow	G5	S5B			Secure	N																					S	
Fringillidae	*Carduelis tristis*	American Goldfinch	G5	S5B			Secure	N								S					S				S		S	H	FO	H
Hirundinidae	***Hirundo rustica***	**Barn Swallow**	**G5**	**S4B**	**THR**	**THR**	**Secure**	**N**									**FO**				**X**							**FO**		**FO**
Hirundinidae	*Tachycineta bicolor*	Tree Swallow	G5	S4B			Secure	N									FO													
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird	G5	S4			Secure	N				S						S	S	S							P	A	A	A
Icteridae	***Dolichonyx oryzivorus***	**Bobolink**	**G5**	**S4B**	**THR**	**THR**	**Secure**	**N**	**L2**										**S**											
Icteridae	*Icterus galbula*	Baltimore Oriole	G5	S4B			Secure	N																				S	S	
Icteridae	*Molothrus ater*	Brown-headed Cowbird	G5	S4B			Secure	N										S							S			VO	H	
Icteridae	*Quiscalus quiscula*	Common Grackle	G5	S5B			Secure	N									FO									S				
Mimidae	*Dumetella carolinensis*	Gray Catbird	G5	S4B			Secure	N										S					S		S		S			S
Mimidae	*Toxostoma rufum*	Brown Thrasher	G5	S4B			Secure	N																						S
Paridae	*Poecile atricapillus*	Black-capped Chickadee	G5	S5			Secure	N				S	S		S						H	S					S		S	S
Parulidae	***Dendroica pensylvanica***	**Chestnut-sided Warbler**	**G5**	**S5B**			**Secure**	**N**	**L3**		**X**																			
Parulidae	*Dendroica petechia*	Yellow Warbler	G5	S5B			Secure	N																						S
Parulidae	*Geothlypis trichas*	Common Yellowthroat	G5	S5B			Secure	N			X																	S	S	H
Phasianidae	***Meleagris gallopavo***	**Wild Turkey**	**G5**	**S5**			**Secure**	**N**	**L3**		**X**																			

			Conservation Rankings[2]																									2013		
FAMILY[1]	**Scientific Name**	**Common Name**	**G-RANK**	**S-RANK**	**COSEWIC**	**SARO**	**Ontario General Status**	**TRACK**	**TRCA Rare [3]**	**ORM Rare [4]**	**Obser-ved [5]**	June 12, 2008 [6]								July 9, 2008 [7]								May 30	June 6	June 19
Picidae	*Colaptes auratus*	Northern Flicker	G5	S4B			Secure	N																				VO		H
Picidae	*Picoides pubescens*	Downy Woodpecker	G5	S5			Secure	N								S				H				S						
Scolopacidae	***Scolopax minor***	**American Woodcock**	**G5**	**S4B**			**Secure**	**N**	**L3**				**S**																	
Sittidae	*Sitta canadensis*	Red-breasted Nuthatch	G5	S5			Secure	N			X																			
Sittidae	*Sitta carolinensis*	White-breasted Nuthatch	G5	S5			Secure	N																				H	S	
Sturnidae	*Sturnus vulgaris*	European Starling	G5	SNA			Exotic	N																				H		
Troglodytidae	*Troglodytes aedon*	House Wren	G5	S5B			Secure	N																S						
Turdidae	*Turdus migratorius*	American Robin	G5	S5B			Secure	N												H								P	S	
Tyrannidae	***Contopus virens***	**Eastern Wood-pewee**	**G5**	**S4B**	**SC**	**SC**	**Secure**	**N**						**S**																
Tyrannidae	***Empidonax alnorum***	**Alder Flycatcher**	**G5**	**S5B**			**Secure**	**N**	**L3**																			S		**S**
Tyrannidae	*Myiarchus crinitus*	Great Crested Flycatcher	G5	S4B			Secure	N						S		S			S									S	S	S
Tyrannidae	*Tyrannus tyrannus*	Eastern Kingbird	G5	S4B			Secure	N										S	S						S			P	H	
Vireonidae	*Vireo gilvus*	Warbling Vireo	G5	S5B			Secure	N																				S	S	
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo	G5	S5B			Secure	N																	S					

[2] Conservation Rankings: From Ontario Ministry of Natural Resources, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_.cfm)
[3] Bird species considered to be rare within the Toronto and Region watershed (i.e. L1, L2 and L3 rankings)
[4] Bird species considered to be rare within the Oak Ridges Moraine according to the ORM Technical Paper No. 6 (2004).
[5] Incidental observations on site during other field investigations and not during formal bird survey.
[6] Observer: L.Moran, Temperature 13°C, Wind B=1, Sky Code = 2, Precipitation: Nil., Search Time 05:30 to 06:45
[7] Observer: L.Moran, Temperature 22°C, Wind: Nil, Sky Code = 3, Precipitation: Nil, Search Time 06:35 to 08:00
[8] Number refers to area where bird was observed (referred to as "Bird Zone" on Figure 2a).
[9] Bobolink/Meadowlark Survey Station (Figure 2a)

Common Name	Species Name	MNRF	Key Habitats Used By Species[1]	Assessment
Restricted Species	*Not Applicable*	END	Requires rich, moist, undisturbed and relatively mature Sugar Maple-dominated deciduous woods in areas of circumneutral soil such as over limestone or marble bedrock. ESA Protection: Species and regulated habitat protection	Species not expected to be present on or adjacent to the Property. Habitat is not representative of key habitat.
Bank Swallow	*Riparia riparia*	THR	Nests in burrows excavated in natural and human-made settings with vertical sand and silt faces. Commonly found in sand or gravel pits, road cuts, lakeshore bluffs, and along riverbanks (COSEWIC, 2013a). ESA Protection: Species and general habitat protection	No suitable habitat on site or on adjacent lands. Was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.
Barn Swallow	*Hirundo rustica*	THR	Ledges and walls of man-made structures such as buildings, barns, boathouses, garages, culverts and bridges. Also nest in caves, holes, crevices and cliff ledges (COSEWIC, 2011a). ESA Protection: Species and general habitat protection	Although there is no suitable nesting habitat for Barn Swallow on site, suitable habitat for foraging occurs on the property (i.e. field). Barn Swallow were observed on site during Azimuth's 2008 and 2013 dawn breeding bird surveys flying over the property.
Black Tern	*Chlidonias niger*	SC	Colonial nesters typically found within marshes. Its preferred nesting habitat is a hemi-marsh (*i.e.* a wetland with 50:50 open water and emergent vegetation). Nests are usually built on an upturned cattail root, floating vegetation mat or patch of mud (Cadman et al., 2007). ESA Protection: N/A	No suitable habitat on site or on adjacent lands. Wetlands on the property are not of sufficient size to provide potentially suitable habitat for this species. Was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.
Blanding's Turtle	*Enydoidea blandingii*	THR	Blanding's Turtles are a primarily aquatic species that prefer wetland habitats, lakes, ponds, slow-moving streams, etc., however they may utilize upland areas to search for suitable basking and nesting sites. In general, preferred wetland sites are eutrophic and characterized by clear, shallow water, with organic substrates and high density of aquatic vegetation (COSEWIC, 2005a). ESA Protection: Species and general habitat protection	Potential habitat exists on the property however there are no known occurrences of Blanding's Turtle within 2 kilometres of the property (based on MNRF correspondence and NHIC).
Bobolink	*Dolichonyx oryzivorus*	THR	Nests primarily in forage crops (*e.g.* hayfields and pastures) dominated by a variety of species such as clover, Timothy, Kentucky Bluegrass, tall grass, and broadleaved plants. Also occurs in wet prairie, graminoid peatlands, and abandoned fields dominated by tall grasses. Does not generally occupy fields of row crops (*e.g* . corn, soybeans, wheat) or short-grass prairie. Sensitive to habitat size and has lower reproductive success in small habitat fragments (COSEWIC, 2010a). ESA Protection: Species and general habitat protection	The majority of property is composed of row crop agriculture (*i.e.* corn/soy rotation) which is not suitable habitat for the species. Bobolink was documented as possibly utilizing the property since a single male was heard calling during one of Azimuth's 2008 dawn breeding bird surveys. During the more recent dawn breeding bird surveys in 2013, Bobolink were not observed. Possible breeding evidence (as outlined in the OBBA) on its own does not demonstrate that Bobolink are using a particular area of habitat (MNR, 2011).

Common Name	Species Name	MNRF	Key Habitats Used By Species[1]	Assessment
Butternut	*Juglans cinerea*	END	Commonly found in riparian habitats, but is also found in rich, moist, well-drained loams, and well-drained gravels. Butternut is intolerant of shade (COSEWIC, 2003a). ESA Protection: Species and general habitat protection	17 Butternut were observed on the property. A Butternut Health Assessment was completed for each of these trees and submitted/accepted by MNRF.
Canada Warbler	*Cardellina 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, 2008a). ESA Protection: N/A	Potential habitat exists on the property however Canada Warbler was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.
Cerulean Warbler	*Dendroica cerulea*	THR	Associated with large tracts of mature deciduous forest with tall trees and an open understory. Found in both wet bottomland forests and upland areas (COSEWIC, 2010b). ESA Protection: Species and general habitat protection	No suitable habitat on site or on adjacent lands. There are no forested lands on site or on adjacent properties that are of sufficient size to provide potentially suitable habitat. Species not observed during 2008 dawn breeding bird surveys.
Chimney Swift	*Chaetura pelagica*	THR	Nests primarily in chimneys though some populations (i.e. in rural northern areas) may nest in cavity trees (COSEWIC, 2007a). Recent changes in chimney design may be a significant factor in recent declines in numbers (Cadman et al., 2007). ESA Protection: Species and general habitat protection	No suitable nesting habitat on subject property. Was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.
Common Nighthawk	*Chordeiles minor*	SC	Open habitats including sand dunes, beaches recently logged/burned over areas, forest clearings, short grass prairies, pastures, open forests, bogs, marshes, lakeshores, gravel roads, mine tailings, quarries, and other open relatively clear areas (COSEWIC, 2007b). ESA Protection: N/A	Suitable foraging and nesting habitat may exist on site and within the general area. Was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys nor was it observed during any of Azimuth's evening surveys.
Eastern Meadowlark	*Sturnella magna*	THR	Most common in grassland, pastures, savannahs, as well as anthropogenic grassland habitats, including hayfields, weedy meadows, young orchards, golf courses, restored surface mines, *etc* . Occasionally nest in row crop fields such as corn and soybean, but there are considered low-quality habitat. Large tracts of grassland are preferred over smaller fragments and the minimum area required is estimated at 5 ha (COSEWIC, 2011b). ESA Protection: Species and general habitat protection	The majority of property is composed of row crop agriculture (*i.e* . corn/soy rotation) which is not suitable habitat for the species. Eastern Meadowlark was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.

Common Name	Species Name	MNRF	Key Habitats Used By Species[1]	Assessment
Eastern Small-footed Myotis	*Myotis Lleibii*	END	Generally occurs in mountainous or rocky regions as well as in buildings, on the face of rock bluffs, and beneath slabs of rock and stones. Hibernation is typically confined to caves and old mines (Best and Jennings, 1997). ESA Protection: Species and general habitat protection	No suitable on site or on adjacent properties.
Eastern Whip-poor-will	*Antrostomus vociferus*	THR	Semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances, are preferred nesting habitats (COSEWIC, 2009b). ESA Protection: Species and general habitat protection	No suitable habitat on site or on adjacent properties.
Eastern Wood-pewee	*Contopus virens*	SC	Mostly in mature and intermediate-age deciduous and mixed forests having an open understory. It is often associated with forests dominated by Sugar Maple and oak. Usually associated with forest clearings and edges within the vicinity of its nest (COSEWIC, 2012a). ESA Protection: N/A	Forest communities on site may provide suitable habitat. Eastern Wood-pewee was heard singing on June 12, 2008 during a dawn breeding bird survey.
Golden-winged Warbler	*Vermivora chrysoptera*	SC	Areas of early successional scrub surrounded by mature forests including dry uplands, swamp forests, and marshes (COSEWIC, 2006a). ESA Protection: N/A	No suitable habitat on site or within general area. Was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.
Grasshopper Sparrow *pratensis* subspecies	*Ammodramus savannarum pratensis*	SC	Typically breeds in large human-created grasslands (≥ 5ha), such as pastures and hayfields, and natural prairies, such as alvars, characterized by well-drained, often poor soil dominated by low, sparse perennial herbaceous vegetation (COSEWIC, 2013b). ESA Protection: N/A	No suitable habitat on site or on adjacent properties. Was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.
Least Bittern	*Ixobrychus exilis*	THR	Breed strictly in marshes of emergents (usually cattails) that have relatively stable water levels and interspersed areas of open water (COSEWIC, 2009a). ESA Protection: Species and general habitat protection	Wetlands on site are not composed of typical habitat composition (cattail marsh) of sufficient size (>5ha) to be considered suitable habitat. Was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.

Common Name	Species Name	MNRF	Key Habitats Used By Species[1]	Assessment
Little Brown Myotis	*Myotis lucifugus*	END	Forests and regularly aging human structures as maternity roost sites. Regularly associated with attics of older buildings and barns for summer maternity roost colonies. Overwintering sites are characteristically mines or caves, but can often include buildings (MNRF 2014, COSEWIC, 2013c). ESA Protection: Species and general habitat protection	Forest communities on the property may provide suitable maternity roost sites for Endangered Bats. No overwintering sites are present on the property.
Monarch	*Danaus plexippus*	SC	Breeding habitat is confined to sites where milkweeds, the sole food of caterpillars, grow. Milkweeds grow in a variety of environments, including meadows in farmlands, along roadsides and in ditches, open wetlands, dry sandy areas, short and tall grass prairie, river banks, irrigation ditches, arid valleys, and south-facing hills (COSEWIC, 2010c). ESA Protection: N/A	Potentially suitable habitat present on the property within Cultural Meadow (CUM) community.
Northern Myotis	*Myotis septentrionalis*	END	Maternity roost sites are generally located within deciduous and mixed forests and focused in snags including loose bark and cavities of trees. Overwintering sites are characteristically mines or caves (COSEWIC, 2013c). ESA Protection: Species and general habitat protection	Forest communities on the property may provide suitable maternity roost sites for Endangered Bats. No overwintering sites are present on the property.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	SC	Occurs in open deciduous forests, particularly those dominated by oak and beech, grasslands, forest edges, orchards, pastures along rivers and roads, urban parks, golf courses, cemeteries, beaver ponds and timber stands that have been treated with herbicides (COSEWIC, 2007c). ESA Protection: N/A	Potentially suitable habitat along woodland edge and within hedgerows. Woodland and majority of hedgerow habitat will be retained on site post-development. Was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.
Snapping Turtle	*Chelydra serpentina*	SC	Habitat is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Often located in ponds, sloughs, shallow bays or river edges and slow streams, or areas combining several of these wetland habitats (COSEWIC, 2008b). ESA Protection: N/A	Potentially suitable habitat present within wetland; primarily the wetland features that have permanent water throughout the year. Snapping Turtle was observed during Azimuth's 2013 field investigations adjacent to wetland #3.
Tri-colored Bat	*Perimyotis subflavus*	END	Maternity roost sites include forests and modified landscapes (barns or human-made structures). Overwintering sites include mines and caves (COSEWIC, 2013c). ESA Protection: Species and general habitat protection	Forest communities on the property may provide suitable maternity roost sites for Endangered Bats. No overwintering sites are present on the property.

Common Name	Species Name	MNRF	Key Habitats Used By Species[1]	Assessment
Wood Thrush	*Hylocichla mustelina*	SC	Found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches (COSEWIC, 2012b). ESA Protection: N/A	Potential habitat exists on the property however Wood Thrush was not documented as utilizing the property during Azimuth's 2008 or 2013 dawn breeding bird surveys.

Table 6a: Significant Wildlife Habitat Assessment for Ecoregion 6E

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) **Rationale:** 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. Information Sources • 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 (*e.g.* 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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback 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). Information Sources • 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 (*e.g.* 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.	While SWD3 and MAS2 is present on the property, these small communities do not meet the defining criteria for Waterfowl Stopover and Staging Areas (Aquatic) as aggregates of waterfowl were not observed on the site. No further assessment was completed for this function.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Shorebird Migratory Stopover Area **Rationale:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach 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. Information Sources • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 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.	While MAM3-2 is present on the property, there is no expectation that the property provides the Shorebird Migratory Stopover Area. The community is small in size and no shorebirds were observed. No further assessment was completed for this function.
Raptor Wintering Area **Rationale:** 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 **Special Concern:** Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering 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. Information Sources: • 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.	While FOD3-1 and FOD4-2 are present, none of the upland ELC Ecosites are present on the property. Both are required to facilitate this function. No further assessment was completed for this function.

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 (*e.g.* 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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.
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.	Potential Bat Maternity Colonies exist within the FOD ELC Ecosites.
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 • Field Naturalist clubs • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) • Congregation of turtles is more common where wintering areas are limited and therefore significant • SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	Potential Turtle Wintering Areas are present on the property. MA, SW and SA ELC Community Classes exist on site. The wetlands that contain water throughout the year have the potential to offer suitable overwintering habitat (Wetland #3 and #6). During 2013 field investigations, one Snapping Turtle was observed adjacent to wetland # 3 while one Midland Painted Turtle was observed adjacent to wetland #6.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Reptile Hibernaculum **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**Snakes:** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **Special Concern:** Milksnake Eastern Ribbonsnake **Lizard:** **Special Concern** (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. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (*e.g.* old dug wells). • Reports and other information available from Conservation Authorities. • Field 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) • Note: If there are Special Concern Species present, then site is SWH • Note: Sites for hibernation possess specific habitat parameters (*e.g.* temperature, humidity, *etc.*) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (*e.g.* mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the 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.	Candidate SWH in regards to Reptile Hibernaculum exists on the property. Thicket swamp communities are present on the property and could provide over-wintering habitat for reptiles.
Colonially -Nesting Bird Breeding Habitat (Bank and Cliff) **Rationale:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas • Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
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.	While the SDW3 is present on the property there is no expectation that the property provides the Colonially - Nesting Bird Breeding Habitat (Trees/Shrubs). These colonies tend to be very visible on the landscape and would have been identified by Azimuth staff through the course of the field surveys for the NHE. There were no Heron or Egret nests observed on the property. No further assessment was completed for this function.
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.	None of the noted communities were identified on the property. In addition, these colonies tend to be very visible on the landscape and would have been identified by Azimuth staff through the course of the field surveys for the NHE. None of the listed wildlife species were observed during our field investigations. No further assessment was completed for this function.

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.	The property is not located within 5km of Lake Ontario. No further assessment was completed for this function.
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.	The property is not located within 5km of Lake Ontario. No further assessment was completed for this function.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Deer Yarding Areas **<u>Rationale:</u>** 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.	Although an FOD3 ELC EcoSite is present on the property, there is no evidence of browsing at levels indicating winter use of habitat of the study area or adjacent land. No further assessment was completed for this function.
Deer Winter Congregation Areas **<u>Rationale:</u>** Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• 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. • 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	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 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.	While an FOD ELC Community is present on the property, the woodlot is small in size (approximately 2.4 ha and largely off of the site) and is not suitable to function as a Deer Winter Congregate Area. No further assessment was completed for this function.

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 **Rationale:** 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. Information Sources • 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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.
Sand Barren **Rationale;** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	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. Information Sources • 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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.
Alvar **Rationale;** 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. Information Sources • 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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.

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.	While the FOD ELC Community is present on the property, there is no expectation that the community represents an Old Growth Forest as the woodland is small in size (approximately 2.4 ha and largely off of the site) and does not meet the criteria. No further assessment was completed for this function.
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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.
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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.
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.	None of the vegetation communities present on the property are considered to be Provincially Rare. No further assessment was completed for this function.

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.	Although the property contains wetland, there is no evidence to suggest that that the property provides suitable habitat as a significant Waterfowl Nesting Site. It is expected that the pond (wetland #6) provides suitable foraging habitat for ducks, as a Mallard Duck was observed within this pond on at least two occasions. A Wood Duck was also noted in proximity to wetland #3 on a different date. These observations however do not meet the defining criteria for Waterfowl Nesting Area. No further assessment was completed for this function.
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 Conservation Authorities. • Field Naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the 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”. • SWHMiST Index #26 provides development effects and mitigation measures.	No Osprey or Bald Eagles or their nests were identified during site evaluation work. There is no expectation that Bald Eagle or Osprey are currently using the site as significant nesting, foraging or perching Habitat. No further assessment was completed for this function.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** 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. <u>Information Sources</u> • 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.	Forest communities on/adjacent to the property do not meet the size criteria for significance. No nests were identified during Azimuth's field investigations. No further assessment was completed for this function.
Turtle Nesting Areas **<u>Rationale:</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern Species</u> 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. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs	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.	Potential Turtle Nesting Areas have been identified on the property adjacent to wetland #3 and #6. An open sandy area exists immediately adjacent to wetland #3. This sandy feature has the potential to provide suitable turtle nesting habitat. During 2013 field investigations, one Snapping Turtle was observed adjacent to wetland # 3 while one Midland Painted Turtle was observed adjacent to wetland #6.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Seeps and Springs **<u>Rationale;</u>** 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. <u>Information Sources</u> • 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.	Seeps and springs have not been identified on the property.
Amphibian Breeding Habitat (Woodland). **<u>Rationale:</u>** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	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. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records. • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service • Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	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.	While SWD and FOD ELC Communities are present on the property, the communities do not meet the defining criteria. Amphibian surveys were completed for the property on May 28 and June 26, 2008 and although Gray Treefrog and Spring Peeper were heard, Call Level Codes did not exceed 2.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Breeding Habitat (Wetlands) **Rationale;** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	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.	While SW, MA and SA ELC Community Classes are present on the property, the communities do not meet the defining criteria. Amphibian surveys were completed for the property on May 28 and June 26, 2008 and although Green Frog, and Gray Treefrog were heard, Call Level Codes did not exceed 2.
Woodland Area-Sensitive Bird Breeding Habitat **Rationale:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **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.	While FOD and SWD ELC Community Series are present on the property, the woodlands are small in size and do not meet the defining criteria. Bird surveys were conducted on June 12 and July 9, 2008, and May 30, June 6 and June 19, 2013, however, only Red-breasted Nuthatch was observed from the wildlife species list.

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	
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 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.	Candidate Marsh Breeding Bird Habitat. Wetland #3 is surrounded by shrub vegetation and contains shallow water. An incidental observation of Green Heron on the property is also noted in Table 3.
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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.
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.	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Terrestrial Crayfish **<u>Rationale:</u>** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of 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.	While SWD, SWT, MAS2 and MAM3 are present on the property, no chimneys were observed during the site visits. No further assessment was completed for this function.
Special Concern and Rare Wildlife Species **<u>Rationale:</u>** 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 <u>Information Sources</u> • 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.	Species of SC and provincially rare species that were documented on site are considered within the NHE.

Animal Movement Corridors

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Movement Corridors **Rationale;** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	Movement corridors between breeding habitat and summer habitat. • Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (**Amphibian Breeding Habitat –Wetland)** of this Schedule. Information Sources • 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 corridors were identified to be present on the property. No further assessment was completed for this function.
Deer Movement Corridors **Rationale:** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	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). Information Sources • 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 corridors were identified to be present on the property. No further assessment was completed for this function.

Exceptions for EcoRegion 6E

EcoDistrict	Wildlife Habitat and Species	Candidate			Confirmed SWH	Assessment
		Ecosites	Habitat Description	Habitat Criteria and Information	Defining Criteria	
6E-14 **Rationale:** 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). Information Sources 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.	None of the ELC Vegetation Types are present on the property. No further assessment was completed for this function.
6E- 17 **Rationale:** 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 Information Sources • 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	None of the ELC Ecosites are present on the property. No further assessment was completed for this function.

Table 6b: Significant Wildlife Habitat ORM Criteria
Seasonal Concentration Areas

Seasonal Concentration Areas	Wildlife Species	ELC Ecosite Codes	Habitat Characteristics of SWH	Assessment
Waterfowl Stopover and Staging Areas (Terrestrial)	American Black Duck, Northern Pintail, Gadwell, Blue-winged Teal, Green winged Teal	CUM1	Fields with sheet water during spring (April/May)	No. Site does not possess characteristics potentially suitable for this habitat function. There is no Cultural Meadow present on the property. None of the associated wildlife species were observed during Azimuth's field investigations.
Waterfowl Stopover and Staging Areas (Aquatic)	American Green-winged Teal, American Black Duck, Northern Pintail, Northern Shoveller, American Wigeon, Gadwall, Glue-winged Teal, Wood Duck, Hooded Merganser, Common Merganser, Lesser Scaup, Ring-necked Duck, Common Goldeneye, Bufflehead.	MAM, SAS, SAM, SAF	Larger wetlands, especially those adjacent to large bodies of water, and relatively undisturbed vegetated shorelines. The permanency of wetlands should be considered.	No. Only small wetland features are present on the property.
Colonial Nesting Bird Habitat	Bank Swallow, Cliff Swallow	N/A	Eroding banks, sandy hills, pits, steep slopes, rock faces or piles. Any exposed soil banks, undisturbed for 10 years or more (does not include man-made structures [bridges/buildings], or recently disturbed soil areas)	No. No potentially suitable habitat features present on site. None of the associated wildlife species were observed during Azimuth's field investigations.
Colonial Nesting Bird Habitat	Great Blue Heron	SWM, SWD, FET	Nests in dead standing trees in large marshes and lakes.	No potentially suitable habitat features present on site. No Heron nests observed on site.
Colonial Nesting Bird Habitat	Sedge Wren	FEO1, BOO1, MAM	Nests mostly in grassy fend, occasionally bogs, occasionally in marshes, old fields or hayfields.	No preferred habitat on site. Sedge Wren not documented during Azimuth's field investigations.
Colonial Nesting Bird Habitat	Marsh Wren	MAM	Nests in aggregations mostly in cattails marshes, occasionally in bulrushes, horsetails, bur-reed and emergent grasses.	No potentially suitable habitat features of sufficient size present on site. No Marsh Wren documented during Azimuth's field investigations.
Waterfowl Nesting Area	American Black Duck, Northern Pintail, Gadwell, Blue-winged Teal, Green winged Teal, Wood Duck, Hooded Merganser, Mallard Ducks	All upland habitats not protected as a KNHF or HSF located adjacent to the following wetland ecosites: MAS2, MAS3, SAS1, SAM1, SAF1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT2, SWD1, SWD2, SWD3, SWD4	A waterfowl nesting area extends 120m from a wetland >0.5 ha or a cluster of 3 or more small (<0.5ha) wetlands within 120m of each individual wetland where waterfowl nesting is known to occur.	No known waterfowl nesting function on the property. All upland/wetland habitat are currently protected as KNHF/HSF. Not a candidate SWH for this function.

Seasonal Concentration Areas	Wildlife Species	ELC Ecosite Codes	Habitat Characteristics of SWH	Assessment
Snake Hibernaculum	Eastern Garter Snake, Northern Brown Snake, Smooth Green Snake, Eastern Milksnake, Eastern Ribbonsnake, Northern Ringneck Snake, Northern Water Snake, Northern Redbelly Snake	N/A	Rock piles, stone fences, crumbling foundations (No ELC descriptor).	No. No suitable habitat features present on site.
Deer Wintering Areas	White-tailed Deer	FOC, FOM, CUP, SWC, SWM	Deer aggregate within wintering areas until snow melts in the spring. The coniferous forest cover available in wintering areas provides protection from winds, predators, and by holding snow on their branches and by reducing snow depth.	No. No suitable habitat features present on site.

Specialized Habitat for Wildlife

Significant Wildlife Community	Targeted Wildlife Species	ELC Ecosite Codes	SWH Description	Candidate SWH?
Amphibian Woodland Breeding Habitat	Red-spotted Newt, Blue-spotted Salamander, Spotted Salamander, Gray Treefrog, Spring Peeper, Chorus Frog, Wood Frog	Woodlands, not considered significant from FOC, FOM, FOD, SWC, SWM and SWD communities.	Applies to woodlands not considered significant in Technical Paper 1. Some small wetlands may not be mapped and may be important breeding pools for amphibians. These wetland breeding pools may be permanent, seasonal, ephemeral, large or small in size and could be located within or adjacent to the woodland. Presence of breeding population of 2 or more of the listed species with at least 20 (approximate) breeding pairs within.	Woodland on the property is significant accoring to the ORMCP Technical Paper No. 1. All wetlands on the property are HSF.
Amphibian Breeding Habitat (wetlands)	Red-spotted Newt, Blue-spotted Salamander, Spotted Salamander, American Toad, Gray Treefrog, Spring Peeper, Chorus Frog, Leopard Frog, Pickerel Frog, Green Frog, Mink Frog	MAM, SAS1, SAM1, SAF1, SWT	Wetlands and pools supporting high species diversity are significant. Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging and escape and concealment form predators.	All of the identified amphibian breeding habitat is contained within the identified wetland habitat on the property and is therefore, already protected as a HSF.

Significant Wildlife Community	Targeted Wildlife Species	ELC Ecosite Codes	SWH Description	Candidate SWH?
Interior Forest Breeding Birds	Whip-poor-will, Yellow-bellied Sapsucker, Red-breasted Nuthatch, Veery, Blue-headed Vireo, Northern Parula, Black-throated Green Warbler, Blackburnian Warbler, Pine Warbler, Black-and-white Warbler, Ovenbird, Scarlet Tanager.	FOC, FOD, FOM, SWC, SWM, SWD	There should be several large forests (30-100+ha) and should comprise of a closed canopy of large trees. Forests should have a variety of vegetation layers. The minimum interior forest habitat is at least 100m from any edge habitat.	No. No forest habitat of sufficient size is present on site or adjacent lands.
Open Country Bird Species	Bobolink*, Brown Thrasher, Clay-coloured Sparrow, Eastern Bluebird, Eastern Kingbird, Eastern Meadowlark*, Field Sparrow, Grasshopper Sparrow, Horned Lark, Northern Harrier, Savannah Sparrow, Upland Sandpiper, Vesper Sparrow, Western Meadowlark.	CUM, CUT, CUS	Large grassland areas with areas of at least 10ha with a variety of vegetation structure and density. Larger grasslands in the ORM up to 30ha in size are most likely to support and sustain a diversity of these species. 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. Presence of nesting or breeding pairs of 5 or more of the listed species.	No. No suitable habitat present on the property.
Wetland Breeding Bird Species	American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Sedge Wren, Black Tern, Wilson's Phalarope, Purple Gallinule, Sandhill Crane, Common Loon	MAM, SAS1, SAM1, SAF1	Nesting occurs in wetlands with robust emergent vegetation. Size of wetland is not important as long as there is shallow water with emergent aquatic vegetation present.	None of the targeted species were observed during Azimuth's field investigations. All of the wetland features on site are considered to be HSF and will be protected with a 30m vegetation protection zone.
Raptor Nesting Habitat	Northern Harrier, Osprey, Short-eared Owl	Ecosites directly adjacent to riparian areas; streams, rivers, lakes, ponds and wetlands: CUM, FOM8, FOD	Nests are associated with lakes, ponds, rivers or wetlands. Osprey nest along forested shoreline. Short-eared Owl and Northern Harrier nest on wet ground in open areas, including sedge marshes and wet fields with sufficient ground cover for young and cover for food source.	No. No suitable habitat for Northern Harrier, Osprey and Short-eared Owl. No raptor nests observed on site or adjacent lands.
Raptor Nesting Habitat	Broad-winged Hawk, Northern Goshawk, Coopers Hawk, Sharp-shinned Hawk, Northern Saw-whet Owl, Red-shouldered Hawk, Eastern Screech Owl, Barred Owl, Long-eared Owl.	FOM, FOD, SWC, SWM, SWD	Nests in intermediate aged to mature conifer, deciduous or mixed woodlands within tops or crotches of trees.	No. No raptor nests were observed during Azimuth's field investigations on site or on adjacent lands. Forest habitat on adjacent lands are identified as a KNHF and thus protected.

Significant Wildlife Community	Targeted Wildlife Species	ELC Ecosite Codes	SWH Description	Candidate SWH?
Turtle Nesting Habitat and Turtle Overwintering Areas	Midland Painted Turtle, Common Map Turtle, Common Snapping Turtle	MAM, SAS, SAM, SAF, BOO, FEO	Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes and rivers. Must provide sand and gravel that turtles are able to dig in. Overwintering sites are permanent water bodies, large wetlands and bogs.	Yes. Candidate Significant Wildlife Habitat for Turtle Nesting and Overwintering habitat. An open sandy area exists immediately adjacent to wetland #3 (Figure 2a). This sandy feature has the potential to provide suitable turtle nesting habitat. Furthermore, any of the wetlands that contain water throughout the year have the potential to offer suitable overwintering habitat (Wetland #3 and #6). Neither of these features have been confirmed as nesting/overwintering habitat.
Seeps and Springs	Wild Turkey, White-tailed Deer	N/A	Seepage areas, springs, and small intermittent streams.	Seeps and springs were not identified on the property.

Habitat for Species of Conservation Concern (Not including Endangered, Rare and Threatened Species)

Wildlife Species	ELC Ecosite	Habitat Description, Defining Criteria	Candidate SWH?
Brown Thrasher	CUT1, CUS1	Open pastures, early successional habitats, marginal farmland areas of low dense woody vegetation, hawthorn pasture. Shrubby fields, including old hayfields and pasture >10ha. Does not include areas of intensive agriculture such as cropland and orchards.	No suitable habitat. Brown Thrasher was detected during Azimuth's 2013 breeding bird surveys however, there was no CUT1 or CUS1 habitat present on the property in 2013. Currently, the property is being cultivated (i.e. Corn).
Bobolink*			
Eastern Meadowlark*			
Field Sparrow	CUT, CUS1	Open fields with low shrubs, abandoned pastures, and thickets. Shrubby fields, including old hayfields and pasture >10ha. Does not include areas of intensive agriculture such as cropland and orchards.	No suitable habitat. Field Sparrow not documented during Azimuth's breeding bird surveys.
Western Meadowlark	CUM1	Open grassy meadows, pastures and hayfields. Large grassland fields, including hayfields and pasture >10ha. Does not include areas of intensive agriculture such as cropland and orchards.	No suitable habitat. Western Meadowlark was not detected during Azimuth's breeding bird surveys.

Wildlife Species	ELC Ecosite	Habitat Description, Defining Criteria	Candidate SWH?
Upland Sandpiper	CUM1	Open pastures, hayfields with alfalfa or clover, with little to no shrubs. Large grassland fields, including hayfields and pasture >25ha. Does not include cropland and orchards.	No suitable habitat. Upland Sandpiper was not detected during Azimuth's breeding bird surveys.
Bullfrog	MAM, SAS, SAM, SAF	Large marshes or permanent waterbodies.	Potentially suitable habitat present on site. Species not detected during Azimuth's anuran amphibian surveys.
Ruffed Grouse	FOM, FOD, CUP	Nests in early successional forests, strongly associated with poplar and aspen stands. Studies confirming presence of viable breeding population in a woodland 25ha or greater is considered significant.	Woodland on adjacent lands is not of sufficient size to be considered significant habitat for Ruffed Grouse. Species not observed during Azimuth's field investigations.

* This species is currently designated as Threatened under the Endangered Species Act and therefore will be dealt with within sections that pertain to Threatened and Endangered Species.

Table 7. Key Natural Heritage Feature and Hydrologically Sensitive Feature within Minimum Area of Influence

Feature	Minimum Area of Influence (MAI)	Study Area Within MAI?
Wetlands	All land within 120metres of any part of feature	Yes. Six wetlands have been identified on site. The property is within 120m of several MNRF identified wetlands that are located off-site.
Significant portions of habitat of endangered, rare or threatened species	All land within 120metres of any part of feature	Yes. Butternut (END) were identified on the property (Figure 2).
Fish Habitat	All land within 120metres of any part of feature	Yes. Wetland # 4 could provide habitat for fish. The intermittent stream could provide indirect fish habitat. The property is within 120m of fish habitat (i.e. Cold Creek).
Areas of natural and scientific interest (life science)	All land within 120metres of any part of feature	No
Areas of natural and scientific interest (earth science)	All land within 50metres of any part of feature	No
Significant Valleylands	All land within 120metres of any part of feature	Yes. There are no Significant Valleyland Features identified on the property itself, however, the property is within 120m of Significant Valleyland (i.e. Cold Creek corridor).
Significant Woodlands	All land within 120metres of any part of feature	Yes. The property in part contains Significant Woodland. Additionally, the property is within 120m of Significant Woodland off-site.
Significant Wildlife Habitat (SWH)	All land within 120metres of any part of feature	Yes. SWH has been identified on site. There is no known (i.e. mapped) significant wildlife habitat within 120m of the property.
Sand barrens, savannahs and tallgrass prairies	All land within 120metres of any part of feature	No
Kettle lakes	All land within 120metres of any part of feature	No
Permanent and intermittent streams	All land within 120metres of any part of feature	Yes. Intermittent stream identified on site. Permanent streams (i.e. Cold Creek) is located within 120m of the property.
Seepage areas and springs	All land within 120metres of any part of feature	No.

Table 8. Environmental Policy Area Components

Component	Features Included	Setback Applied
Woodland Core/KNHF - Woodland	ELC Communities: FOD4-2 and FOD3-1 and adjacent FOD community.	30m as per ORMCP MVPZ
Wetland Core/KNHF/HSF - Wetland	ELC Communities: MAM3-2, MAS2-1, SAF1-3, SWT2-5, SWD3-2, SAS1-3 and adjacent wetland community (i.e. pond).	30m as per ORMCP MVPZ
Threatened and Endangered Species	Butternut (END)	Compensation required for the removal of the four retainable Butternut trees. Minimum 30m setback to remaining retainable Butternut trees.
Significant Wildlife Habitat		All identified confirmed and candidate SWH is contained within KNHF/HSF and their associated MVPZ.
Fisheries	Intermittent watercourse identified on site that could contribute to fish habitat downstream. Wetland features that contain water year-round offer fish habitat.	30m as per ORMCP MVPZ
HSF – Permanent and intermittent watercourses	Intermittent watercourse located mid-property.	30m as per ORMCP MVPZ

Table 9. Potential impacts on ORM Hydrogeolocically Sensitive features as per ORMCP Technical Paper 12

Type of Impact	Potential Impact	Assessment
Direct	Area replaced by impermeable surface	Impermeable surfaces (building, parking lots, driveway access) equal approximately 0.83ha. Therefore approximately 8% of the developable 10.7ha land area (not including wetland areas) will be replaced with “hard surfaces”.
	Area where soil compaction will occur	All areas of soil compaction will become components of built features (i.e. building, parking lots, driveway, etc.).
	Area where vegetation will be removed	There will be no removal of any natural vegetation communities to accommodate the proposed development.
	Vegetation cover pre and post-development	Pre-development vegetation cover – row crop farm land, cultural meadow, wetland and forest. Post-development vegetation cover – cultural meadow (100% of existing), all existing forest cover (100% existing) and all existing wetland (100%of existing).
Indirect to water regime	Increase/decrease in runoff (amount and rate)	The proposed development maintains the existing flow patterns to on-site wetland and drainage features as minimal site grading is proposed. The only slight change to runoff would be from the proposed road which will convey a minor amount of storm runoff to the proposed bioretention area.
	Redirection of runoff	See above comment.
	Increase/decrease in sedimentation	Since most of the study contains land that is actively farmed there is a considerable amount of exposed soil surface on-site. Farming will cease post-development and portions of the site associated with the residential lots will be landscaped. Therefore, the proposed development is likely to decrease sedimentation risk to adjacent wetlands and drainage features.
	Changes in water quality (surface and groundwater)	Surface water derived from the site will continue to be directed to on-site wetlands, with the exception of surface water directed to the bioretention area. The bioretention area will be a point of infiltration to the ground water regime and will reduce the infiltration deficit so that pre- and post-development infiltration will be approximately the same.
	Changes in water temperature	The proposed development will not alter the ground water temperature. Runoff discharge to the bioretention area may be slightly warmed during the summer months however this will be minimized since the principal amount of stormwater that is captured in the summer will infiltrate, and be subject to cooling as it migrates through the subsurface.
	Changes in recharge capacity of site	The recharge capacity is related to the permeability and vegetation cover of the site. Approximately 8% of the site will be converted to hard surface, and thus there is a reduction in permeability. The change in vegetation will generally reduce evapotranspiration,thus infiltration capacity will rise in these areas. In addition, the bioretention area will allow infiltration through its base, and septic systems will provide additional ground water infiltration, which will create a gain between pre- and post-development infiltration.
	Water uses that will be part of the proposed development and associated impacts on baseflow, surface storage and groundwater table	Potable water supply will be municipally serviced. Waste water will be directed into individual septic beds on each lot.

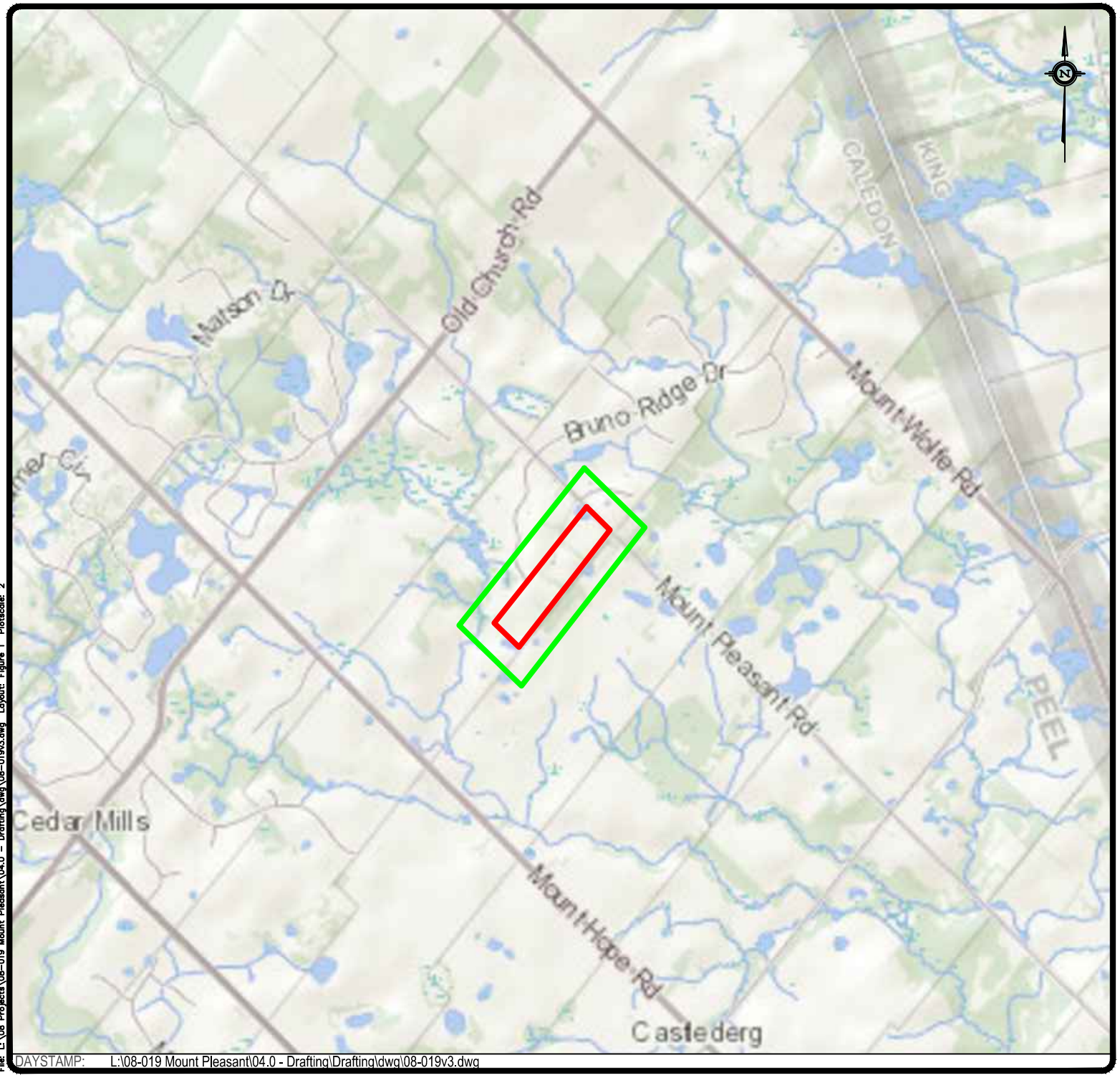
Table 10. Comprehensive Impact Assessment

			Potential Impact				
Environmental Feature	**Performance Measure/ORMCP Requirement**	**On Property or Adjacent Lands**	**Direct**	**Indirect**	**Cumulative**	**Mitigation**	**Management/Monitoring**
Woodland	No new development in Woodland Core or other areas (Sections 3.2.5.3.1 & 3.2.5.3.2 TCOP). No development within 30m (i.e. MVPZ) of significant woodlands (ORMCP).	Bordering property and in part, extending onto the eastern side of property.	**None**. No components of the proposed development require encroachment into Woodland Core habitat.	**None**. No components of the proposed development require encroachment into Woodland MVPZ. 30m MVPZ adjacent to the Core Woodland is more than adequate to protect critical root zone of forest edge trees.	Over time, will result in an increase of woodland on the site post-development.	None	None
Wetlands	No new development in Wetland Core permitted (Section 3.2.5.4.1 TCOP) or other wetland if it would result in degradation of ecosystem integrity (Section 3.2.5.4.2 TCOP). The quality and quantity of surface water entering Wetland Core areas shall be maintained or enhanced/restored (Section 3.2.5.4.5 TCOP). No development within 30m (i.e. MVPZ) of wetland (ORMCP).	On property and on adjacent lands including lands immediately to the east of the site and within 120m. Wetland Core on the property is a part of the Mount Wolfe Provincially Significant Wetland Complex.	**None.** No components of the proposed development require encroachment into Wetland Core habitat.	**None**. No components of the proposed development require encroachment into identified Wetland Core. No encroachment in to the 30m MVPZ or loss in the protection of the form and function of the wetlands. Azimuth's Hydrogeologic Assessment Report indicates balance between the pre- and post-development infiltration under average conditions. On a yearly basis, any small fluctuations may change the infiltration/runoff ratio, however, there is no change to the receiving bodies.	**None**. No direct or indirect impacts.	Sediment and erosion control strategy is required to mitigate impacts associated with sedimentation during earthworks throughout the duration of the construction period. The Core Wetlands and required buffer zone should be considered 'no touch' zone during all earthworks on the property.	Continuous monitoring and inspection of sediment and erosion control measures to ensure that the wetlands are not negatively impacted during construction. Any deficiencies must be repaired immediately to protect aquatic resources at all times.
Habitat of Threatened and Endangered Species	New development within the Significant Habitat of Threatened and Endangered Species accordance with Section 5.7, with the exception of the permitted uses as specified in policy 5.7.3.1.2.or as may be permitted in accordance with provincial and federal legislation and policies (i.e. Endangered Species Act) (Section 3.2.5.9 of TCOP)	On property.	**Butternut:** The proponent must prepare a Butternut Compensation Planting Plan for the removal of 4 retainable Butternut trees that were prematurely removed from the site. Compensation in the form of planting will be required if any additional 'retainable' trees will be harmed or killed as a result of the proposed development.	**None:** All retainable Butternut trees remaining on the landscape should have at least a 25m buffer around each of these trees.	**None.**	Sediment and erosion control strategy is required to prevent encroachment into the MVPZ and to mitigate impacts associated with sedimentation during earthworks throughout the duration of the construction period.	Continuous monitoring and inspection of sediment and erosion control measures to ensure that the natural heritage features and their associated MVPZ are not negatively impacted during construction.
Wildlife Habitat	New development within Significant Wildlife Habitat is prohibited in accordance with Section 5.7 with the exception of the permitted uses as specified in policy 5.7.3.1.2 (Section 3.2.5.11	Candidate and confirmed SWH on property and potentially on adjacent lands.	**None.** All SWH identified in Section 6.7 of Azimuth's EIS & MP will remain post-development.	**None.**	**None.**	Sediment and erosion control strategy is required to prevent encroachment into the MVPZ and to mitigate impacts associated with	Continuous monitoring and inspection of sediment and erosion control measures to ensure that the natural heritage features and their associated MVPZ are not

			Potential Impact				
Environmental Feature	**Performance Measure/ORMCP Requirement**	**On Property or Adjacent Lands**	**Direct**	**Indirect**	**Cumulative**	**Mitigation**	**Management/Monitoring**
	of TCOP)					sedimentation during earthworks throughout the duration of the construction period. The sediment fencing will also help to prevent wildlife from entering into the construction zone.	negatively impacted during construction.
Fisheries	No new development in Core Fishery Resource Areas (Section 3.2.5.10.1 TCOP). No new development in other fishery resource areas or lands adjacent to Core Fishery Resource Areas unless it can be achieved with no harmful alteration, disruption or destruction of fish habitat or there will be no net loss of productive capacity of fish habitat (Section 3.2.5.10.3 TCOP). The quality and quantity of surface water entering core fishery resource areas shall be maintained or enhanced/restored (Section 3.2.5.10.4 TCOP). No development within 30m (i.e. MVPZ) of fish habitat (ORMCP).	On property. Potential fish habitat within wetland #4 (unconfirmed). Indirect fish habitat provided due to presence of intermittent stream. Fish habitat on adjacent lands within 120m of the site including potential habitat identified wetland features and watercourse (i.e. Cold Creek).	**None**. No components of the proposed development require encroachment into the identified intermittent watercourse or wetland features that are currently functioning as fish habitat (direct or indirect).	**None**. Azimuth's Hydrogeologic Assessment Report indicates that proposed development will not affect the quantity of surface or ground water contributions to fish habitat. No direct discharge of surface water to fish habitat.	**None**. No direct or indirect impacts.	Sediment and erosion control strategy is required to mitigate impacts associated with sedimentation during earthworks throughout the duration of the construction period. The wetlands and required buffer zone should be considered 'no touch' zone during all earthworks on the property.	Continuous monitoring and inspection of sediment and erosion control measures to ensure that the wetlands are not negatively impacted during construction. Any deficiencies must be repaired immediately to protect aquatic resources at all times.
Valley and Stream Corridors	New development is prohibited in valley and stream corridors (Section 3.2.5.12.1 TCOP). Valley and stream corridors identified through more detailed studies shall be placed in EPA designation (Section 3.2.5.12.3 TCOP).	Adjacent lands within 120m of property (i.e. Stream corridor associated with Cold Creek).	**None**. No components of the proposed development require encroachment into valley that is located off-site and to the west of the site (within 120m).	**None.** The proposed development is located >30m from adjacent valleyland feature. Azimuth's Hydrogeologic Assessment Report indicates that proposed development will not affect the quantity of surface or ground water contributions to the natural heritage features. There will be no alterations to the form and function of this feature.	**None**. No direct or indirect impacts.	None.	None.
Ground water	New development must ensure that the quality and quantity of groundwater recharge and discharge and flow distribution of groundwater are protected, maintained or if possible enhanced (Section 3.2.5.13.1	On property and adjacent lands.	**None**. No components of the proposed development should encroach into the ground water table.	**None.** Reduction in infiltration is not expected due to mitigation strategies (i.e. rooftop drainage, bioretention area).	**None**. No direct impacts. Potential indirect impact can be completely mitigated.	Mitigation as per recommendations of Preliminary Engineering and Stormwater Management Report (Calder Engineering Ltd., 2017).	None

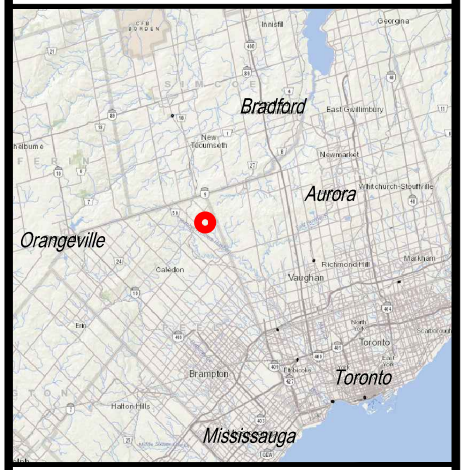
			Potential Impact				
Environmental Feature	**Performance Measure/ORMCP Requirement**	**On Property or Adjacent Lands**	**Direct**	**Indirect**	**Cumulative**	**Mitigation**	**Management/Monitoring**
	TCOP). As per ORMCP requirements for development of a HE (ORMCP Technical Paper 12, Section 5.3) as detailed below.						
Natural Slopes	Slopes which form part of a valley and stream corridor are to be designated EPA (Section 3.2.5.15.2 TCOP). The alteration of existing slopes and landforms shall be minimized, and significant topographic features shall generally be preserved and incorporated into new developments as appropriate (Section 3.2.5.15.4 TCOP).	Adjacent lands within 120m of property. A knoll is located within the central portion of the property.	**None**. No components of the proposed development require encroachment into valley feature that is located off-site. The majority of the site grades will be preserved. Thus, the overall landform is not being subjected to significant alteration.	**None.** The proposed development is located >30m from adjacent valleyland feature.	**None**. No direct or indirect impacts.	None.	None.
Oak Ridges Moraine KNHF	ORM KNHF and their related MVPZ are to be designated EPA (Section 3.2.5.16.1 TCOP). New development within KNHF and associated MVPZ (i.e. EPA area) is generally prohibited (Section 3.2.5.16.2 TCOP). As per ORMCP requirements for development of a NHE for all KNHF (ORMCP Technical Paper 8, Section 5.3) as detailed below.		ORM KNHF and their related MVPZ fully contained within area defined as EPA (Figure 4).	See Below	See Below	See Below	See Below
Significant Woodland	No development within 30m (i.e. MVPZ) of the base of the outermost tree trunks within the Significant Woodlands (ORMCP)	See Woodland above.	See Woodland above.	See Woodland above.	See Woodland above.	See Woodland above.	See Woodland above.
Wetland	No development within 30m (i.e. MVPZ) of Significant Wetlands (ORMCP)	See Wetlands above.	See Wetlands above.	See Wetlands above.	See Wetlands above.	See Wetlands above.	See Wetlands above.
Habitat of Endangered and Threatened Species	No development within KNHF. MVPZ to be determined by NHE.	See Habitat of Endangered and Threatened Species above.	See Habitat of Endangered and Threatened Species above.	See Habitat of Endangered and Threatened Species above.	See Habitat of Endangered and Threatened Species above.	See Habitat of Endangered and Threatened Species above.	See Habitat of Endangered and Threatened Species above.

			Potential Impact				
Environmental Feature	**Performance Measure/ORMCP Requirement**	**On Property or Adjacent Lands**	**Direct**	**Indirect**	**Cumulative**	**Mitigation**	**Management/Monitoring**
Wildlife Habitat	No development within feature or within protection zone. MVPZ to be determined through the NHE	See Wildlife Habitat above.	See Wildlife Habitat above.	See Wildlife Habitat above.	See Wildlife Habitat above.	See Wildlife Habitat above.	See Wildlife Habitat above.
Permanent and intermittent streams	No development within feature or related MVPZ (ORMCP).	On property (intermittent stream) and adjacent lands within 120m of the property (i.e. Cold Creek).	**None**. No impact to intermittent or permanent stream (i.e. Cold Water Creek).	**None**. Azimuth's Hydrogeologic Assessment Report indicates no indirect impact of the proposed development on surface or ground water contributions to permanent or intermittent streams. HE indicates balance between the pre- and post-development infiltration under average conditions. On a yearly basis, any small fluctuations may change the infiltration/runoff ratio, however, there is no change to the receiving bodies. (See Table 9).	**None**. No direct or indirect impacts.	Sediment and erosion control strategy is required to mitigate impacts associated with sedimentation during earthworks throughout the duration of the construction period. None required as there are no anticipated impacts to permanent stream (i.e. Cold Creek).	Continuous monitoring and inspection of sediment and erosion control measures to ensure that the wetlands are not negatively impacted during construction. Any deficiencies must be repaired immediately to protect aquatic resources at all times.
Fish Habitat	No development within 30m (i.e. MVPZ) of fish habitat (ORMCP)	See Fisheries above.	See Fisheries above.	See Fisheries above.	See Fisheries above.	See Fisheries above.	See Fisheries above.
Significant Valleylands	No development within feature or within 30m (i.e. MVPZ) of stable top of bank.	See Valley and Stream Corridors above.	See Valley and Stream Corridors above.	See Valley and Stream Corridors above.	See Valley and Stream Corridors above.	See Valley and Stream Corridors above.	See Valley and Stream Corridors above.
ORM Hydrogeologically Sensitive Features							
Permanent and intermittent streams	No development within feature or related MVPZ (ORMCP). Development permitted on adjacent land outside MVPZ provided there will be no adverse effects on the HS feature or related hydrological functions (ORMCP).	See Permanent and Intermittent Streams above.	See Permanent and Intermittent Streams above.	See Permanent and Intermittent Streams above.	See Permanent and Intermittent Streams above.	See Permanent and Intermittent Streams above.	See Permanent and Intermittent Streams above.
Wetland	No development within feature (some infrastructure excepted) or related MVPZ (ORMCP). Development permitted on adjacent land outside MVPZ provided there will be no adverse effects on the HS feature or related hydrological functions (ORMCP).	See Wetland above.	**None**. No components of the proposed development require encroachment into wetland habitat	**None**.	**None**. No direct or indirect impacts.	None	None



LEGEND:

- Approx. Property Boundary
- Approx. Study Area



REG MAP

250m 0 750m

HORIZONTAL SCALE 1: 25,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Study Area Location

Pt. Lot 19, Concession 8,
Town of Caledon, ON

DATE ISSUED: *February 2017*	Figure No.
CREATED BY: *JLM*	
PROJECT NO.: *08-019*	1
REFERENCE: *MNRF*	

DAYSTAMP: L:\08-019 Mount Pleasant\04.0 - Drafting\Drafting\dwg\08-019v3.dwg

Plotted by: JMCCARTNEY on April 26, 2017 at 3:34pm
File: L:\08 Projects\08-019 Mount Pleasant\04.0 - Drafting\dwg\08-019v3.dwg Layout: Figure 1 Plotscale: 2

LEGEND:

- Approx. Property Boundary
- Hedgerows
- Permanent Stream
- Intermittent Stream
- Ephemeral Drainage
- Mount Wolfe Provincially Significant Wetland (PSW)
- MNR Identified Wetland
- Retainable Butternut Trees (white)
- Butternut Trees (non-retainable)
- Butternut Trees (Compensation Required)

Upland Vegetation Communities

- CUM1-1 Dry-Moist Old Field Meadow Type
- FOD3-1 Dry-Fresh Poplar Deciduous Forest Type
- FOD4-2 Dry-Fresh White Ash Deciduous Forest Type

Wetland Vegetation Communities

- MAM3-2 Reed Canary Grass Organic Meadow Marsh Type
- MAS2-1 Cattail Mineral Shallow Marsh Type
- SAF1-3 Duckweed Floating-Leaved Shallow Aquatic Type
- SAS1-3 Stonewort Submerged Shallow Aquatic Type
- SWD3-2 Silver Maple Mineral Deciduous Swamp Type
- SWT2-5 Red-osier Mineral Thicket Swamp Type

- Amphibian Survey Stations
- Bird Survey Stations
- # Wetland Number (white)
- Bobolink/Meadowlark Point Count Station (2013)

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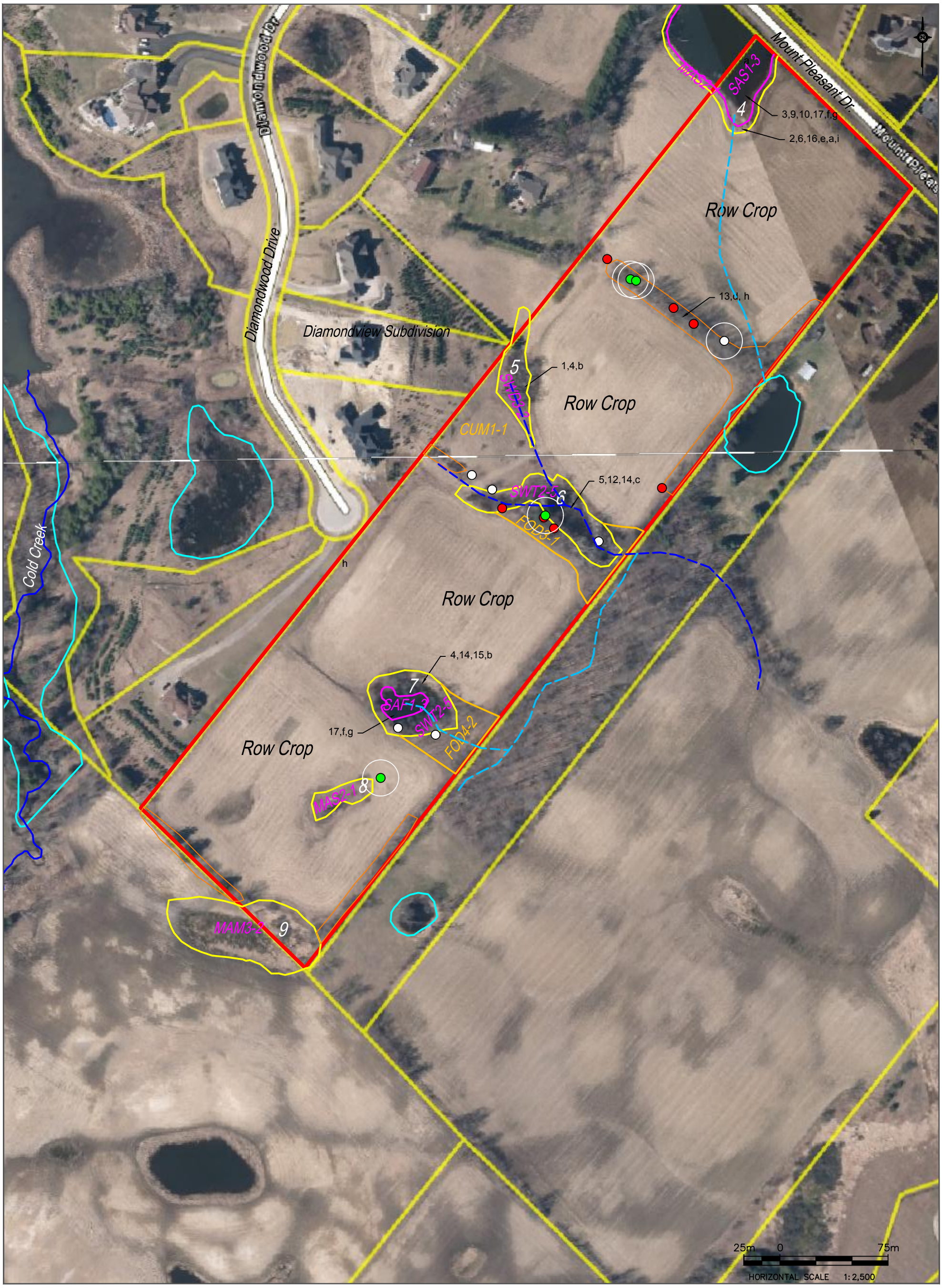
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

ENVIRONMENTAL FEATURES

Natural Heritage Evaluation
Pt. Lot 19, Con. 8, Caledon

Date Issued:	March 2017	Figure No. 2a
Created By:	JLM	
Project No.	08-019	
Reference:	First Base Solutions	



LEGEND:

- Approx. Property Boundary
- Hedgerows
- Permanent Stream
- Intermittent Stream
- Ephemeral Drainage
- Mount Wolfe Provincially Significant Wetland (PSW)
- MNR Identified Wetland
- Retainable Butternut Trees (white)
- Butternut Trees (non-retainable)
- Butternut Trees (Compensation Required)
- Upland Vegetation Communities (as per Figure 2a)
- Wetland Vegetation Communities (as per Figure 2a)

TRCA Rare

1. Highbush Cranberry (L3)
2. Short-awn Foxtail (L3)
3. Wild Calla (L2)
4. Meadow Horsetail (L3)
5. Stiff Marsh Bedstraw (L3)
6. Small-floating Manna-grass (L3)
7. Butternut (L3)
8. Indian-pipe (L3)
9. Floating Pondweed (L3)
10. Flatstem Pondweed (L3)
11. White Oak (L3)
12. Bristly Crowfoot (L3)
13. Smooth Gooseberry (L3)
14. Swamp Red Currant (L3)
15. Shinning Willow (L3)
16. Large Bur-reed (L3)
17. Dotted Watermeal (L3)

ORM Rare

a. Short-awn Foxtail
b. Meadow Horsetail
c. Bristly Crowfoot
d. Smooth Gooseberry
e. Large Bur-reed
f. Dotted Watermeal
g. Columbia Watermeal
h. Black Walnut
i. Purple-leaf Willow-herb

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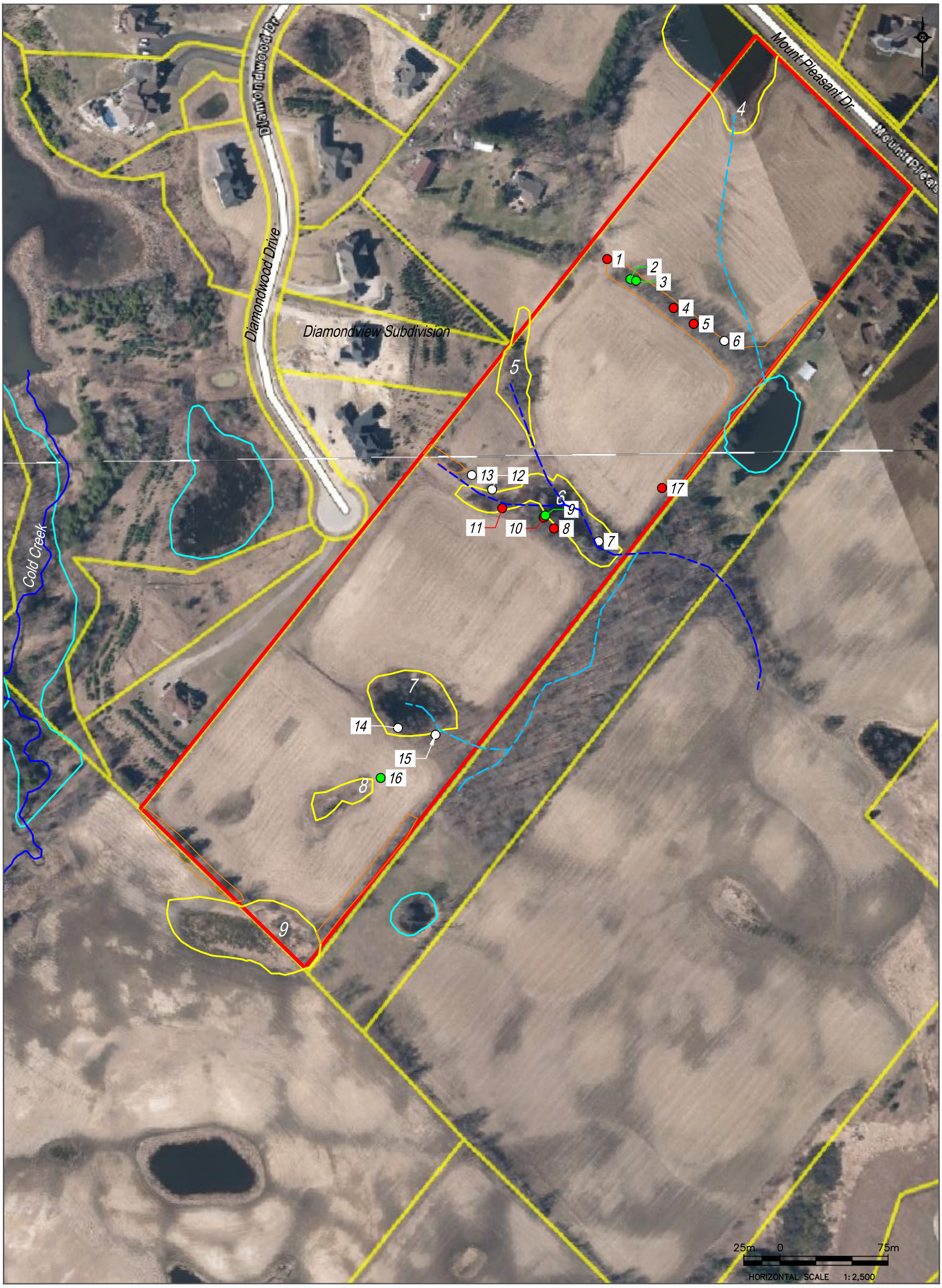
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

ENVIRONMENTAL FEATURES RARE SPECIES

Natural Heritage Evaluation
Pt. Lot 19, Con. 8, Caledon

Date Issued:	March 2017	Figure No. 2b
Created By:	JLM	
Project No.	08-019	
Reference:	First Base Solutions	



LEGEND:

- Approx. Property Boundary
- Hedgerows
- Permanent Stream
- Intermittent Stream
- Ephemeral Drainage
- Mount Wolfe Provincially Significant Wetland (PSW)
- MNR Identified Wetland
- Retainable Butternut Trees (white)
- Butternut Trees (non-retainable)
- Butternut Trees (Compensation Required)

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AZIMUTH ENVIRONMENTAL CONSULTING, INC.

ENVIRONMENTAL FEATURES BUTTERNUTS

Natural Heritage Evaluation
Pt. Lot 19, Con. 8, Caledon

Date Issued:	March 2017
Created By:	JLM
Project No.	08-019
Reference:	First Base Solutions

Figure No. 2c

LEGEND:

- *Approx. Property Boundary*
- *Permanent Stream*
- *Intermittent Stream*
- *30m Minimum Vegetation Protection Zone*

DAYSTAMP: P:\08-019 Mount Pleasant\Drafting\dwg\08-019 FiguresV2.dwg 10/3/2008

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Protection Components: Intermittent Stream

Pt. Lot 19, Con. 8
Town of Caledon

Date Issued:	March 2017	Figure No. 3a
Created By:	JLM	
Project No.	08-019	
Reference:	First Base Solutions	

LEGEND:

- *Approx. Property Boundary*
- *Permanent Stream*
- *Intermittent Stream*
- *30m Minimum Vegetation Protection Zone*
- *Mount Wolfe Provincially Significant Wetland (PSW)*
- *MNR Identified Wetland*

DAYSTAMP: P:\08-019 Mount Pleasant\Drafting\dwg\08-019 FiguresV2.dwg 10/3/2008

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Protection Components: Wetland

Pt. Lot 19, Con. 8
Town of Caledon

Date Issued:	March 2017
Created By:	JLM
Project No.	08-019
Reference:	First Base Solutions

Figure No. 3b

LEGEND:

- *Approx. Property Boundary*
- *Permanent Stream*
- *Intermittent Stream*
- *Woodland Dripline*
- *30m Woodland Dripline Buffer*

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AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Protection Components: Woodland

Pt. Lot 19, Con. 8
Town of Caledon

Date Issued:	June 2017
Created By:	JLM
Project No.	08-019
Reference:	First Base Solutions

Figure No. 3c

LEGEND:

- *Approx. Property Boundary*
- *Permanent Stream*
- *Intermittent Stream*
- *Ephemeral Drainage*
- *Environmental Policy Area/Palgrave Estates Environmental Zone 1 (Outermost limits of Minimum Vegetation Protection Zone)*
- *Environmental Zone 2 (High Ground Water)*
- *Mount Wolfe Provincially Significant Wetland (PSW)*
- *Woodland Dripline*

DAYSTAMP: P:\08-019 Mount Pleasant\Drafting\dwg\08-019 FiguresV2.dwg 10/3/2008

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Recommended Environmental Policy Areas

Pt. Lot 19, Con. 8
Town of Caledon

Date Issued:	March 2017	Figure No. 4
Created By:	JLM	
Project No.	08-019	
Reference:	First Base Solutions	

LEGEND:

- *Approx. Property Boundary*
- *Permanent Stream*
- *Intermittent Stream*
- *Ephemeral Drainage*
- *Environmental Policy Area/Palgrave Estates Environmental Zone 1 (Outermost limits of Minimum Vegetation Protection Zone)*
- *Environmental Zone 2 (High Ground Water)*

DAYSTAMP: P:\08-019 Mount Pleasant\Drafting\dwg\08-019 FiguresV2.dwg 10/3/2008

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Proposed Development Plan

Pt. Lot 19, Con. 8
Town of Caledon

Date Issued:	March 2017	Figure No. 5
Created By:	JLM	
Project No.	08-019	
Reference:	First Base Solutions	

APPENDICES

Appendix A: Terms of Reference
Appendix B: Provincial Data
Appendix C: Oak Ridges Moraine Conservation Plan
Appendix D: Municipal Planning

APPENDIX A

Terms of Reference

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Assessments & Approvals

May 6, 2013 AEC 08-019

Ms. Carmen Jandu
Ventawood Management Inc.
2458 Dundas Street West
Mississauaga, ON
L5K 1R8

Re: Terms of Reference
Hydrogeological Assessment, Natural Heritage Evaluation, Headwaters Assessment and Tree Preservation Plan
Laurelpark Subdivision, Town of Caledon, Ontario

Dear Ms. Jandu:

The following document outlines the proposed Terms of Reference for the:

1. Hydrogeological Assessment
2. Natural Heritage Evaluation (NHE),
3. Headwaters Assessment, and
4. Tree Preservation Plan.

Azimuth Environmental Consulting, Inc. (Azimuth) has been retained to complete the abovementioned studies for the Laurelpark Subdivision. This Terms of Reference has been requested by the Toronto Region Conservation Authority (TRCA) and the Town of Caledon (Town) to ensure that the correct scope of work is agreed upon prior to the commencement of each assessment.

1.0 HYDROGEOLOGICAL ASSESSMENT

The following project elements are proposed to satisfy the requirements of the TRCA and Town from a hydrogeological perspective. These duties will be completed to determine if the proposed Laurelpark Subdivision will have any impact on the existing hydrogeological function of the property and on-site/adjacent natural features (i.e. wetlands, ground water aquifers, drainage patterns, etc.).

1.1 Background Information

The hydrogeological assessment would provide a sufficient amount of background data to provide an understanding of the existing conditions of the subject property and surrounding area. Background information would include:

- Regional and site specific topography and drainage patterns.
- Regional and site-specific geological classifications (regional soil mapping, on-site borehole logs, etc.).
- Geologic cross sections.
- Local water well information (number of wells, locations, total depth, yield, target aquifer zone, etc.) within a 1 km radius of the subject property.
- Local shallow and deep aquifer characteristics (water table elevations, aquifer depths, aquifer thickness, ground water flow patterns, etc.).

1.2 Assessment of On-Site Sensitive Features

The subject property contains a total of six wetland features (identified by MNR) which differ in origin, function and hydroperiod. These wetlands have been monitored by Azimuth for differing periods of time, and four of the six features dry out for extended periods of time during the summer and fall. Using data collected over the last 5 years, conclusions can be made pertaining to the function and sensitivity of each feature. The assessment of the on-site wetlands would include:

- Analysis and presentation of surface/ground water data collected for each wetland.
- Analysis of ground/surface water interaction for each wetland.
- Compare the pre- and post-development conditions for each wetland (alteration of catchment areas, changes in overland/runoff patterns, changes in ground water flow/contribution, etc.).
- Complete a Features-Based Water Balance Assessment (TRCA Guidelines) for any surface water feature (wetland) on the property. Judging by the data collected to date, only two wetlands have been found to maintain water for the entire year.
- Determine the sensitivity and impact potential of each wetland.
- Provide strategies to mitigate any potential impacts to features which are deemed sensitive to the proposed development.

1.3 Features-Based Water Balance Assessment

The follow subsections outline the proposed scope of work for each Features-Based Water Balance Assessment to be done for the on-site wetland features. Along with the

bullet points listed below, the TRCA guideline for completing Features-Based Water Balance assessments will be followed.

Data Collection and Interpretation

- Utilize existing data collected by Azimuth between June, 2008 and April 2013 (wetland water level data collected by automatic pressure transducers) and climate data from Environment Canada or other agencies.
- Analyze and compare Azimuth short term data to long term data in an attempt to correlate climatic events.
- Utilize Environment Canada (or other available stations) long term data to determine monthly climatic characteristics for the local area. Multiple weather stations will be considered in an effort to obtain most accurate data.

Evaluation of Existing Features

- Define on-site catchment area for each wetland.

Water Balance Assessment

- Utilize relevant monthly climate data as a basis for each feature/catchment area.
- Determine hydroperiod for each feature using climate data
- Determine interrelation between each feature and the local shallow ground water table.
- Compare pre-development and post-development impacts for each feature/catchment area.
- Recommend mitigation strategies (if needed) for potential developmental impacts to features.

1.4 Water Balance Assessment

In order to determine the potential changes to the natural ground water recharge conditions on the subject property, a pre- and post-development water balance assessment would be completed. This assessment would include the following elements:

- Analyze historical climatic data provided by Environment Canada and other agencies.

- Determine the pre-development ground water recharge condition on the subject property based on average annual precipitation data, and the capability of the on-site surficial soils to infiltrate captured precipitation.
- Determine the potential for the pre-development ground water recharge condition to change on a post-development basis by analyzing the proposed development plan (percentage of impervious surface, grading changes, mitigation strategies, etc.).
- Provide strategies to mitigate the potential loss of ground water recharge on a post development basis, if applicable.

1.5 Septic Effluent Impact Assessment

It is proposed that an assessment of potential nitrate impacts to local domestic ground water supplies be completed. Potential impacts to the local ground water regime are dependent upon the local hydrogeology/hydrology and the contaminant concentrations contained within the effluent (i.e., nitrate). For ground water purposes, the assessment would be examined within the scope of the MOE Reasonable Use Policy (RUP). This assessment would include the following elements:

- Nitrate dilution calculations (detailed calculations to estimate nitrate concentrations in underlying ground water).
- Water Budget Assessment.
- Reasonable Use Policy (RUP) assessment (detailed calculations to estimate nitrate concentrations in ground water at the lot and property boundaries with the addition of effluent from proposed septic systems).

1.6 Surface and Ground Water Quality Assessment

In order to assess the quality of surface and ground water at the subject property, it is proposed that sampling of the existing features be completed to provide laboratory results for a wide array of water quality parameters. This assessment would consist of the following elements:

- Sample each on-site surface water feature (wetlands) for laboratory analysis of inorganic, metals and nutrient parameters.
- Sample two on-site ground water monitoring wells (shallow and deep) for laboratory analysis of E.coli, inorganic, metals and nutrient parameters
- Sample one neighbouring residential well (if allowed) which targets a deeper aquifer than those targeted by the on-site monitoring wells for laboratory analysis of E.coli, inorganic, metal and nutrient parameters.

- Anaylze surface and ground water laboratory testing results and identify exceedences of the Provincial Water Quality Objectives (PWQO) and Ontario Drinking Water Quality Standards (ODWQS).
- Potential impact to wetland(s) due to change in ground water quality in post-development.

1.7 Recommendations and Conclusions

Azimuth would provide recommendations and conclusions based on the data collected to complete each assessment described above. The purpose of this Hydrogeological Assessment is to evaluate the existing conditions of the subject property from a hydrogeological perspective, and identify potential impacts which may occur due to the construction of the proposed estate residential development. If impacts are identified, Azimuth would provide mitigative strategies which could be employed in an attempt to balance pre- and post-development conditions

2.0 NATURAL HERITAGE EVALUATION

As indicated above, prior to the completion of our NHE report, we would like to formerly establish a scope for the environmental assessment work related to this proposed development. To assist in this regard we have collected some background information and provide the following information.

2.1 Background Information

2.1.1 Town of Caledon

The property is within the Palgrave Estate Residential Community within the Town of Caledon's Official Plan. According to Schedule G of the TCOP the property is partially located within Policy Areas Policy Areas 1 and 4. The majority of the property is designated as Policy Area 1, which is prime for future estate residential. A small portion of the property is identified as Policy Area 4 that is unsuitable for estate residential development.

Schedule I outlines the Environmental Zoning Summary for the Palgrave Estate Residential Community. Portions of the property have been identified as Environmental Zone (EZ) 1. EZ 1 includes more sensitive biological communities; valley and stream corridors and their associated floodplains; native upland and lowland woodlands; natural water bodies; Provincially and locally significant wetlands; and, Environmentally Significant/Sensitive Areas. EZ1 also includes all ORMCP Key Natural Heritage Features and Hydrologically Sensitive Features.

Portions of the property have been identified as Environmental Zone (EZ) 2. EZ2 areas includes areas of high groundwater table (where the water table is usually within 1.5 metres or less of the ground surface); areas of seasonal flooding (not including regulated floodplains); dry swale lowlands and natural depressions which perform natural runoff, detention and groundwater recharge functions; and, smaller hedgerows and strips of native vegetation.

2.1.2 Region of Peel

The Palgrave Estate Residential Community (Region of Peel, Official Plan, 2005) plan states that these lands may be developed for estate residential purposes, subject to the Town's Official Plan. The Region's OP also states that the Plan is in conformance with and should be read in conjunction with the Oak Ridges Moraine Conservation Plan (ORMCP) and the Town of Caledon's OP. The property falls within the ORMCP area and the Provincial Greenbelt according to the Region of Peel Official Plan.

2.1.3 Provincial Greenbelt Plan

Within the Provincial Greenbelt Plan, the property is a part of the Towns and Villages designation and are therefore not subject to the policies of this plan.

2.1.4 Oak Ridges Moraine Conservation Plan

Within the Oak Ridges Moraine Conservation Plan (ORMCP), a small portion (southwest) may fall within the Natural Linkage Area. Section 14. (1) of the plan states that "Residential development is permitted with respect to land in the Palgrave Estates Residential Community as shown on the land use designation map referred to in Section 2, subject to the Town of Caledon Official Plan, as amended from time to time, and to the following provisions of this Plan: Sections 20 to 26, Subsection 27 (3), Sections 28 and 29, Subsections 30 (1), (12) and (13), Subsections 41 (1), (4) and (5), Sections 42 to 47 and the Table to Part III.

The purpose of the Natural Linkage Area as identified in the ORMCP is to improve or restore the ecological integrity of the area and to maintain linkages between Natural Core Areas and along river valleys and stream corridors as outlined in Section 12 of the plan. Furthermore, development within Key Natural Heritage Features (See section 22 (1.)) is prohibited.

The property is considered to be a part of the Landform Conservation Area 2. An application for development or site alteration with respect to land in a landform

conservation area (Category 2) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum. An application for major development with respect to land in a landform conservation area of either category shall be accompanied by a Landform Conservation Plan. The ORMCP Technical Paper 4 – Landform Conservation will be utilized to provide guidance in the interpretation and application of the landform conservation policies of the ORMCP. The Landform Conservation Plan will be a separate stand-alone report to the NHE but may be included within an appendix of the NHE report;

2.1.5 Toronto and Region Conservation Authority

The property contains areas regulated under the Ontario Regulation 166/06 by the Toronto and Region Conservation Authority (TRCA) under the Conservation Authorities This regulation restricts and/or strongly regulates development and/or alteration in and around lands identified as ravines, valleys, steep slopes, wetlands, watercourses, flood plains, valley lands and shorelines. The TRCA may grant permission for development, in the form of a permit, within the regulated area if, in its opinion, the conservation of land will not be affected by the development. This permit is required prior to any site alteration or construction within any of the regulated areas.

2.2 Land Use

The majority of the property is composed of agricultural fields and cultural meadow devoid of tree and shrub vegetation. There are no structures on the property.

The property immediately to the northwest has been cleared and is currently being developed for residential use (Diamondwood Subdivision). Lands within the area are largely composed of agricultural lands with natural heritage features scattered throughout and residential homes.

The topography of the property is undulating with moderate to steep slopes.

There have been no watercourses identified on the property.

There are two treed deciduous hedgerows. Several small wetland (thicket/swamp) features exist on the property all of which contain standing water for at least a portion of the year (Figure 2).

2.3 Existing Data

A meeting was held in June 2012 between the proponent, the Town of Caledon, Region of Peel and TRCA [Town DART submission meeting]. Direction was sought from the TRCA on the required scope of the NHE for the property. Based on this meeting and through subsequent email correspondence, TRCA indicated that they were satisfied with the utilization of the 2008 field data and that new surveys were not required.

To date, the following field studies have been completed on the property as it relates to the Natural Heritage Evaluation:

Amphibians:	May 28, 2008 and June 26, 2008
Birds:	June 12, 2008 and July 9, 2008
Vegetation:	May 27, 2008, August 11 and 12, 2008 and September 19, 2008
Butternut:	September 19, 2008 (Site meeting with MNR) June 2011 – Azimuth conducted Butternut Health Assessment July 5, 2011 – MNR audit assessments (Bohdan Kowalyk attended site) August 2012 – Azimuth conducted Butternut Health Assessment on 3 additional individuals.
Wetlands:	July 10, 2012 MNR attended the site to identify all of the wetlands on the property. Subsequently, these features were staked and surveyed.
Woodland dripline:	July 10, 2012 TRCA attended the site to stake the dripline of the woodlot features. Subsequently, the dripline was staked and surveyed.

2.4 Scope of Work

Azimuth proposes to complete the following activities to produce a NHE.

- Confirm required scope of work through consultation with TRCA;
- Complete one anuran amphibian survey in 2013 to document any early season breeders that may be utilizing the property. The survey will be completed as per protocols outlined in the BSC's Marsh Monitoring Program;
- Consult with the Ministry of Natural Resources (MNR) to acquire any updated available background information;
- Conduct a Species at Risk Screening for the property;
- Prepare a Butternut Planting Plan as per MNR standard for the proposed removal of 3 Butternut trees that have been assessed as 'retainable'. Plan will be submitted to MNR and will be appended to the NHE. The original Butternut

Health Assessments that have been submitted and accepted by MNR will also be appended to the NHE report;

- Utilize the existing data collected on the property by Azimuth in 2008 through to 2012 to identify the Key Natural Heritage Features and Key Hydrologic Features of the site as per Town, Region, ORM and Provincial guidelines;
- Map vegetation communities and other environmental features (watercourses, wetlands, areas of ground water discharge, etc.) on ortho-air photos;
- Assess the potential direct and indirect impacts of the proposed development on the Key Natural Heritage Features as described above;
- Develop an appropriate avoidance/mitigation/restoration strategy including any required setbacks to the identified features to address the potential environmental impacts; and
- Prepare one NHE report for circulation to approval agencies.

All relevant policies of the Town of Caledon, Province (PPS, Endangered Species Act, Oak Ridges Moraine) and Conservation Authority will be reviewed and incorporated into the report.

3.0 HEADWATERS ASSESSMENT

Azimuth proposes to complete the following activities to produce a Headwater assessment letter report (to be appended to the Natural Heritage Evaluation Report)

- Utilize the existing data collected on the property by Azimuth in 2011 through to 2012 to identify onsite headwater drainage features;
- Complete a “Headwater Drainage Feature Report” for the site, as per the Credit Valley Conservation & Toronto Region Conservation Authority guiding document titled “Evaluation, Classification, and Management of Headwater Drainage Features: Interim Guidelines”;
- It is expected that this report will be appended to the Natural Heritage Evaluation Report, and be circulated to approval agencies during project review.

4.0 TREE PRESERVATION PLAN

This Arborist assessment is required to satisfy the needs of the Town of Caledon and Toronto Region Conservation Authority (TRCA), and to identify opportunities for tree preservation during and following construction.

4.1 Scope of Work

The scope of work to complete the field and desktop aspects of this project are as follows:

- Undertake a field inventory to identify/assess all trees (=/> 10 cm dbh) within the proposed area of development on the property. The trees will be assessed to define the following:
    - location;
    - Species;
    - Diameter 1.4 m above ground surface;
    - Assessment of tree health including but not limited to structural integrity, % deadwood, crown vigor, pathogenical concerns, decay and potential for failure;
    - A hazard edge assessment is required for all wooded areas and hedgerows within 10 metres of a residential property;
    - Determine which trees should be removed/retained based on inventory data and the proposed development plan provided by the client;
- Provide tree protection/preservation recommendations to employ during and following construction;
- Provide tree compensation recommendations specific to the Town's requirements (2:1 replacement:removal ratio). Every effort shall be made to protect healthy and native vegetation;
- Provide an Arborist Report summarizing all information.

If you have any questions pertaining to the information contained in the document, please do not hesitate to contact the undersigned.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Lisa Moran, B.Sc.Env.
Terrestrial Ecologist
L.A.M./M.J./M.S

Lisa Moran

From: Lisa Moran
Sent: March-29-17 1:38 PM
To: Lisa Moran
Subject: RE: Laurelpark Inc. (Ventawood Management) / IBI Group (Town File: PRE 2016-0141)

From: Leilani Lee-Yates [mailto:LLee-Yates@trca.on.ca]
Sent: Thursday, January 19, 2017 2:51 PM
To: Carmen Navaleza
Cc: mary.nordstrom@caledon.ca; Maria Parish; Evan Bearss; Jehan Zeb; Dilnesaw Chekol; wayne.koethe@peelregion.ca
Subject: Laurelpark Inc. (Ventawood Management) / IBI Group (Town File: PRE 2016-0141)

Hi Carmen,

Further to the DART meeting held on January 12, 2017, TRCA staff have reviewed the letter report titled, "Terms of Reference, Hydrogeological Assessment, Natural Heritage Evaluation, Headwaters Assessment and Tree Preservation Plan, Laurelpark Subdivision, Town of Caledon , Ontario", prepared by Azimuth Environmental Consulting Inc., and dated April 12, 2013, TRCA staff offer the following comments to assist your consultant team with preparing the studies and plans in support of your planning application:

Section 1.3 Features-Based Water Balance Assessment:

1. Please include a monitoring program that explains the short-term (i.e. during construction) and long-term (i.e. minimum 3 years post-construction) monitoring to ensure the mitigation measures are working and meeting the water balance targets. As part of the monitoring program, there will be a need for an adaptive management strategy for both the short-term and long-term monitoring should the mitigation measures not meet the anticipated performance.

2. Data Collection - Please provide the locations of the weather stations you will be using. Locations as close to the property as possible are preferred. Or, we recommend that you install a rain gauge on the site to collect more accurate data. Also, please confirm the time interval of collecting the data. The TRCA guideline requires daily data collection.

3. Water Balance Assessment - TRCA guideline requires that you use daily climate data to run the water balance model. Also, the water balance assessment must use a continuous hydrology model to establish the baseline condition; analyze the post-development impacts on the wetlands; and assess the mitigation strategies, including the use of Low Impact Development (LID) techniques.

Section 1.4 Water Balance Assessment:

1. Page 4, 1st Bullet - please reference the TRCA 2012 Stormwater Management Criteria Document, which establishes our water balance criteria and analysis methodology.

General Stormwater Management (SWM) Comment:

1. Regarding the SWM strategy for the site, we recognize that the sandy soils are conducive for infiltration LID measures, and as such, we encourage you to consider the use of innovative LIDs as part of the SWM strategy rather than a centralized SWM facility. The blocks for such LID measures to manage stormwater should be identified on the draft plan of subdivision.

Please let me know if you have any questions.

Thanks,

Leilani Lee-Yates, MCIP, RPP | Senior Planner, Planning and Development | **Toronto and Region Conservation Authority** | ☎ 416 661-6600 ext. 5370 | ✉ llee-yates@trca.on.ca | www.trca.on.ca
**** Mailing Address:*** 5 Shoreham Drive, Toronto, ON M3N 1S4
*** Location Address:** 101 Exchange Avenue, Vaughan ON L4K 5R6

APPENDIX B

Provincial Data

Ministry of
Natural Resources
Aurora District Office
50 Bloomington Road
Aurora, Ontario L4G OL8

Ministère des
Richesses naturelles

Telephone: (905) 713-7400
Facsimile: (905) 713-7360

Ontario

November 26, 2012

Ms. Lisa Moran
Terrestrial Ecologist
Azimuth Environmental Inc.
85 Bayfield Street, Suite 400
Barrie, ON L4M 3A7
Lisa@Azimuthenvironmental.Com

Re: Update to the Provincially Significant Mount Wolfe Wetland Complex at Palgrave South – Diamondwood (parcel roll number: 21240100012061000000), Town of Caledon, Regional Municipality of Peel

Dear Ms. Moran:

The Ministry of Natural Resources (MNR) was requested to attend a July 10, 2012 site visit to delineate wetlands at Palgrave South - Diamondwood in the Town of Caledon. At the site visit, six wetland boundaries were determined based on a surveyed wetland staking with yourself, professional surveyors, MNR Aurora District staff and Toronto and Region Conservation Authority staff in attendance. The wetland boundaries were agreed to by all parties, at that time. The wetlands were also inventoried for their vegetation communities, soils, plant species and wildlife.

These six wetlands (Wetland Nos. 4-9) have been incorporated into the provincially significant Mount Wolfe Wetland Complex. The nearest wetland (Wetland No. 4) is 442 metres from existing wetlands in the complex, while the other wetlands are 34 to 186 metres from each other (wetlands in a complex must be at least 750 metres from their nearest neighbouring wetlands). The wetlands are also connected by woodland, field and riparian habitats to other wetlands in the complex, and all wetlands in the complex occur in Ecodistrict 6E7 on the Oak Ridges Moraine physiographic region and in the Humber River watershed (Cold Creek subwateshed). The wetlands in the complex are a mix of isolated kettle wetlands and palustrine headwater wetlands for tributaries of Cold Creek.

Wetland No. 4 is a 0.49 hectare (ha) isolated kettle wetland that has an open water aquatic community of submerged Stonewort (*Chara* sp.) ringed by a Common Cattail (*Typha latifolia*) marsh. Wetland Nos. 5 & 6 are headwater kettle wetlands that feed into an intermittent watercourse. Wetland No. 5 is 0.12 ha in size and has a deciduous swamp of Freeman's Maple (*Acer* X *freemanii*), Reddish Willow (*Salix* X *rubens*) and Manitoba Maple (*Acer negundo*) while the 0.25 ha Wetland No. 6 supports a thicket swamp of Bebb's Willow (*Salix bebbiana*) and Red-osier Dogwood (*Cornus stolonifera*). Wetland No. 7 is a 0.22 ha isolated kettle wetland that has an open water aquatic community of floating Columbian Water-meal (*Wolffia columbiana*) and Water Smartweed (*Polygonum amphibium*) ringed by a thicket swamp of Slender Willow (*Salix petiolaris*). Wetland Nos. 8 & 9 are also isolated kettle wetlands. Wetland No. 8 at 0.06 ha has a Common Cattail marsh while the 0.41 ha Wetland No. 9 has a Reed Canary Grass (*Phalaris arundinacea*) marsh.

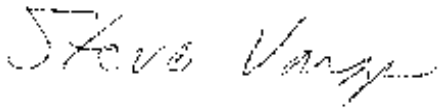
As wetlands under 2 hectares in size, justification must be given for the inclusion of Wetland Nos. 4-9 in the wetland complex. They have been included in the wetland complex for the following reasons: 1. support wetland types and dominant vegetation forms that are uncommon in the wetland complex (Wetland Nos. 4, 5 & 8 have such uncommon communities as deciduous swamp, cattail marsh and submerged open water aquatics), 2. sustain significant species/communities (Wetland Nos. 4, 6 & 7 support plant species that are locally rare and locally uncommon in Ecodistrict 6E7), 3. support breeding amphibians (Wetland Nos. 4 & 7), 4. are headwater areas for watercourses (Wetland Nos. 5 & 6 occur in the headwater reach of a watercourse), 5. are hydrologically connected to other wetlands (Wetland Nos. 5 & 6), and 6. provide intervening wetland habitat between wetlands 2 ha or greater in size that are within the complex or to adjacent wetlands (Wetlands Nos. 4-9 occur between two larger nearby unevaluated wetlands, currently not in the complex, that are situated to the southeast and to the northwest).

A wetland just off the southern edge of the property was also mapped during the site visit and remains for the time being an MNR identified wetland. Based on observations from the edge of the property it is an isolated kettle wetland of 0.24 ha that supports an open water aquatic community of Floating Pondweed (*Potamogeton natans*) and submerged Stonewort ringed by a Reed Canary Grass marsh (see Map: suW, field number 7). Green Frogs were also noted calling from the wetland.

Enclosed is a table of the wetland communities, a list of the vascular plant species found on the site, and a map shows the wetland boundaries for Wetland Nos. 4-9 on an ortho-rectified digital photo base. The updated wetland boundaries have been put into MNR's web-accessible digital warehouse (LIO – Land Information Ontario) and can be accessed in a few weeks at http://www.applio.lrc.gov.on.ca/lids/. The information is stored under the "Wetland Unit" data class.

If you have any questions please do not hesitate to call me at 905-713-7370 or e-mail me at steve.varga@ontario.ca

Yours sincerely



Steve Varga
Inventory Biologist
MNR Aurora District

cc. Mr. Mark Head, Regional Municipality of Peel
Mr. Tim Manley, Town of Caledon
Ms. Carolyn Woodland, Toronto and Region Conservation Authority

1.2.2. Vegetation Communities - Mount Wolfe Wetland Complex (2012 update)

Wet-land #	Field #	Map Code	Vegetation Forms	Dominant Species (Size in hectares; site type: I- isolated, P- palustrine with no inflow, Pi- palustrine with inflow; soil type; O- depth of organics in cm, g- depth to mottling from top of mineral soil in cm and % coverage when available, G- depth to gley from top of mineral soil in cm and % coverage when available; wt- depth to water table in cm when available; sw- % standing water in cm on July 10, 2012; ow- estimated % permanent open water; presence of iron precipitates; significant plant species that are locally rare or uncommon in Ecodistrict 6E7 (Varga et al. 2004) based on observations by Steve Varga, Kyle Vanin & Shannon Dmitruk-Coulter on July 10, 2012; wildlife records based on observations by Steve Varga, Kyle Vanin & Shannon Dmitruk-Coulter on July 10, 2012)
4	6A	suW4	ff,f,su*	ff: Lemna minor, Wolfia columbiana, Spirodela polyrhiza; f: Potamogeton natans; su: Chara sp. (0.41; I; clay; O-5; sw-60-90-100%, ow-100%; significant species: Potamogeton zosteriformis, Wolffia borealis, Wolffia columbiana; wildlife: American Toad yoy, Green Frog calling, scuds (Amphipoda), adult Mallard, backswimmer, damselfly nymph, leech, dragonfly nymph, pond snail, freshwater clam, water scorpion)
4	6B	reM5	re*,ne	re: Typha latifolia ne: Phalaris arundinacea (0.08; I; clay; wt-0; sw-0%, ow-0%; significant species: Alopecurus aequalis, Glyceria borealis, Sparganium eurycarpum; wildlife: Coyote tracks, White-tailed deer tracks, Raccoon tracks, Tretraploid Gray Treefrog yoy, 2 Red-winged Blackbird pairs, Green Frogs 50+, American Toad adult, White-tailed Deer tracks, American Goldfinch, Common Yellowthroat, dragonfly)
5	5	hS3	h*,ts,gc	h: Acer Xfreemanii, Salix Xrubens, Acer negundo; ts: Cornus stolonifera; gc: Aster lanceolatus (0.12; P; clay: 60+cm sandy clay, g-5-70%; sw-0%, ow-0%; wildlife: American Toad yoy)
6	4	tsS4	ts*,gc	ts: Cornus stolonifera, Salix bebbiana; gc: Solanum dulcamara, Siam suave, Aster lanceolatus, Impatiens capensis (0.25; Pi; sand: A Horizon: 30 cm sandy loam & B Horizon: 10+cm fine sand; sw-0%, ow-0%; significant species: Galium tinctorium, Ranunculus pensylvanicus; wildlife: White-tailed Deer tracks, Raccoon tracks, snail)
7	3A	tsS5	ts*,gc,ne	ts: Salix petiolaris, Cornus stolonifera, Salix lucida; gc: Aster lanceolatus, Eupatorium maculatum; ne: Phalaris arundinacea (0.17; I; loam: 30+cm sandy loam, O-30; sw-0%; wildlife: 3 Cedar Waxwings, Tetraploid Gray Treefrog yoy, Diptera)
7	3B	ffW6	ff*,f	ff: Wolfia columbiana; f: Polygonum amphibium (0.05; I; loam: A Horizon: 20 cm sandy loam & B Horizon: 10+cm clay loam; O-30; sw-30-100%, ow-100%; significant species: Wolffia borealis, Wolffia columbiana; wildlife: dragonflys, Green Frog tadpoles 3+, backswimmer)
8	2	reM7	gc,re*,ne	gc: Aster lanceolatus; re: Typha latifolia; ne: Equisetum arvense, Agrostis gigantea, Poa palustris (0.06; I; clay: A Horizon: 30 cm loam & B Horizon: 10+cm clay, O-15; sw-0%, ow-0%; iron precipitates present; wildlife: Red-winged Blackbird, Song Sparrow)
9	1	neM8	gc,ne*	gc: Aster lanceolatus; ne: Phalaris arundinacea (0.41; I; mesic organic, O-70+; sw-0%, ow-0%; wildlife: American Goldfinch, Red-winged Blackbird)

Legend

Vegetation Forms:
h - deciduous trees
ts- tall shrubs
gc- herbs (ground cover)
re- robust emergents
ne- narrow-leaved emergents
f - fixed-floating plants
ff - free-floating plants
su - submerged plants
***- dominant form**

Map Codes:
M - Marsh
S - Swamp

List of Vascular Plants in and around the Mount Wolfe Wetland Complex (Palgrave South - Diamondwood, Town of Caledon)

Legend

Observers and Dates: v- Steve Varga, Kyle Vanin & Shannon Dimtruk-Coulter observations on July 10, 2012

Status: R- locally rare and U- locally uncommon native species in Ecodistrict 6E7 (Varga et al. 2004), N- native species, I- introduced species, I*- possibly introduced species, P- planted species, *- denotes significant species observed outside wetland boundaries

Latin Name	Family	Observer	Status
DICOTS			
Acer negundo	ACERACEAE	v	I*
Acer saccharnum	ACERACEAE	v	N
Acer X freemanii	ACERACEAE	v	N
Rhus typhina	ANACARDIACEAE	v	N
Cicuta maculata	APIACEAE	v	N
Daucus carota	APIACEAE	v	I
Sium suave	APIACEAE	v	N
Apocynum cannabinum	APOCYNACEAE	v	N
Asclepias syriaca	ASCLEPIACEAE	v	N
Achillea millefolium	ASTERACEAE	v	I
Ambrosia artemisiifolia	ASTERACEAE	v	I*
Arctium lappa	ASTERACEAE	v	I
Arctium minus	ASTERACEAE	v	I
Bidens frondosa	ASTERACEAE	v	N
Bidens tripartita	ASTERACEAE	v	N
Centaurea maculosa	ASTERACEAE	v	I
Chysanthemum leucanthem	ASTERACEAE	v	I
Cirsium arvense	ASTERACEAE	v	I
Erigeron annuus	ASTERACEAE	v	N
Euthamia graminifolia	ASTERACEAE	v	N
Eupatorium maculatum	ASTERACEAE	v	N
Eupatorium perfoliatum	ASTERACEAE	v	N
Rudbeckia hirta	ASTERACEAE	v	N
Solidago altissima	ASTERACEAE	v	N
Solidago gigantea	ASTERACEAE	v	N
Sonchus arvensis	ASTERACEAE	v	I
Symphyotrichum lanceolatum (Aster lanceolatus)	ASTERACEAE	v	N
Symphyotrichum novae-angliae (Aster novae-angliae)	ASTERACEAE	v	N
Symphyotrichum puniceum (Aster puniceus)	ASTERACEAE	v	N
Taraxacum officinale	ASTERACEAE	v	I
Tussilago farfara	ASTERACEAE	v	I
Impatiens capensis	BALSAMINACEAE	v	N
Betula papyrifera	BETULACEAE	v	N
Ostrya virginiana	BETULACEAE	v	N
Alliaria petiolata	BRASSICACEAE	v	I
Erysimum cheiranthoides	BRASSICACEAE	v	I
Thlaspi arvense	BRASSICACEAE	v	I

Lonicera X bella	CAPRIFOLIACEAE	v	I
Sambucus canadensis	CAPRIFOLIACEAE	v	N
Silene vulgaris	CARYOPHYLLACEAE	v	I
Chenopodium album	CHENOPODICEAE	v	I
Cornus alternifolia	CORNACEAE	v	N
Cornus sericea (C. stolonifera)	CORNACEAE	v	N
Echinocystis lobata	CUCURBITACEAE	v	N
Elaeagnus umbellata	ELAEAGNACEAE	v	I
Lotus corniculatus	FABACEAE	v	I
Medicago sativa	FABACEAE	v	I
Melilotus alba	FABACEAE	v	I
Trifolium pratense	FABACEAE	v	I
Vicia cracca	FABACEAE	v	I
Quercus macrocarpa	FAGACEAE	v	R*
Geranium robertianum	GERANIACEAE	v	I
Ribes americanum	GROSSULARIACEAE	v	N
Ribes cynosbati	GROSSULARIACEAE	v	N
Ribes rubrum	GROSSULARIACEAE	v	I
Hypericum perforatum	GUTIFERAE	v	I
Juglans cinerea	JUGLANDACEAE	v	N
Leonurus cardiaca	LAMIACEAE	v	I
Lycopus americanus	LAMIACEAE	v	I
Lycopus uniflorus	LAMIACEAE	v	N
Mentha arvensis	LAMIACEAE	v	N
Prunella vulgaris	LAMIACEAE	v	I*
Scutellaria galericulata	LAMIACEAE	v	N
Scutellaria lateriflora	LAMIACEAE	v	N
Fraxinus americana	OLEACEAE	v	N
Fraxinus pennsylvanica	OLEACEAE	v	N
Circaea lutetiana	ONAGRACEAE	v	N
Oenothera bennis complex	ONAGRACEAE	v	N
Polygonum amphibium	POLYGONACEAE	v	N
Polygonum hydropiper	POLYGONACEAE	v	I*
Polygonum persicaria	POLYGONACEAE	v	I
Rumex crispus	POLYGONACEAE	v	I
Anemone canadensis	RANUNCULACEAE	v	N
Anemone virginica	RANUNCULACEAE	v	N
Ranunculus acris	RANUNCULACEAE	v	I
Ranunculus pensylvanicus	RANUNCULACEAE	v	R
Rhamnus cathartica	RHAMNACEAE	v	I
Fragaria virginiana	ROSACEAE	v	N
Geum canadense	ROSACEAE	v	N
Potentilla recta	ROSACEAE	v	I
Prunus serotina	ROSACEAE	v	N
Prunus virginiana	ROSACEAE	v	N
Rubus idaeus subsp. strigosus (R. strigosus)	ROSACEAE	v	N
Rubus occidentalis	ROSACEAE	v	N
Sorbus aucuparia	ROSACEAE	v	I
Galium tinctorium	RUBIACEAE	v	U
Populus balsamifera	SALICACEAE	v	N
Populus tremuloides	SALICACEAE	v	N

Salix amygdaloides	SALICACEAE	v	N
Salix bebbiana	SALICACEAE	v	N
Salix discolor	SALICACEAE	v	N
Salix eriocephala	SALICACEAE	v	N
Salix exigua	SALICACEAE	v	U
Salix lucida	SALICACEAE	v	N
Salix petiolaris	SALICACEAE	v	N
Salix X rubens	SALICACEAE	v	I
Mimulus ringens	SCROPHULARIACEAE	v	U
Verbascum thapsus	SCROPHULARIACEAE	v	I
Solanum dulcamara	SOLANACEAE	v	I
Tilia americana	TILIACEAE	v	N
Ulmus americana	ULMACEAE	v	N
Urtica dioica subsp. procera	URTICACEAE	v	N
Verbena hastata	VERBENACEAEA	v	N
Verbena urticifolia	VERBENACEAEA	v	N
Parthenocissus vitacea	VITACEAE	v	N
Vitis riparia	VITACEAE	v	N
GYMNOSPERMS			
Picea abies	PINACEAE	v	P
Pinus strobus	PINACEAE	v	N
Tsuga canadensis	PINACEAE	v	N
MONOCOTS			
Alisma plantago-aquatica	ALISMATACEAE	v	N
Sagittaria latifolia	ALISMATACEAE	v	N
Carex bebbii	CYPERACEAE	v	N
Carex cristatella	CYPERACEAE	v	N
Carex pseudo-cyperus	CYPERACEAE	v	N
Carex retrorsa	CYPERACEAE	v	N
Carex vulpinoidea	CYPERACEAE	v	N
Eleocharis erythropoda	CYPERACEAE	v	N
Schoenoplectus tabernaemontani (Scirpus validus)	CYPERACEAE	v	N
Scirpus atrovirens	CYPERACEAE	v	N
Scirpus cyperinus	CYPERACEAE	v	N
Juncus dudleyi	JUNCACEAE	v	N
Lemna minor	LEMNACEAE	v	N
Spirodela polyrhiza	LEMNACEAE	v	U
Wolffia borealis	LEMNACEAE	v	R
Wolffia columbiana	LEMNACEAE	v	U
Maianthemum racemosum	LILIACEAE	v	N
Agrostis gigantea	POACEAE	v	I
Agrostis stolonifera	POACEAE	v	I
Alopecurus aequalis	POACEAE	v	R
Bromus inermis	POACEAE	v	I
Dactylis glomerata	POACEAE	v	I
Elymus repens (Agropyron repens)	POACEAE	v	I
Glyceria borealis	POACEAE	v	U
Glyceria grandis	POACEAE	v	N
Leersia oryzoides	POACEAE	v	N

Phalaris arundinacea	POACEAE	v	I*
Phleum pratense	POACEAE	v	I
Poa compressa	POACEAE	v	I*
Poa palustris	POACEAE	v	N
Poa pratensis	POACEAE	v	I
Sparganium eurycarpum	TYPHACEAE	v	U
Typha angustifolia	TYPHACEAE	v	I
Typha latifolia	TYPHACEAE	v	N
Potamogeton natans	POTAMOGETONACEAE	v	U
Potamogeton zosteriformis	POTAMOGETONACEAE	v	R
PTERIDOPHYTES			
Equisetum arvense	EQUISETACEAE	v	N
Dryopteris carthusiana	FERN FAMILIES	v	N
Matteuccia struthiopteris	FERN FAMILIES	v	N
Onoclea sensibilis	FERN FAMILIES	v	N

MOUNT WOLFE WETLAND COMPLEX
ROLL # 21240100012061000000
PALGRAVE SOUTH - DIAMONDWOOD

Ontario

Scale 1:2,000 (approx.)

0 25 50 100 150 200 Metres

FILE#: 2012-21-ST

Legend

- MNR Evaluated Wetland
- MNR Identified Wetlands
- Subject Lands
- Parcel Fabric
- c S17 — Wetland Vegetation Community
- 1 — Field Number

Cartography by Aurora District Geomatics.

Universal Transverse Mercator (6 degree) projection, Zone 17. North American Datum 1983

SOURCE OF INFORMATION

Information provided by the Ministry of Natural Resources district office in Aurora.
Ministry of Natural Resources - Aurora District 50 Bloomington Road West, Aurora, ON L4G 3G8

Base information derived from the Ontario Base Map, 1983 at a scale of 1:10,000 and the Natural Resources Values Information System (NRVIS).

NOTE

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should be viewed as illustrative only. Do not rely on it as being a precise indicator of routes, locations of features, nor as a guide to navigation.

For detailed information on natural features such as their location, size or status, the individual files held by the Aurora district office of the Ministry of Natural Resources should be consulted.

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

March 11, 2013 AEC 08-019

Ministry of Natural Resources
Aurora District
50 Bloomington Road
Aurora, Ontario
L4G 0L8

Attention: Melinda Thompson, Species at Risk Biologist

RE: Request for Species at Risk and Background Information
Natural Heritage Evaluation
Part of Lot 19, Concession 8, Town of Caledon, Region of Peel

Dear Ms. Thompson:

Azimuth Environmental Consulting (Azimuth) has been retained to prepare a Natural Heritage Evaluation for a proposed development for the abovementioned property (See attached Figure 1). The proponent wishes to develop the site for estate residential homes.

Existing Conditions and Background Information

Background information as it pertains to this property was requested in 2008. In a letter response dated November 18, 2008, MNR indicated that there were no recorded Species at Risk or designated natural heritage features for the property and indicated that there were three MNR identified wetlands. Therefore, the purpose of this letter is to request any updated relevant information, including Species at Risk, that may be available that would be relevant to our study.

As indicated in your 2008 letter, there are MNR identified wetlands on the property. In 2012, MNR (S.Varga) attended the site to identify and delineate wetlands on site. A total of 7 wetlands were identified to occur (entire or partially) on the property which have subsequently been incorporated into the Mount Wolfe Provincially Significant Wetland (Attached).

The majority of the property is composed of agricultural fields and cultural meadow

devoid of tree and shrub vegetation. There are no structures on the property.

The topography of the property is undulating with moderate to steep slopes. There have been no watercourses identified on the property.

There are two treed deciduous hedgerows. Several small wetland features exist on the property all of which contain standing water for at least a portion of the year. Our field investigations identified the presence of a number of Butternut trees within the hedgerows and along the perimeter of several of the Natural Heritage Features. These trees have been assessed and the assessments have been submitted and accepted by MNR. MNR (B. Kowalyk) attended the site in September 2008 and July 2011 to assess the Butternut and/or audit our Butternut Health Assessments.

The property immediately to the northwest has been cleared and is currently being developed for residential use (Diamondwood). Lands within the area are largely composed of agricultural lands with natural heritage features scattered throughout and residential homes.

NHIC

The Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC) database has been consulted and there is one SAR record for the area, Cerulean Warbler (THR). Two rare species records were documented within the area including for Clamp-tipped Emerald (S2S3) and Woodland Pinedrops (S2) (NHIC record attached). There does not appear to be any additional records for SAR within the area. Other species that are known to the area include Butternut (as documented on site) and Snapping Turtle.

OBBA

The Ontario Breeding Bird Atlas has been consulted (Square 17NJ96) and a number of SAR have been documented within the area including Least Bittern (THR), Common Nighthawk (SC), Whip-poor Will (THR), Chimney Swift (THR), Red-headed Woodpecker (SC), Barn Swallow (THR), Golden-winged Warbler (SC), Bobolink (THR) and Eastern Meadowlark (THR).

Information Request

The purpose of this letter is to request any additional Species at Risk we should have regard for during our environmental investigations in addition any other background environmental information available from your Ministry that would be relevant for consideration in the preparation of our report.

Thank you, in advance, to your attention to our request for background information. If you require further information or have any questions please do not hesitate to contact us.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING INC.

Lisa Moran

Lisa Moran, B.Sc.Env
Terrestrial Ecologist

LAM:

c.c. Carmen Jandu, Ventawood Management Inc.

DAYSTAMP: L:\08-019 Mount Pleasant\04.0 - Drafting\Drafting\dwg\08-019 Figures.dwg

LEGEND:

Study Area

300m 0 600m

HORIZONTAL SCALE 1:20,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

REGIONAL LOCATION MAP

Pt. Lot 19, Con. 8
Town of Caledon

Date Issued:	March 2013	Figure No.
Created By:	PHD	1
Project No.	08-019	
Reference:	Softmap Technologies Inc.	

MOUNT WOLFE WETLAND COMPLEX
ROLL # 21240100012061000000
PALGRAVE SOUTH - DIAMONDWOOD

Ontario

Scale 1:2,000 (approx.)

0 25 50 100 150 200 Metres

FILE#: 2012-21-ST

Legend

- MNR Evaluated Wetland
- MNR Identified Wetlands
- Subject Lands
- Parcel Fabric
- c S17 — Wetland Vegetation Community
- 1 — Field Number

Cartography by Aurora District Geomatics.

Universal Transverse Mercator (6 degree) projection, Zone 17. North American Datum 1983

SOURCE OF INFORMATION

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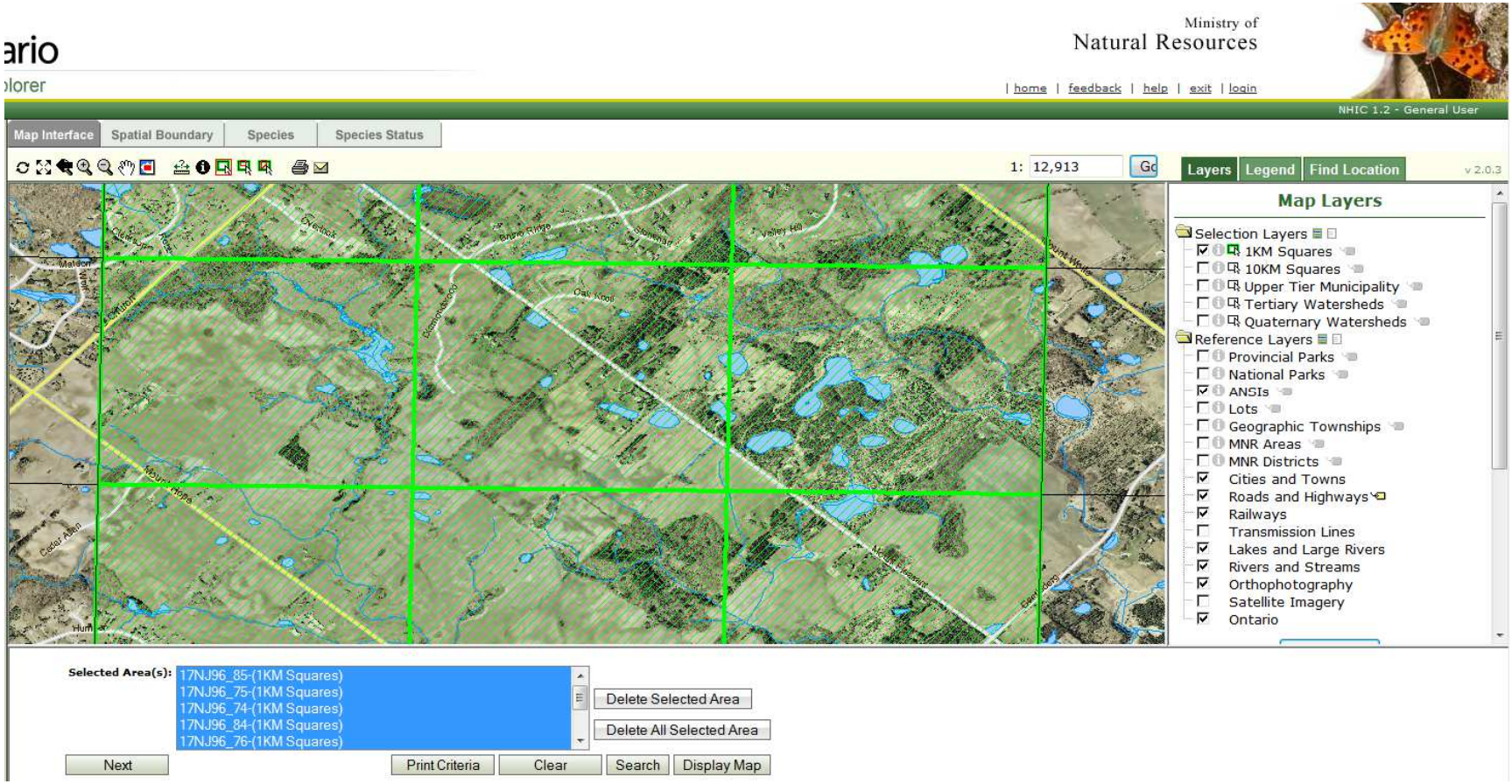

ario
lorer
Ministry of
Natural Resources
| home | feedback | help | exit | login
NHIC 1.2 - General User
Map Interface
Spatial Boundary
Species
Species Status
1: 12,913
Go
Layers
Legend
Find Location
v 2.0.3
Map Layers
Selection Layers
1KM Squares
10KM Squares
Upper Tier Municipality
Tertiary Watersheds
Quaternary Watersheds
Reference Layers
Provincial Parks
National Parks
ANSIs
Lots
Geographic Townships
MNR Areas
MNR Districts
Cities and Towns
Roads and Highways
Railways
Transmission Lines
Lakes and Large Rivers
Rivers and Streams
Orthophotography
Satellite Imagery
Ontario
Selected Area(s):
17NJ96_85-(1KM Squares)
17NJ96_75-(1KM Squares)
17NJ96_74-(1KM Squares)
17NJ96_84-(1KM Squares)
17NJ96_76-(1KM Squares)
Delete Selected Area
Delete All Selected Area
Next
Print Criteria
Clear
Search
Display Map

Ontario

Natural Heritage Information Centre

Biodiversity Explorer

Species
Element Occurrence Search (3 records found)

Sort Order Phylogenetic | Ascending | help

Taxon	Family	Scientific Name	Common Name	Rank		At Risk Status		# of EOs	EO Summary Report
				Global (G-rank)	Ontario (S-rank)	Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	Species At Risk in Ontario (SARO)		
Birds	Parulidae	*Dendroica cerulea*	Cerulean Warbler	G4	S3B	END	SC	1	
Dragonflies and Dams	Corduliidae	*Somatochlora tenebrosa*	Clamp-tipped Emerald	G5	S2S3			1	
Dicotyledons	Monotropaceae	*Pterospora andromedea*	Woodland Pinedrops	G5	S2			1	

Page 1 of 1

Export by Spatial Boundary | Export by Element | Export All EOs

Search Criteria

Website content last updated from NHIC database on 2010-07-30
Generated on 2013-03-11
Natural Heritage Information Centre. 2013. Element Summary Report for Ontario Ministry of Natural Resources, Peterborough, Ontario. Available http://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/nhicIndex.jsp

Southern Region
Aurora District Office
50 Bloomington Road West
Aurora, ON L4G 0L8

Ontario

Ministry of Natural Resources | **Ministere des Richesses Naturelles**

March 28, 2013

Lisa Moran
Terrestrial Ecologist
Azimuth Environmental Consulting, Inc.
85 Bayfield Street, 4th Floor
Barrie, ON L4M 3A7
705.721.8451 ext. 202
lisa@azimuthenvironmental.com

Re: MNR Species at Risk Preliminary Screening
Pt Lot 19, Concession 8 (west of Mount Pleasant Rd., south of Diamondwood Dr.)
Town of Caledon, Regional Municipality of Peel

Dear Ms. Moran,

In your email dated March 13, 2013 you requested information on natural heritage features and element occurrences occurring on or adjacent to the above mentioned location.

There are a number of Species at Risk recorded from your study area. We have records of Butternut, Bobolink, Eastern Meadowlark, Black Tern, and Snapping Turtle. Some of these species may receive protection under the *Endangered Species Act 2007* and thus, a permit may be required if the work you are proposing could cause harm to these species or their habitat. Please provide additional information on your proposal to our office, and we will assess it to determine whether a permit under the ESA 2007 is required for the works to proceed.

Natural heritage features recorded for your area include identified wetlands as well as an unnamed Environmentally Significant Area.

This species at risk information is highly sensitive and is not intended for any person or project unrelated to this undertaking. Please do not include any specific information in reports that will be available for public record. As you complete your fieldwork in these areas, please report all information related to any species at risk to the NHIC and to our office. This will assist with updating our database.

If you have any questions or comments, please do not hesitate to contact Natosha Fortini at 905.713.6483.

Sincerely,

Melinda Thompson

Melinda Thompson

Species at Risk Biologist
Ontario Ministry of Natural Resources, Aurora District

Ministry of
Natural Resources
and Forestry
Aurora District Office
50 Bloomington Road
Aurora, Ontario L4G 0L8

Ministère des
Richesses naturelles
et des Forets

Telephone: (905) 713-7400
Facsimile: (905) 713-7361

Ontario

May 2, 2017

Lisa Moran
Terrestrial Ecologist
Azimuth Environmental Consulting Inc.
642 Welham Road
Barrie, ON L4N 9A1
705-721-8451 ext. 202
lisa@azimuthenvironmental.com

Re: Laurelpark Subdivision, Caledon

Dear Lisa Moran,

In your email of March 9, 2017 you requested information regarding the above location. Apologies for the delay.

Species at risk recorded in the vicinity include Butternut (endangered), Bobolink (threatened), Eastern Meadowlark (threatened), Snapping Turtle (special concern), Eastern Wood-pewee (special concern) and Wood Thrush (special concern). There is potential for endangered bats (i.e., Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, Tri-colored Bat) in cavities. An Information Gathering Form dated March 3, 2014 is on file for this property. There still has not been satisfactory compensation for the unauthorized removal of three retainable Butternut trees on the property.

Absence of information provided by MNRF for a given geographic area, or lack of current information for a given area or element, does not categorically mean the absence of sensitive species or features. Many areas in Ontario have never been surveyed and new plant and animal species records are still being discovered for many localities. Appropriate inventory work is needed depending on the undertakings proposed. Approval from MNRF may be required if work you are proposing could cause harm to any species that receive protection under the *Endangered Species Act 2007*.

Species at risk information is highly sensitive and is not intended for any person or project unrelated to this undertaking. Please do not include any specific sensitive information in reports that will be available for public record. As you complete your fieldwork in these areas, please report all information related to any species at risk to our office. This will assist with updating our database and facilitate early consultation regarding your project.

If you have any questions or comments, please do not hesitate to contact ESA.aurora@ontario.ca or Bohdan.Kowalyk@Ontario.ca.

Sincerely,

B. Kowalyk

Bohdan Kowalyk, R.P.F.
Technical Specialist, Aurora District, Ontario Ministry of Natural Resources and Forestry

Lisa Moran

From: ESA Aurora (MNR) [ESA.Aurora@ontario.ca]
Sent: August-22-14 8:58 AM
To: Lisa Moran
Cc: Almond, John (MNR)
Subject: RE: Laurelpark Estate Residential, Caledon Mount Pleasant Rd, Information Gathering Form

Lisa,

The Butternut trees were removed without authorization. A plan for their replacement needs to be implemented as soon as possible irrespective of any development application that may or may not be forthcoming. Please inform the proponent that we are waiting to see a plan.

Bohdan Kowalyk, R.P.F.
OMNRF Aurora District

From: Lisa Moran [mailto:Lisa@Azimuthenvironmental.Com]
Sent: August-22-14 7:53 AM
To: ESA Aurora (MNR)
Subject: RE: Laurelpark Estate Residential, Caledon Mount Pleasant Rd, Information Gathering Form

Hi Bohdan,

It is the intention of the proponent to prepare a plan once a development application is submitted. At this time, no application has been submitted. It is unknown, at this point, when a plan will be submitted.

Lisa

From: ESA Aurora (MNR) [mailto:ESA.Aurora@ontario.ca]
Sent: August-11-14 5:19 PM
To: Lisa Moran
Subject: Laurelpark Estate Residential, Caledon Mount Pleasant Rd, Information Gathering Form

Hello,

Sorry for the delayed response. Please provide an update on the Butternut Planting Plan and its implementation with regard to the three retainable Butternut trees that were removed.

Thanks,

Bohdan Kowalyk, R.P.F.
OMNRF Aurora District

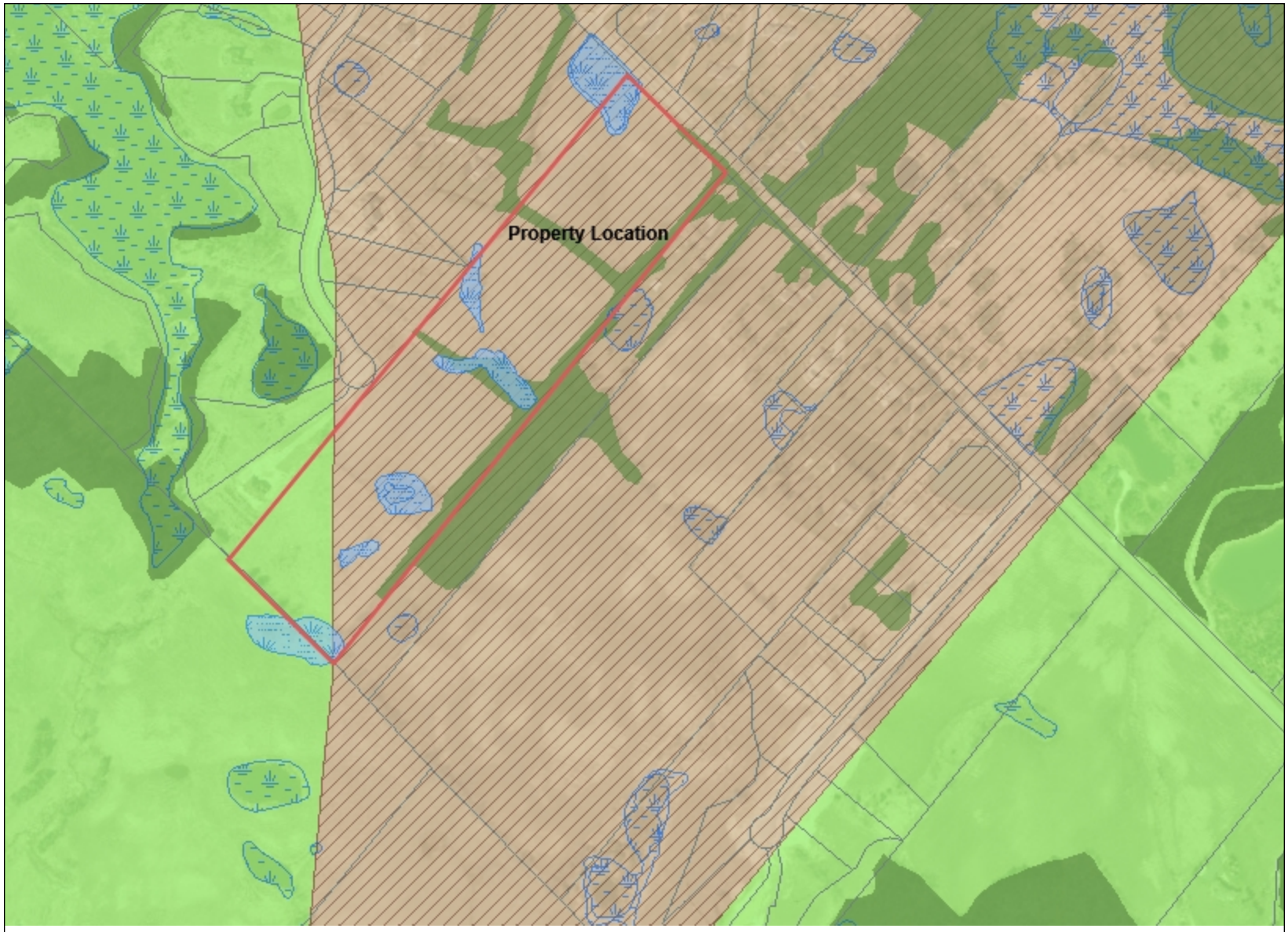
Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

AEC08-019

Notes: NHIC Mapping



Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland

- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)

- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan

- Boundary
- River Valley Connections

Land Use Designations

- Protected Countryside
- Towns and Villages
- Hamlets
- Urban River Valley
- Specialty Crop Area

Niagara Escarpment Plan (NEP)

- Boundary
- Parks and Open Space System

Land Use Designations

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)

- Boundary

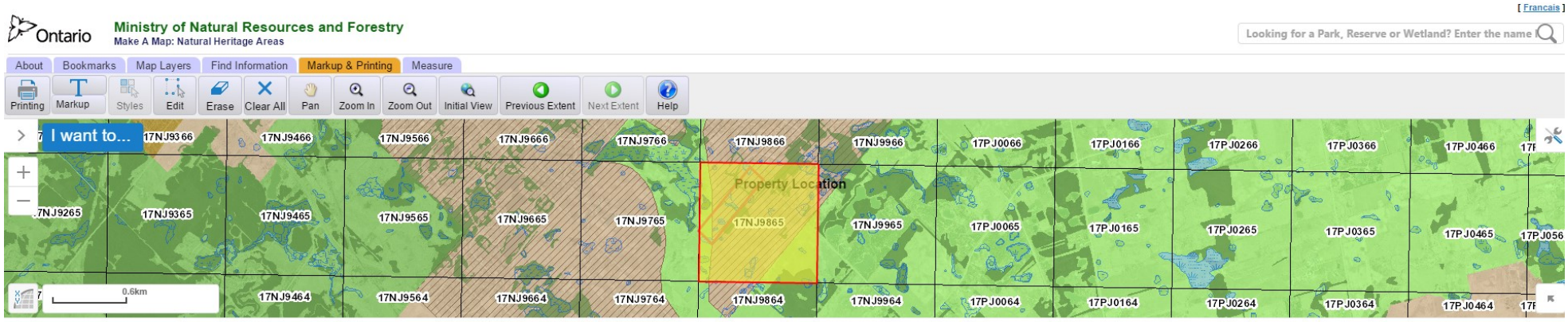
Land Use Designations

- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

0.5 0 0.23 0.5 Kilometers

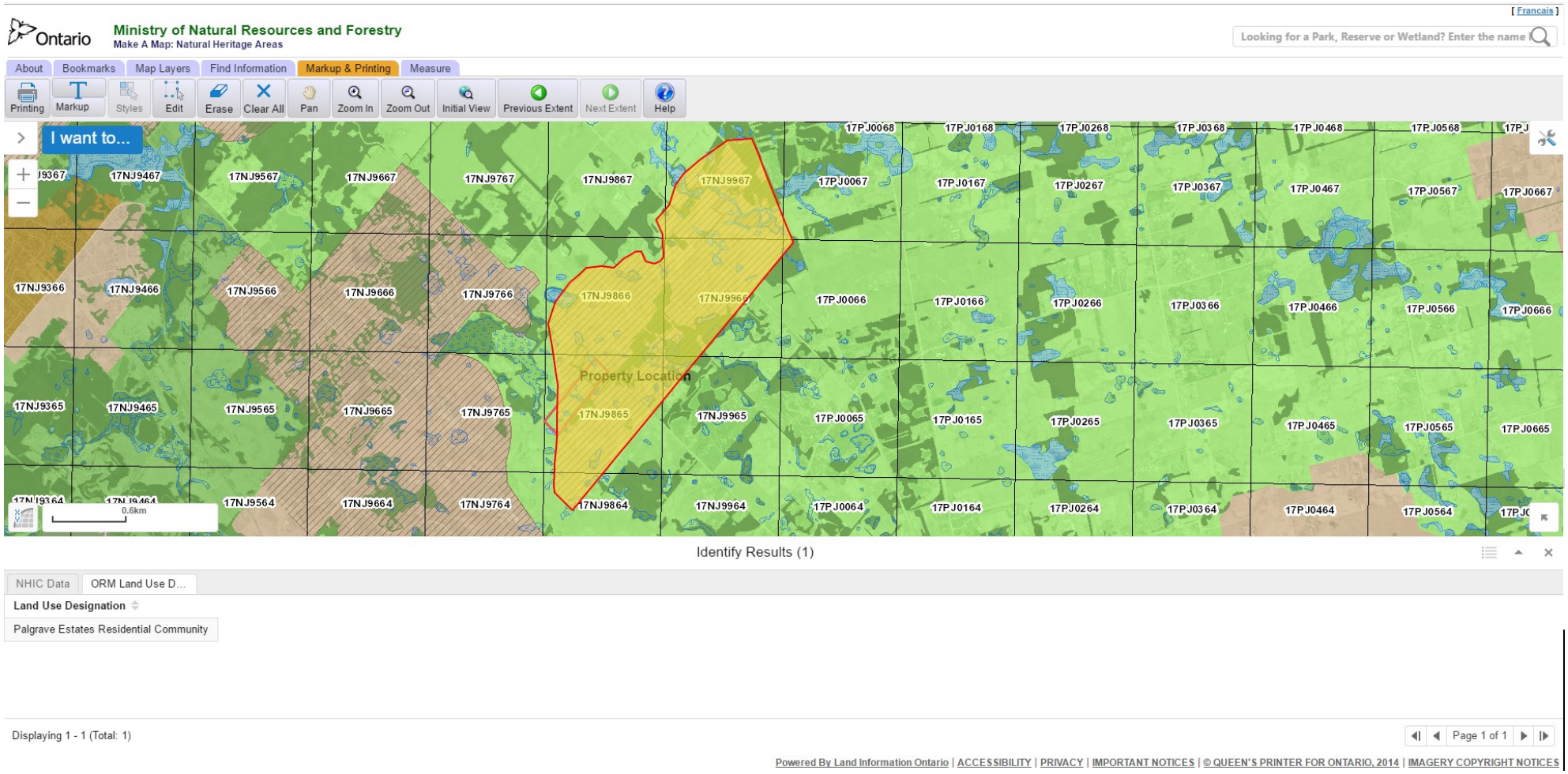
Scale: 1 : 9,027

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.



NHIC Data -- Grid ID = 997719

Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Obs Date	EO ID	Details URL
SPECIES	Cerulean Warbler	Setophaga cerulea	S3B	THR	END	1962-06-11	4512	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=4512
SPECIES	Delta-spotted Spiketail	Cordulegaster diastatops	S4				40770	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=40770
SPECIES	Clamp-tipped Emerald	Somatochlora tenebrosa	S2S3				41334	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=41334
SPECIES	Brush-tipped Emerald	Somatochlora walshii	S4			1924-08-26	41363	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=41363
SPECIES	Eastern Amberwing	Perithemis tenera	S4				41509	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=41509
SPECIES	Awnless Graceful Sedge	Carex formosa	S4			1973-06-02	59276	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=59276
SPECIES	Woodland Pinedrops	Pterospora andromedea	S2				60145	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=60145
SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	1997-00-00	102321	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=102321
SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	1997-00-00	102322	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=102322
SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	2000-00-00	102355	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=102355
SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	2003-00-00	102387	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=102387
SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	2006-00-00	102413	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=102413
SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	2006-00-00	102414	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=102414


[Francais]
Ontario
Ministry of Natural Resources and Forestry
Make A Map: Natural Heritage Areas
Looking for a Park, Reserve or Wetland? Enter the name
About
Bookmarks
Map Layers
Find Information
Markup & Printing
Measure
Printing
Markup
Styles
Edit
Erase
Clear All
Pan
Zoom In
Zoom Out
Initial View
Previous Extent
Next Extent
Help
I want to...
Property Location
0.6km
Identify Results (1)
NHIC Data
ORM Land Use D...
Land Use Designation
Palgrave Estates Residential Community
Displaying 1 - 1 (Total: 1)
Page 1 of 1
Powered By Land Information Ontario | ACCESSIBILITY | PRIVACY | IMPORTANT NOTICES | © QUEEN'S PRINTER FOR ONTARIO, 2014 | IMAGERY COPYRIGHT NOTICES

Bobolink Survey Methodology (MNR, Aurora District 2013)

Conditions: Surveys need to be done under field conditions with no precipitation, no or low wind speed and good visibility. In the course of the surveys if a nest or probable nest is encountered, the surveyor is advised not to disturb it or search an area for nests. Surveys rely on observations of birds while walking along transects through the fields.

Qualifications: Observers should be familiar with Bobolink identification by sight and sound. This includes being able to separate males from females and knowledge of Bobolink and their behaviours during breeding to allow it to be categorized (e.g. singing male, pair in suitable habitat, carrying food or nesting material, foraging, territorial displays, recently fledged young). See the Ontario Breeding Bird Atlas for additional behaviour categories.

Pre-Survey: Set up parallel transects crossing the fields lengthwise at approximately 250 m intervals and locate point counts along the transects at 250 m intervals. The locations of point count along the transects may be staggered by up to 125 m to give the best surveying opportunities. Point counts should be located to give a good view of the surrounding fields. Create GPS locations for each point count. Materials needed for the survey include binoculars, notebook, GPS, compass, watch and camera.

Survey: Surveys should start at dawn and continue until no later than 9 am. The observer will walk the transect stopping at each point count. Undertake ten minutes of observations and listening at each point count. Record information on all Bobolink observed or heard, their sex, general location, direction, distance, behaviour and interactions with other Bobolink or other species. On transit between point counts, record any Bobolink observed or heard if not also seen on the point counts. Nest searches should be avoided.

Repeat visits: Complete at least three sets of point count surveys. These should take place between the last week of May and the first week of July with each survey separated by a week or more from previous surveys.

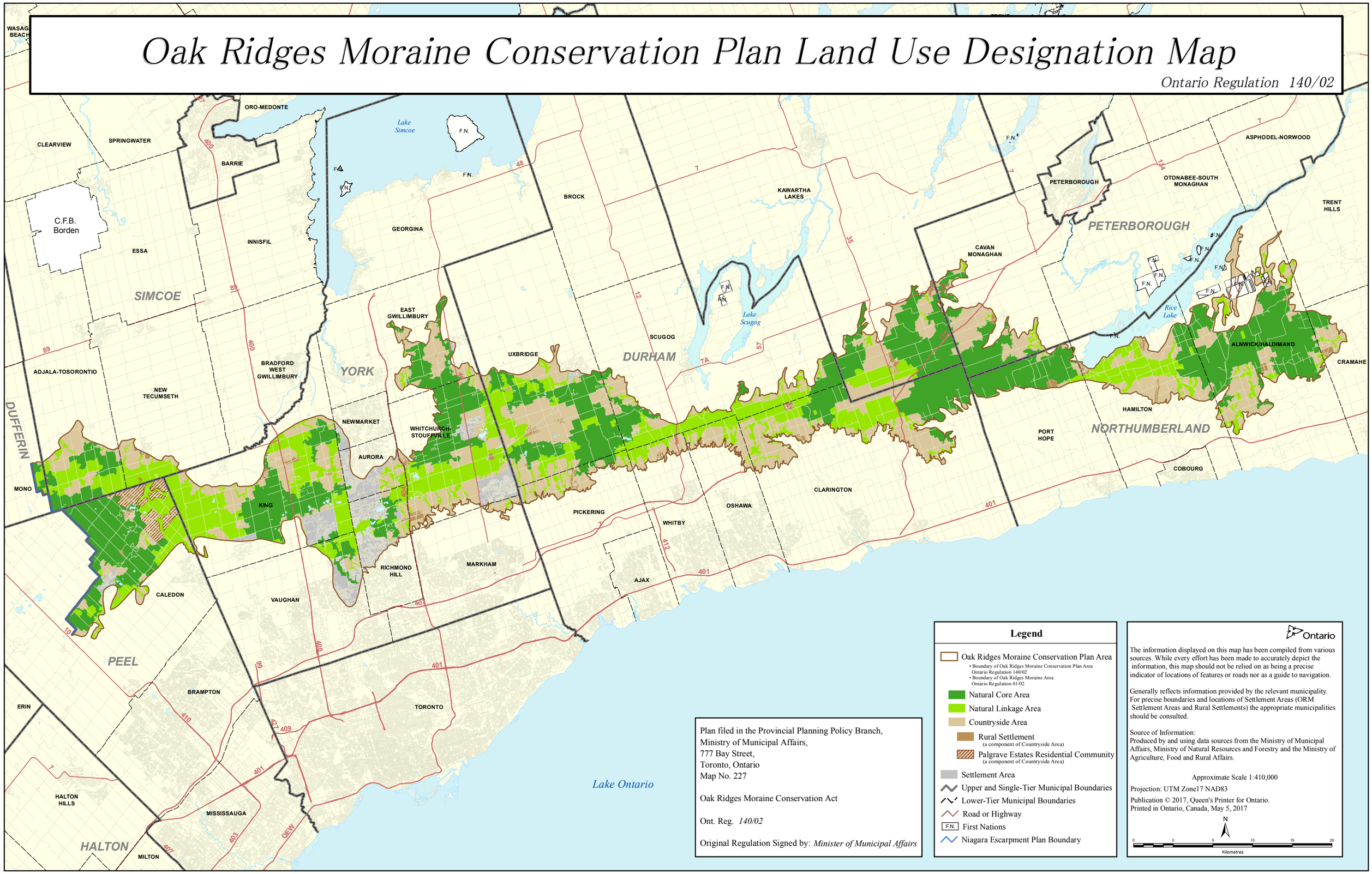
Habitat: Make notes on the general conditions of the fields at the locations where Bobolink are noted. These would include broad habitat descriptors (e.g. field, hedgerow, fence line), estimated height of the vegetation, general vegetation type (including predominate species if known), estimated percentage of grass versus broad-leaved plants, and presence of litter (i.e. thatch). It is best if the surveyor evaluates the locations from the transect or close to the transect rather than walking directly into the area where the Bobolink were found. Photos should be taken.

APPENDIX C

Oak Ridges Moraine Conservation Plan

Oak Ridges Moraine Conservation Plan Land Use Designation Map

Ontario Regulation 140/02



Plan filed in the Provincial Planning Policy Branch,
Ministry of Municipal Affairs,
777 Bay Street,
Toronto, Ontario
Map No. 227

Oak Ridges Moraine Conservation Act

Ont. Reg. *140/02*

Original Regulation Signed by: *Minister of Municipal Affairs*

Legend

- Oak Ridges Moraine Conservation Plan Area
  - Boundary of Oak Ridges Moraine Conservation Plan Area Ontario Regulation 140/02
  - Boundary of Oak Ridges Moraine Area Ontario Regulation 01/02
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement (a component of Countryside Area)
- Palgrave Estates Residential Community (a component of Countryside Area)
- Settlement Area
- Upper and Single-Tier Municipal Boundaries
- Lower-Tier Municipal Boundaries
- Road or Highway
- F.N. First Nations
- Niagara Escarpment Plan Boundary

Ontario

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations of features or roads nor as a guide to navigation.

Generally reflects information provided by the relevant municipality. For precise boundaries and locations of Settlement Areas (ORM Settlement Areas and Rural Settlements) the appropriate municipalities should be consulted.

Source of Information:
Produced by and using data sources from the Ministry of Municipal Affairs, Ministry of Natural Resources and Forestry and the Ministry of Agriculture, Food and Rural Affairs.

Approximate Scale 1:410,000

Projection: UTM Zone17 NAD83

Printed in Ontario, Canada, May 5, 2017

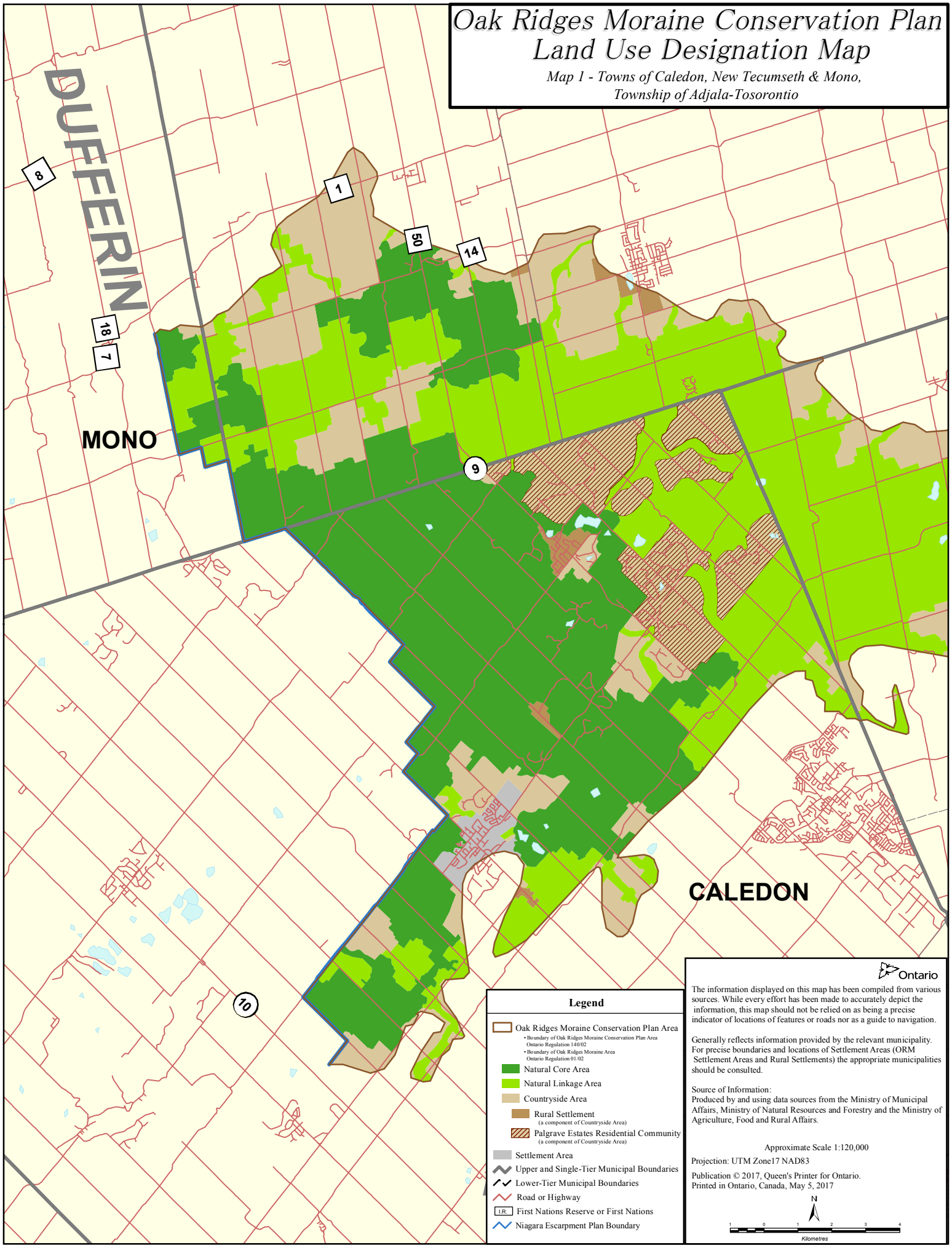
N

5 0 5 10 15 20

Kilometres

Oak Ridges Moraine Conservation Plan
Land Use Designation Map

Map 1 - Towns of Caledon, New Tecumseth & Mono, Township of Adjala-Tosorontio



Legend

- Oak Ridges Moraine Conservation Plan Area
  - Boundary of Oak Ridges Moraine Conservation Plan Area Ontario Regulation 140/02
  - Boundary of Oak Ridges Moraine Area Ontario Regulation 01/02
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement (a component of Countryside Area)
- Palgrave Estates Residential Community (a component of Countryside Area)
- Settlement Area
- Upper and Single-Tier Municipal Boundaries
- Lower-Tier Municipal Boundaries
- Road or Highway
- I.R. First Nations Reserve or First Nations
- Niagara Escarpment Plan Boundary

Ontario

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations of features or roads nor as a guide to navigation.

Generally reflects information provided by the relevant municipality. For precise boundaries and locations of Settlement Areas (ORM Settlement Areas and Rural Settlements) the appropriate municipalities should be consulted.

Source of Information:
Produced by and using data sources from the Ministry of Municipal Affairs, Ministry of Natural Resources and Forestry and the Ministry of Agriculture, Food and Rural Affairs.

Approximate Scale 1:120,000

Projection: UTM Zone17 NAD83

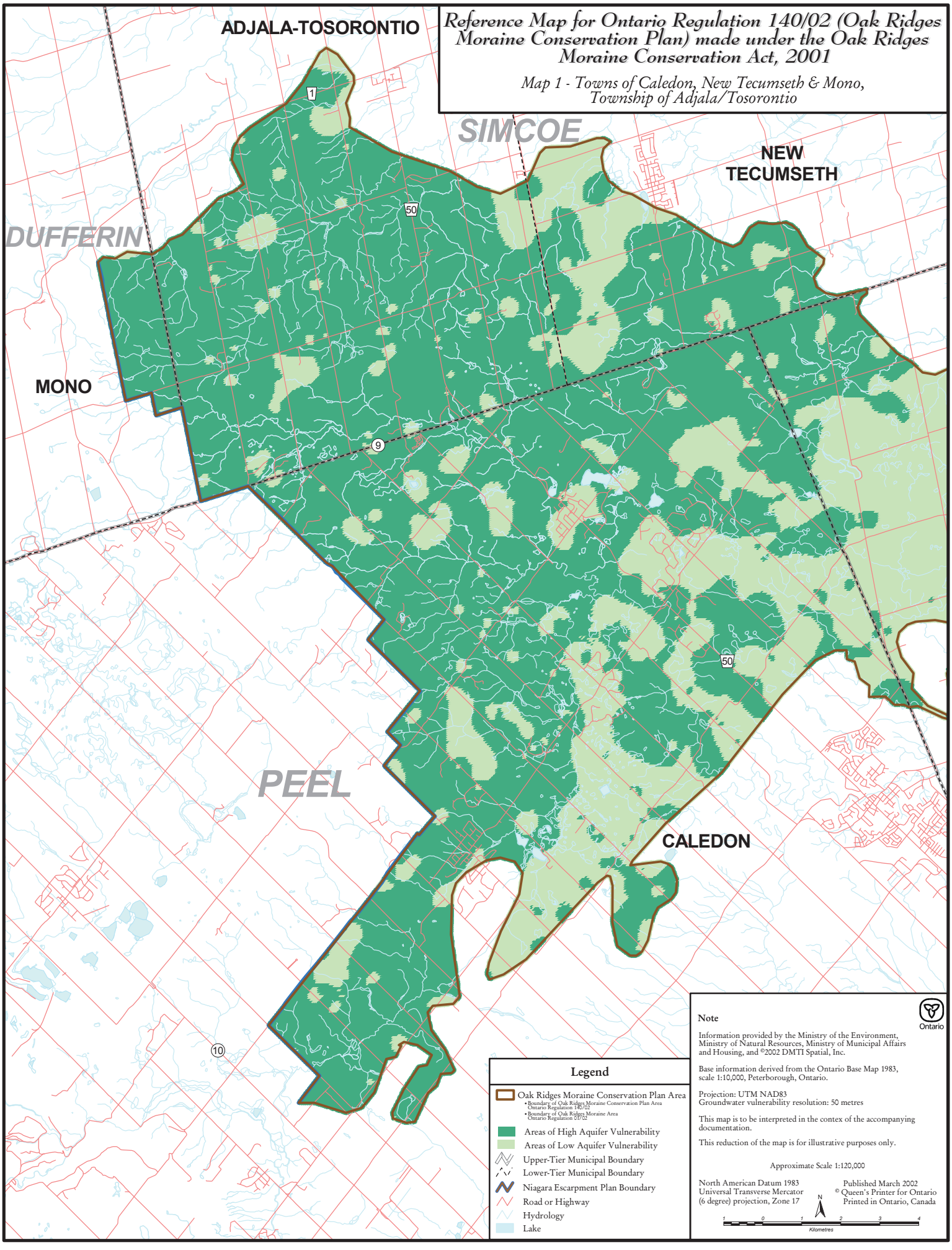
Printed in Ontario, Canada, May 5, 2017

N

1 0 1 2 3 4
Kilometres

Reference Map for Ontario Regulation 140/02 (Oak Ridges Moraine Conservation Plan) made under the Oak Ridges Moraine Conservation Act, 2001

Map 1 - Towns of Caledon, New Tecumseth & Mono, Township of Adjala/Tosorontio



Legend

- Oak Ridges Moraine Conservation Plan Area
  - Boundary of Oak Ridges Moraine Conservation Plan Area Ontario Regulation 140/02
  - Boundary of Oak Ridges Moraine Area Ontario Regulation 01/02
- Areas of High Aquifer Vulnerability
- Areas of Low Aquifer Vulnerability
- Upper-Tier Municipal Boundary
- Lower-Tier Municipal Boundary
- Niagara Escarpment Plan Boundary
- Road or Highway
- Hydrology
- Lake

Note

Information provided by the Ministry of the Environment, Ministry of Natural Resources, Ministry of Municipal Affairs and Housing, and ©2002 DMTI Spatial, Inc.

Base information derived from the Ontario Base Map 1983, scale 1:10,000, Peterborough, Ontario.

Projection: UTM NAD83
Groundwater vulnerability resolution: 50 metres

This map is to be interpreted in the contex of the accompanying documentation.

This reduction of the map is for illustrative purposes only.

Approximate Scale 1:120,000

North American Datum 1983
Universal Transverse Mercator
(6 degree) projection, Zone 17

Published March 2002

Printed in Ontario, Canada

N

1 0 1 2 3 4
Kilometres

Table

Key Natural Heritage Features, Key Hydrologic Features and Areas of Natural and Scientific Interest (Earth Science): Minimum Areas of Influence and Minimum Vegetation Protection Zones

Column 1	Column 2	Column 3	Column 4
Item	Feature	Minimum Area of Influence (21)	Minimum Vegetation Protection Zone (21, 23, 26 (4), 30 (12))
1.	Wetlands	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause 23 (1) (d) if a natural heritage evaluation is required
2.	Habitat of endangered and threatened species	None	None
3.	Fish habitat	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause 23 (1) (d) if a natural heritage evaluation is required
4.	Areas of natural and scientific interest (life science)	All land within 120 metres of any part of feature	As determined by a natural heritage evaluation carried out under section 23
5.	Areas of natural and scientific interest (earth science)	All land within 50 metres of any part of feature	As determined by an earth science heritage evaluation carried out under subsection 30 (12)
6.	Significant valleylands	All land within 120 metres of stable top of bank	All land within 30 metres of stable top of bank, subject to clause 23 (1) (d) if a natural heritage evaluation is required
7.	Significant woodlands	All land within 120 metres of any part of feature	All land within 30 metres of the tree canopy drip line of the outermost trees within the woodland, subject to clause 23(1)(d) if a natural heritage evaluation is required
8.	Significant wildlife habitat	All land within 120 metres of any part of feature	As determined by a natural heritage evaluation carried out under section 23
9.	Sand barrens, savannahs and tallgrass prairies	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause 23 (1) (d) if a natural heritage evaluation is required
10.	Kettle lakes	All land within 120 metres of the surface catchment area	All land within the surface catchment area or within 30 metres of any part of feature, whichever is greater, subject to clause 26 (4) (c) if a hydrological evaluation is required
11.	Permanent and intermittent streams	All land within 120 metres of meander belt	All land within 30 metres of meander belt, subject to clause 26 (4) (c) and subsection 26 (5) if a hydrological evaluation is required
12.	Seepage areas and springs	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause 26 (4) (c) and subsection 26 (5) if a hydrological evaluation is required

Landform Conservation Areas of the Oak Ridges Moraine Map No. 1

SIMCOE

DUFFERIN

PEEL

Legend

- Landform Conservation Area - Category 1
- Landform Conservation Area - Category 2

Slope Classes

- 0 - 2 %
- 2 - 5 %
- 5 - 10 %
- 10 - 25 %
- > 25 %

- Oak Ridges Moraine Area
- Major Lake
- Upper Tier Municipal Boundary
- Lower Tier Municipal Boundary
- Major Road

Ontario

Ministry of Natural Resources
Ministère des Richesses naturelles
AURORA

Scale 1:50,000 (approx.)

2 0 2 4 Km

N W E S

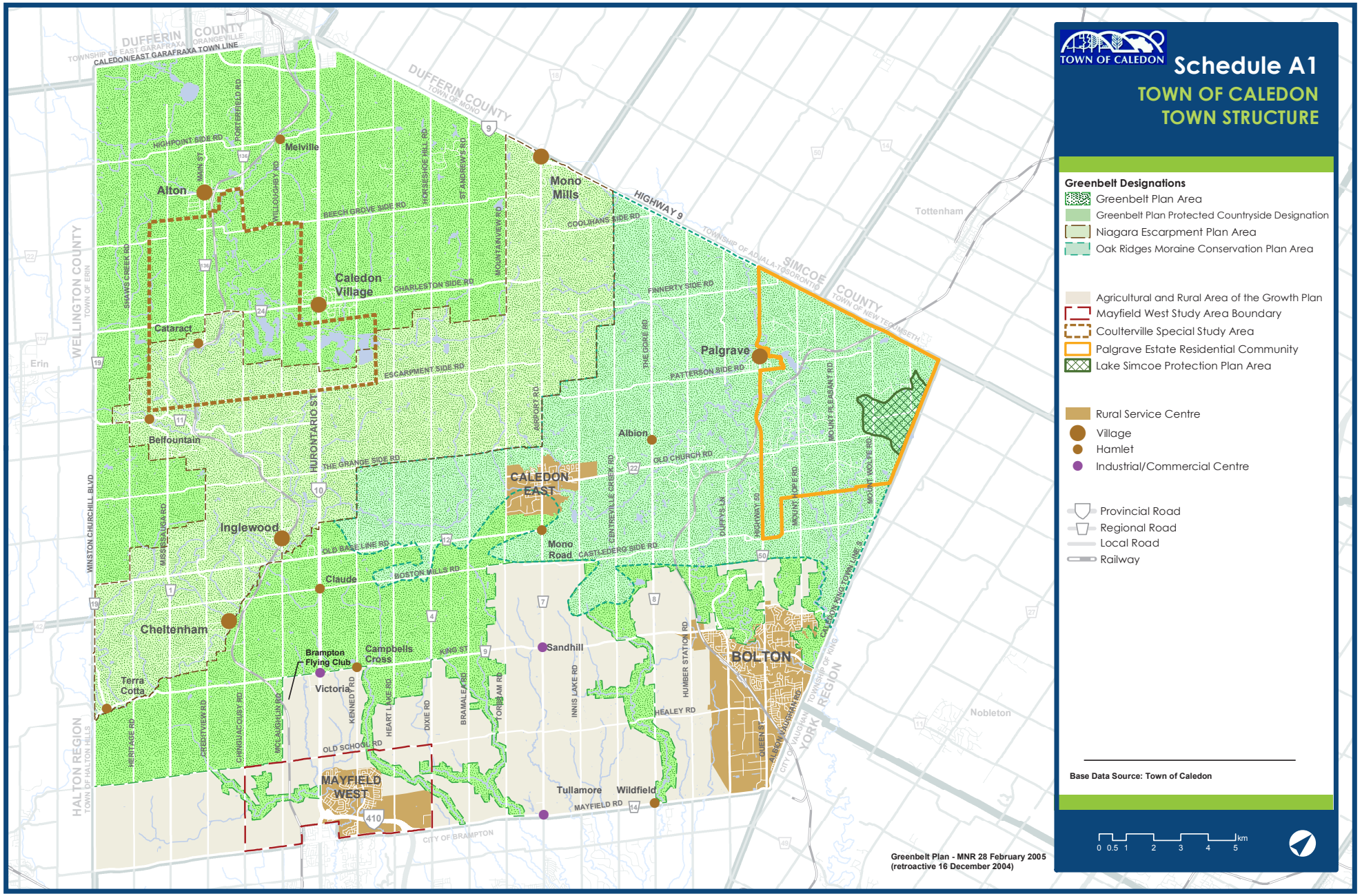
North American Datum 1983
Universal Transverse Mercator
(6 degree) projection, Zone 17

PUBLICATION
March 2002

Printed in Ontario, Canada
Map 1 of 4

APPENDIX D

Municipal Planning



Novmeber 2016 Office Consolidation

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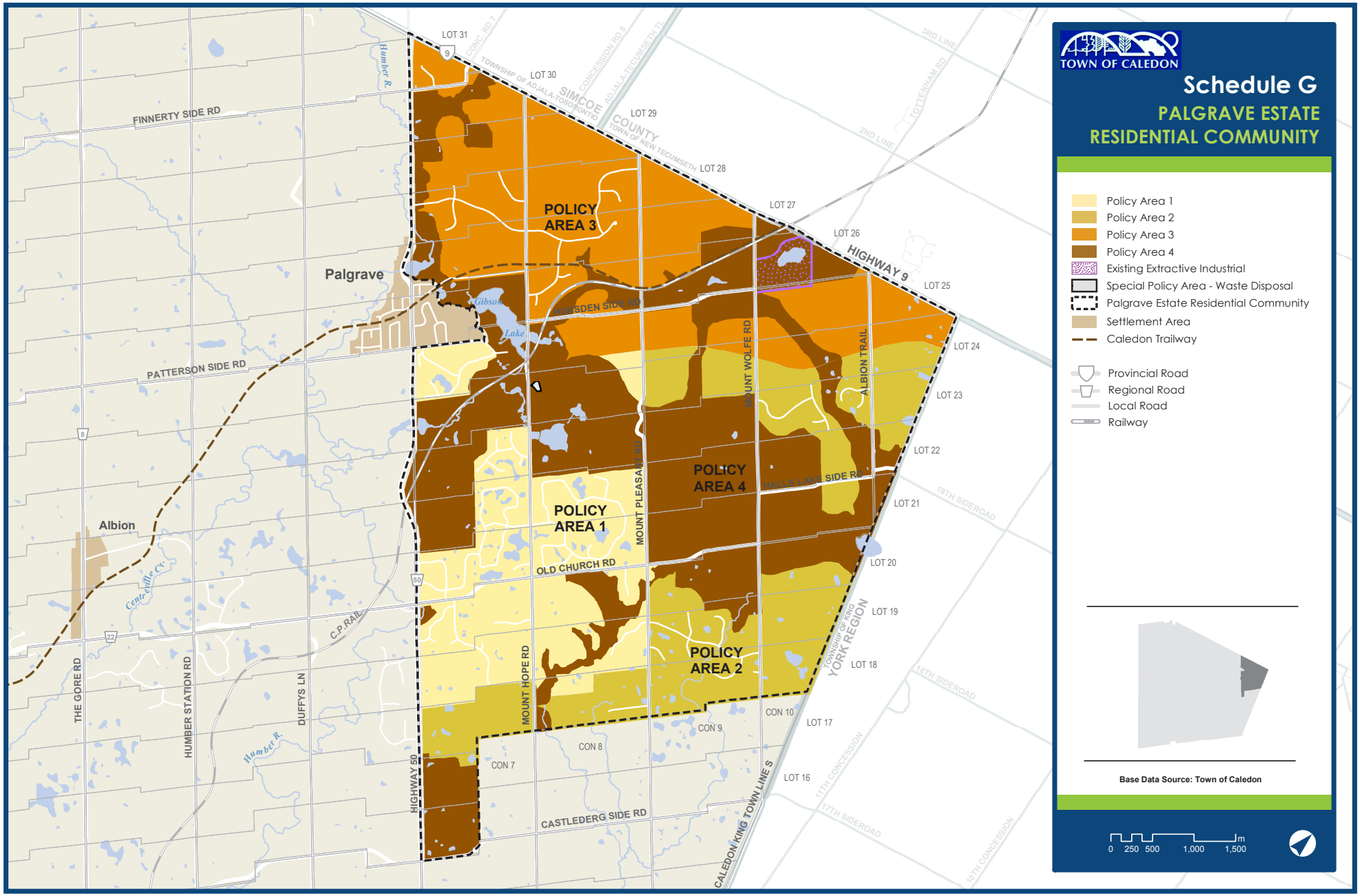
SAVED BY: bloverock



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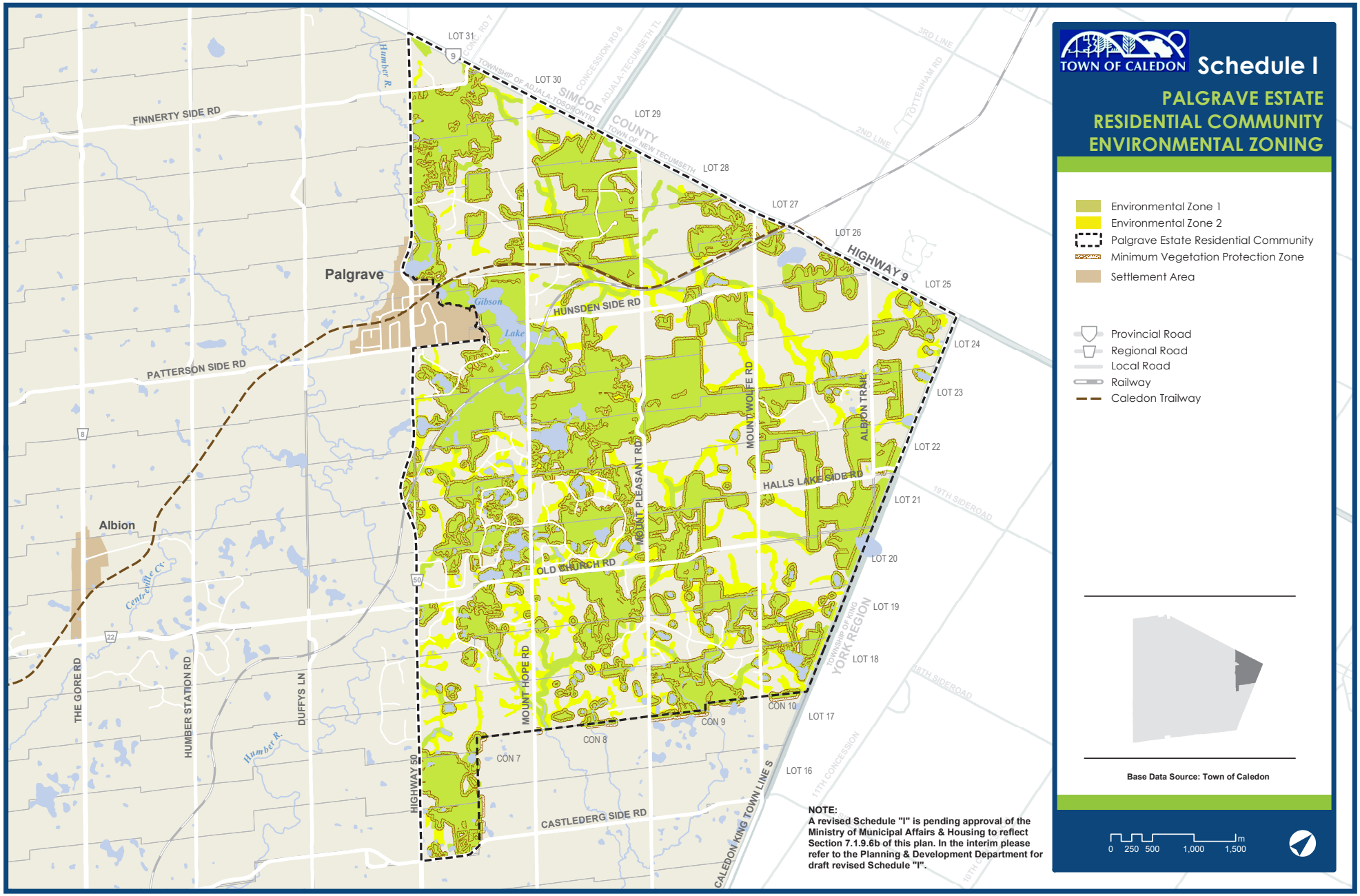

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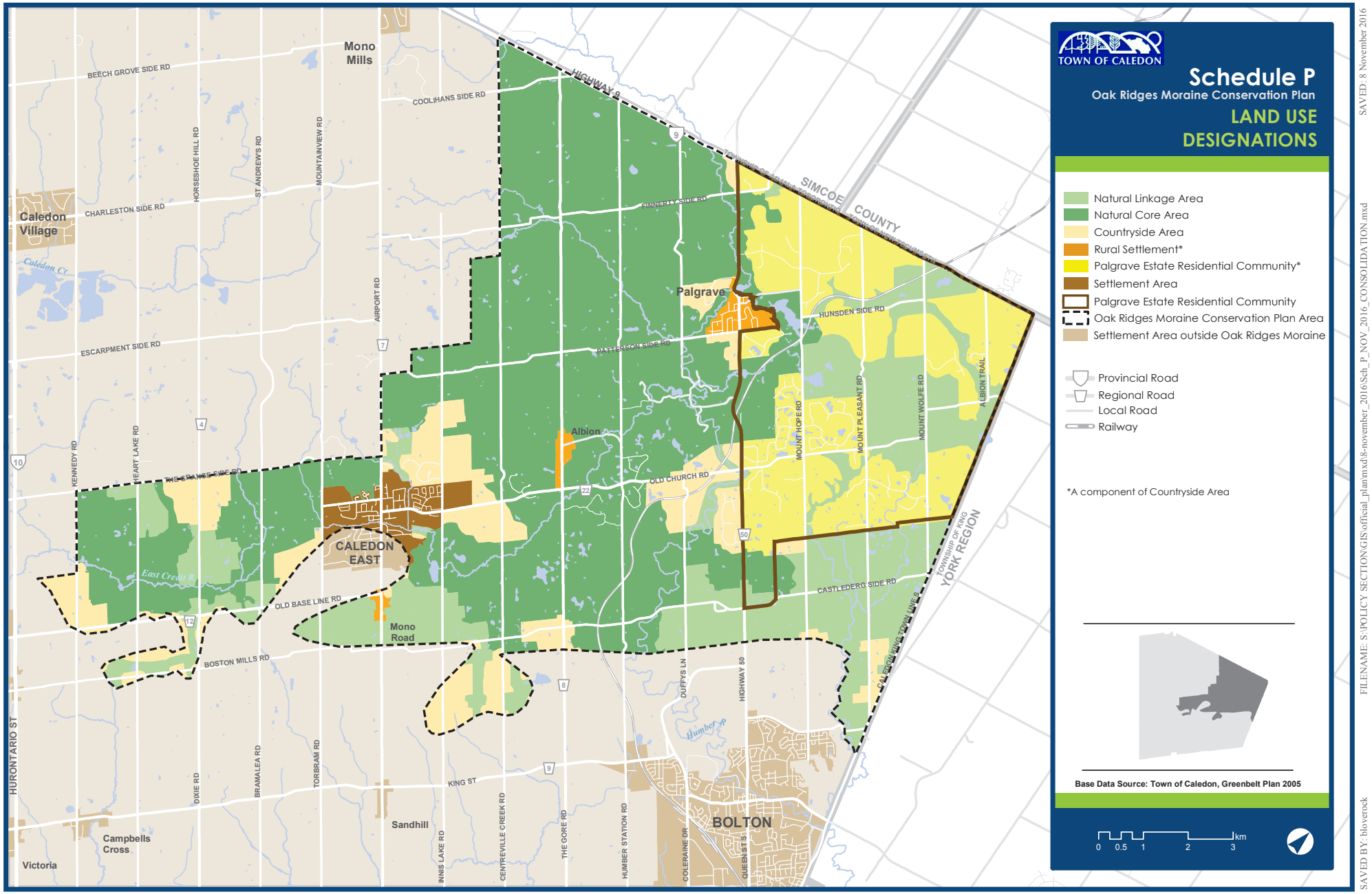

November 2016 Office Consolidation

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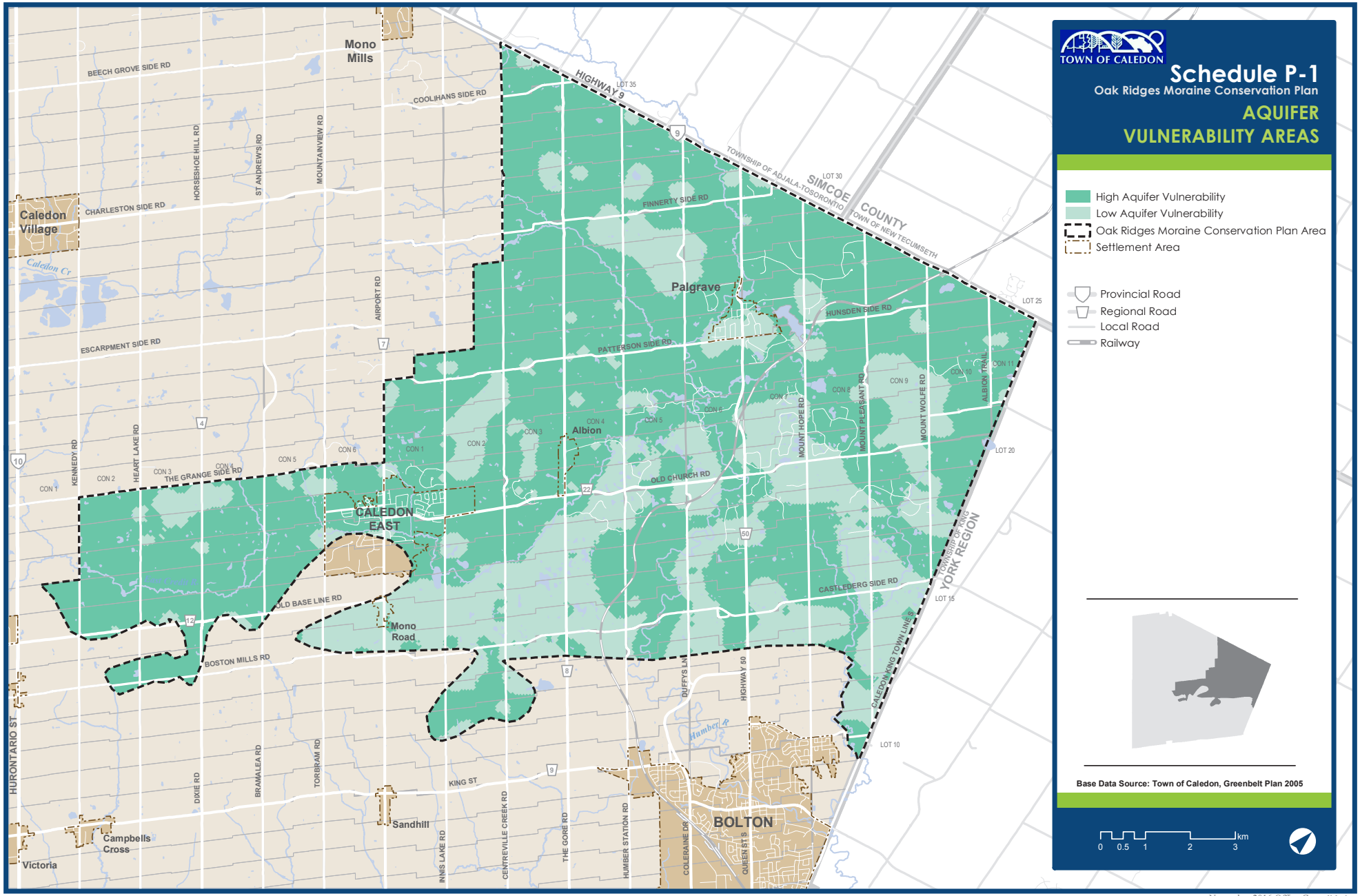

November 2016 Office Consolidation

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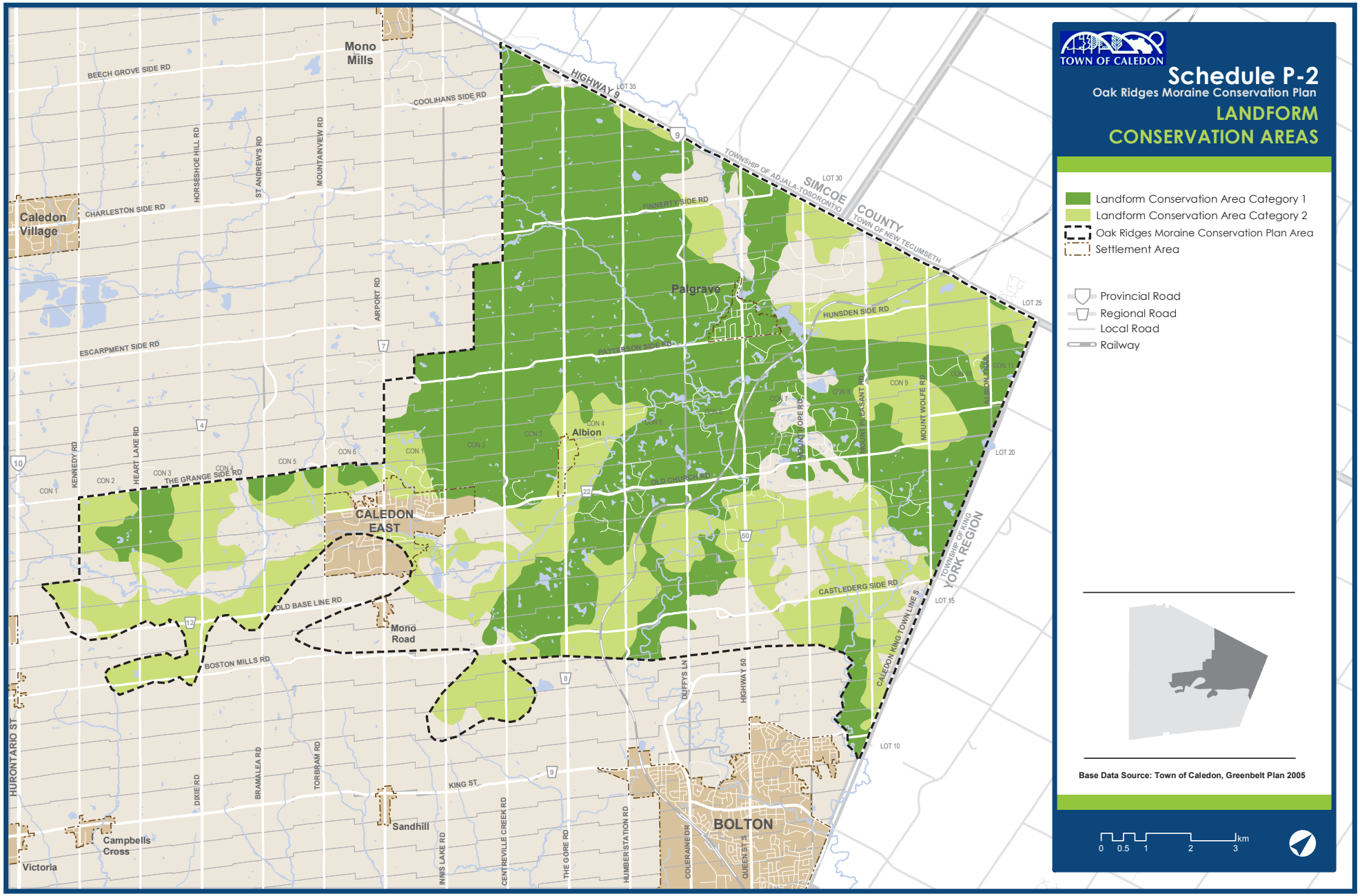

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SAVED: 8 November 2016

TABLE 3.1 TOWN OF CALEDON - Ecosystem Framework

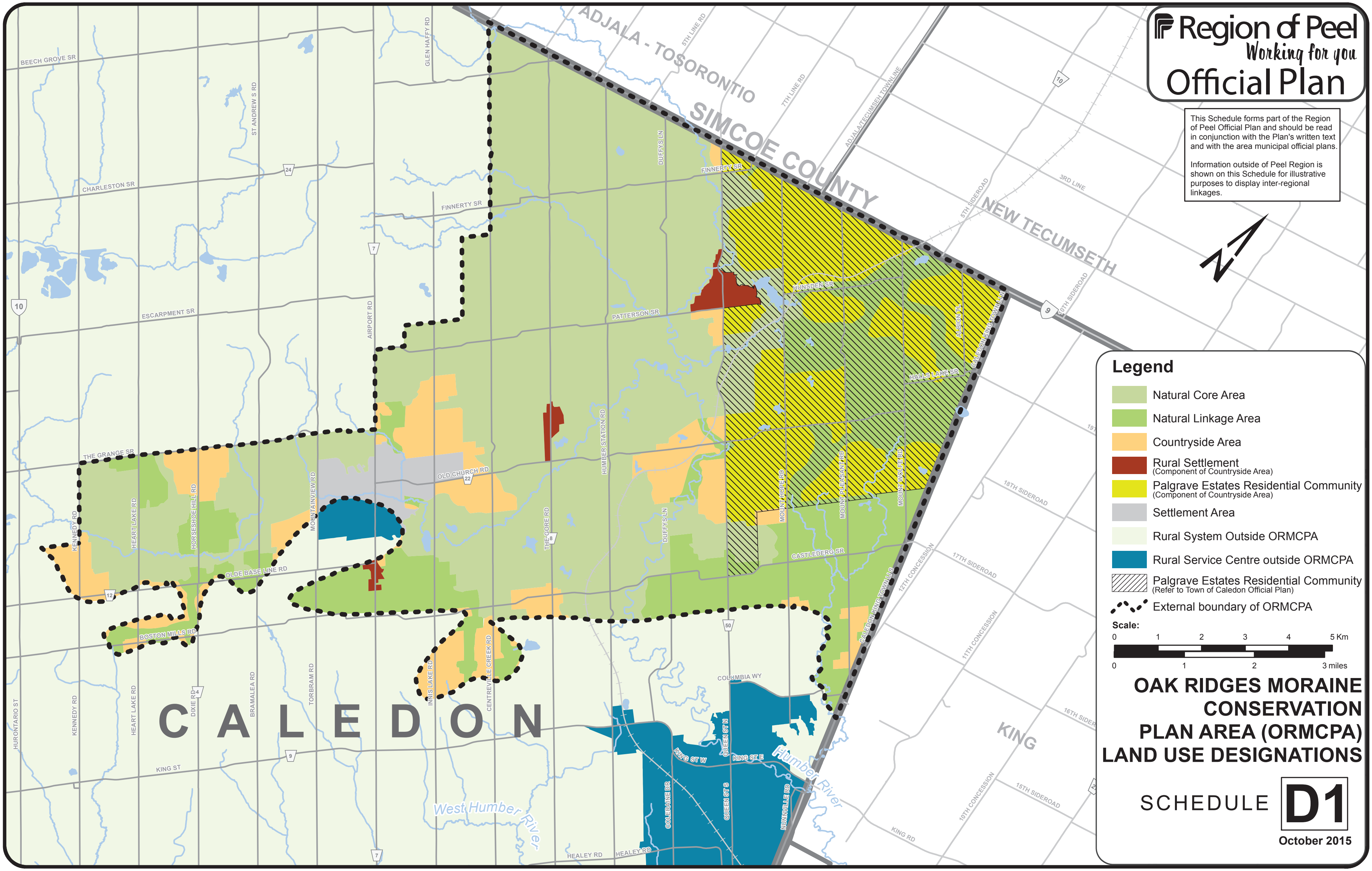
ECOSYSTEM COMPONENT	NATURAL CORE AREAS	NATURAL CORRIDORS	SUPPORTIVE NATURAL SYSTEMS	NATURAL LINKAGES
Woodlands	All Woodland Core Areas		All Other Woodlands	All Other Woodlands
Wetlands	All Wetland Core Areas		All Other Wetlands and all Wetland Adjacent Lands	All Other Wetlands and all Wetland Adjacent Lands
Niagara Escarpment Natural Areas	All NEC Natural Areas			
Niagara Escarpment Protection Areas			All NEC Protection Areas	All NEC Protection Areas
Areas of Natural and Scientific Interest (ANSIs)	All Life Science ANSIs		All Earth Science ANSI's	All Earth Science ANSIs
Environmentally Significant Area's (ESAs)	All ESAs		Potential ESAs	Potential ESAs
OPA226 Threatened and Endangered Species	All Significant Habitats of Threatened and Endangered Species		All Other Habitats of Threatened and Endangered Species	
Wildlife Habitat	All Significant Wildlife Habitat		All Other Wildlife Habitat	
Fisheries		All Core Fishery Resource Areas	All Other Fishery Resource Areas	All Other Fishery Resource Areas
Valley and Stream Corridors		All Valley and Stream Corridors		
Groundwater Systems			Bedrock Aquifers Surficial Aquifers Recharge Areas Discharge Areas	Recharge Areas Discharge Areas
Native Soils			Productive Soils	Erosion Prone Soils
Natural Slopes				> 15%
Oak Ridges Moraine Key Natural Heritage Features*	All KNHFs and their related MVPZs**	All KNHFs and their related MVPZs**		
Oak Ridges Moraine Hydrologically Sensitive Features*	All HSFs and their related MVPZs**	All HSFs and their related MVPZs**		
Greenbelt Key Natural Heritage Features*	All KNHFs*** and their related VPZs****	All KNHFs*** and their related VPZs****		
Greenbelt Key Hydrologic Features*	All KHFs*** and their related VPZs****	All KHFs*** and their related VPZs****		

TABLE 7.1
OAK RIDGES MORAINE KEY NATURAL HERITAGE FEATURES, HYDROLOGICALLY SENSITIVE FEATURES AND AREAS OF NATURAL AND SCIENTIFIC INTEREST (EARTH SCIENCE) MINIMUM AREAS OF INFLUENCE AND MINIMUM VEGETATION PROTECTION ZONES

Column 1	Column 2	Column 3	Column 4
Item	**Feature**	**Minimum Area of Influence**	**Minimum Vegetation Protection Zone**
1.	Wetlands	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause 7.10.5.1.4 a) iv) if a natural heritage evaluation is required
2.	Significant portions of habitat of endangered, rare and threatened species	All land within 120 metres of any part of feature	As determined by a natural heritage evaluation carried out under section 7.10.5.1.4
3.	Fish habitat	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause 7.10.5.1.4 a) iv) if a natural heritage evaluation is required
4.	Areas of natural and scientific interest (life science)	All land within 120 metres of any part of feature	As determined by a natural heritage evaluation carried out under section 7.10.5.1.4
5.	Areas of natural and scientific interest (earth science)	All land within 50 metres of any part of feature	As determined by an earth science heritage evaluation carried out under subsection 7.10.5.6.9
6.	Significant valleylands	All land within 120 metres of stable top of bank	All land within 30 metres of stable top of bank, subject to clause 7.10.5.1.4 a) iv) if a natural heritage evaluation is required
7.	Significant woodlands	All land within 120 metres of any part of feature	All land within 30 metres of the base of outermost tree trunks within the woodland, subject to clause 7.10.5.1.4 a) iv) if a natural heritage evaluation is required
8.	Significant wildlife habitat	All land within 120 metres of any part of feature	As determined by a natural heritage evaluation carried out under section 7.10.5.1.
9.	Sand barrens, savannahs and tallgrass prairies	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause7.10.5.1.4 a) iv) if a natural heritage evaluation is required
10.	Kettle lakes	All land within 120 metres of the surface catchment area	All land within the surface catchment area or within 30 metres of any part of feature, whichever is greater, subject to clause 7.10.5.1.4 b) iii) if a hydrological evaluation is required
11.	Permanent and intermittent streams	All land within 120 metres of meander belt	All land within 30 metres of meander belt , subject to clause 7.10.5.1.4 a) iv) if a hydrological evaluation is required
12.	Seepage areas and springs	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause 7.10.5.1.4 a) iv) if a hydrological evaluation is required

7.10.5.2 Connectivity

7.10.5.2.1 Within the ORMCP Natural Core Areas, Natural Linkage Areas and Countryside Areas, every application for *major development* shall identify planning, design and construction practices that ensure that no buildings or


Region of Peel
Working for you
Official Plan
This Schedule forms part of the Region of Peel Official Plan and should be read in conjunction with the Plan's written text and with the area municipal official plans.
Information outside of Peel Region is shown on this Schedule for illustrative purposes to display inter-regional linkages.
Legend
Natural Core Area
Natural Linkage Area
Countryside Area
Rural Settlement
(Component of Countryside Area)
Palgrave Estates Residential Community
(Component of Countryside Area)
Settlement Area
Rural System Outside ORMCPA
Rural Service Centre outside ORMCPA
Palgrave Estates Residential Community
(Refer to Town of Caledon Official Plan)
External boundary of ORMCPA
Scale:
0 1 2 3 4 5 Km
0 1 2 3 miles
OAK RIDGES MORAINE
CONSERVATION
PLAN AREA (ORMCPA)
LAND USE DESIGNATIONS
SCHEDULE D1
October 2015
ADJALA - TOSORONTIO
SIMCOE COUNTY
NEW TECUMSETH
KING
CALEDON
West Humber River
Humber River
BEECH GROVE SR
CHARLESTON SR
ESCARPMENT SR
FINNERTY SR
PATTERSON SR
THE GRANGE SR
OLD CHURCH RD
OLDE BASE LINE RD
BOSTON MILLS RD
CASTLEDERG SR
COLUMBIA WY
KING ST
KING ST W
KING ST E
HEALEY RD
HURONTARIO ST
KENNEDY RD
HEART LAKE RD
DIXIE RD
BRAMALEA RD
TORBRAM RD
AIRPORT RD
INNIS LAKE RD
CENTREVILLE CREEK RD
THE GORE RD
DUFFYS LN
HUMBER STATION RD
MOUNT HOPE RD
MOUNT PLEASANT RD
MOUNT WOLFE RD
CALEDON KING TOWN LINE
HORSESHOE HILL RD
MOUNTAINVIEW RD
ST ANDREW S RD
GLEN HAFFY RD
COLERAINE DR
QUEEN ST S
QUEEN ST N
NUNNVILLE RD
HUNSDEN SR
HALLS LAKE SR
ALBION TR
7TH LINE RD
3RD LINE
5TH SIDEROAD
10TH SIDEROAD
18TH SIDEROAD
17TH SIDEROAD
16TH SIDEROAD
15TH SIDEROAD
12TH CONCESSION
11TH CONCESSION
10TH CONCESSION
KING RD