Environmental Impact Study

1151 Hurlwood Lane

Township of Severn

Prepared for:
L!V Communities

Prepared by:
Azimuth Environmental
Consulting, Inc.

September 2024

AEC 21-128

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
Environmental Assessments & Approvals

September 30, 2024 AEC 21-128

L!V Communities
Ben Jones, Senior Land Development Manager
1005 Skyview Drive, Suite 301
Burlington, Ontario L7P 5B1

Re: **Environmental Impact Study for a Proposed Development – Hawk Ridge Golf Course, 1151 Hurlwood Lane, Township of Severn, County of Simcoe**

Dear Mr. Jones:

Azimuth Environmental Consulting, Inc. was retained to provide an Environmental Impact Study report for a proposed development at the location described above. The purpose of this report is to provide the Township of Severn and other review agencies with an understanding of natural environmental conditions and potential for impacts related to the proposed development on significant natural heritage features and functions of the property and adjacent lands. This report also documents natural environmental features present on the property and adjacent lands with regard to woodlands, fish habitat and Species at Risk.

Should you have any questions or require additional information please do not hesitate to contact the undersigned.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

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1.0 INTRODUCTION

Azimuth Environmental Consulting, Inc. (Azimuth) was retained by L!V Communities to undertake an Environmental Impact Study (EIS) for a proposed residential subdivision development on the Hawk Ridge Golf Course and Country Club lands in the Township of Severn (the "Township"), County of Simcoe (the "County"). The property is approximately (~) 126 hectares (ha) in size, with the majority of the property (~83ha) currently being used as a golf course. A map illustrating the property limits in their regional context is shown on Figure 1. It is our understanding that the Township has requested an EIS be undertaken due to presence of mapped woodlands, wetlands and fish habitat in the study area that is associated with a proposed land use change specific to the residential subdivision (*i.e.* part of the golf course to residential). The balance of the golf course lands are "other" lands owned by the proponent. Since the study area is not in the jurisdiction of an Ontario conservation authority, a provincial conservation authority permit would not be anticipated.

The purpose of this study is to identify candidate Key Natural Heritage Features (KNHFs) present in the study area and address potential impacts to those KNHFs. A review of background information, concomitant with a detailed field program, was undertaken in spring/summer 2023 to identify significant KNHFs. This report also examines potential for Species at Risk (SAR) protected under Ontario's *Endangered Species Act,* 2007 (ESA) to occur in the study area. The potential for negative impacts to KNHFs resulting from the proposed development is considered, and recommendations for avoidance and mitigation are provided.

For the purposes of this EIS, the study area comprises the entire property shown on Figures 1-3 and adjacent lands [within ~120 metres (m) of the property limits]. It is noted that the entire property was included in the field program, and results of the investigation of KNHFs for the entire property are reported herein. However, the focus of the proposed development, impact assessment, recommendations and conclusions are lands specific to the proposed land use change limits and adjacent lands (*i.e.* within 120m) - that is, the residential subdivision portion of the property.

Natural features in the overall planning area beyond the defined study area are discussed where applicable throughout this report.

2.0 PLANNING CONTEXT

2.1 Provincial Planning Policy (2020)

The Provincial Policy Statement (PPS) (MMAH, 2020) outlines policies related to natural heritage features (Section 2.1) and water resources (Section 2.2). The updated 2024 PPS (comes into effect October 20, 2024) will be intended to provide overall policy direction on matters of provincial interest related to development in Ontario and will apply province-wide, except where another provincial plan applies. Ontario's *Planning Act*, (1990) requires that planning decisions shall be consistent with the PPS. The study area for this assessment is located entirely in **Ecoregion 6E**.

According to Section 2.1.4 of the PPS, development and site alteration shall not be permitted in:

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

Similarly, 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 in:

a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E; and 7E;
b) *significant woodlands* in Ecoregions 6E; and 7E;
c) *significant valleylands* in Ecoregions 6E; and 7E;
d) *significant wildlife habitat*;
e) *significant areas of natural and scientific interest*; and,
f) *coastal wetlands* in Ecoregions 5E, 6E; and 7E that are not subject to policy 2.1.4(b).

It is ultimately the responsibility of the province and/or the Municipality to designate areas identified within Section 2.1.4 and 2.1.5 of the PPS as “significant”.

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

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

Furthermore, under Section 2.1.8 of the PPS, no development or site alteration will be permitted on lands adjacent to 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 there will be no negative impacts on the natural features and their ecological functions.

2.2 Endangered Species Act (2007)

Ontario's ESA provides regulatory protection to Endangered and Threatened species prohibiting harassment, harm and/or killing of individuals and destruction of their habitats. Habitat is broadly characterized in 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 out its life processes including reproduction, rearing of young, hibernation, migration or feeding.

The various schedules of the ESA included under O. Reg. 230/08 identify SAR in Ontario. These include species listed as Extirpated, Endangered, Threatened and Special Concern. As noted above, only species listed as Endangered and Threatened receive protection from harm and destruction to habitat on which they depend.

2.3 County of Simcoe (2023)

The County OP (County of Simcoe, 2023) refers to the Township's South of Division Road Secondary Plan for land use designations (Schedule 5.1; Appendix A). The property and adjacent lands do not occur in the vicinity of a Provincially Significant Wetland (PSW) or Area of Natural and Scientific Interest (ANSI) - Provincial or Regional - in accordance with Schedules 5.2.2 and 5.2.3 of the County OP (Appendix A). The property and adjacent lands are associated with a mapped watercourse (Schedule 5.2.2, Appendix A).

Simcoe County Mapping (2024) illustrates portions of the property contain woodlands, unevaluated wetlands and Locally Significant Wetlands (Silver Creek wetland complex) (Appendix A).

2.4 Township of Severn (2010)

As per the Township OP (Township, 2010), the property is within a Secondary Plan Area (Schedule A South, Appendix A). The South of Division Road Secondary Plan Area of the Township OP designates the majority of the property as Open Space (Secondary Plan Schedule D, Appendix A). The northern region of the property is designated Rural, as are lands proximal to the watercourse that traverses the property (Secondary Plan Schedule D, Appendix A). Portions of the property are mapped as containing Environmentally Sensitive Areas - Local Wetlands (Schedule F, Appendix A).

Section E 4.2.2 of the Township OP states that golf courses are permitted in Open Space lands.

The Township OP does not contain criteria for determining woodland significance, nor is Significant Woodland mapping available on OP Schedules. Criteria for Significant Valleylands are not outlined in the Township OP.

2.5 Federal *Fisheries Act*

The *Fisheries Act* includes protections for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects near water. The *Fisheries Act* provides protection against the "death of fish, other than by fishing", [Section 34.4(1)] and the "harmful alteration, disruption or destruction of fish habitat", [Section 35(1)], otherwise known as HADD. In cases where impacts to fish and fish habitat cannot be avoided, and the project does not fall within waterbodies where Fisheries and Oceans Canada (DFO) review is not required, proponents are asked to submit a request for review to their Fish and Fish Habitat Protection Program regional office to determine approval requirements. All projects are encouraged to avoid causing the death of fish and a HADD of fish habitat, using measures to protect fish and fish habitat that include standards and codes of practice for common works, undertakings and activities.

3.0 STUDY APPROACH

A combination of background information and field data were used to fulfill the objectives of this EIS. Azimuth undertook the following activities for this study:

- Conducted the following three (3)-season field surveys on the property to document existing natural heritage features, functions and species:
    - Attended the property in winter 2023 during leaf-off conditions to conduct a high-level screening for presence of potential candidate bat snag trees on the property (January 2023);
    - Screened structures on the property in winter 2023 that could potentially be planned for demolition (January 2023);
    - Evaluated/mapped vegetation community types based on Ecological Land Classification (ELC) methods (June-September 2023);
    - Completed three (3) spring/summer/fall vascular plant inventories in 2023, including a screening for Butternut (*Juglans cinerea*) and Black Ash (*Fraxinus nigra*) (both Endangered) (June-September 2023);
    - Delineated boundaries of wetland features on the property by collecting GPS coordinates of feature edges (June-September 2023);

    - Conducted three (3) evening calling amphibian surveys in early, mid and late spring (mid-late April, mid-late May, mid-late June 2023);
    - Completed two (2) dawn breeding bird surveys, with a third dawn breeding bird survey specifically for Red-headed Woodpecker (June-early July 2023);
    - Completed three (3) nocturnal breeding bird surveys with regard for SAR birds including Eastern Whip-poor-will and Common Nighthawk (May-June 2023);
    - Completed five (5) basking turtle surveys at 13 ponds with potential habitat for SAR turtles (April-June 2023);
    - Evaluated fish habitat features in the study area, including Silver Creek and its tributaries, during three (3) surveys under spring and summer flow conditions (May-June 2023);
    - Conducted fish sampling of Silver Creek and any tributaries/drainage features within the property limits, including any online ponds (May 2023);
    - Recorded incidental wildlife observations during the field visits;
- Completed a desktop Significant Woodland assessment in regards to the woodlands on the property and adjacent lands;
- Completed an assessment of potential SAR and their habitat in the study area;
- Completed a Significant Wildlife Habitat (SWH) assessment in the study area; and,
- Assessed the potential direct and indirect impacts of the proposed development on confirmed and candidate KNHFs identified.

The above activities were provided to the Township's peer reviewers, RiverStone Environmental Solutions Inc. ("RiverStone") and Severn Sound Environmental Association (SSEA), as a Terms of Reference for the field program and impact assessment on June 27, 2024. A response was received from RiverStone on August 22, 2024 (Appendix A). RiverStone requested the following additional fieldwork:

1) Acoustic monitoring if warranted based on the density of bat snags;
2) Detailed Black Ash inventory and assessment based on the provincial protocol; and,
3) Fall fish spawning surveys and assessment of fish spawning areas for Brook Trout (*e.g.* indicators of groundwater upwelling, one full season of temperature monitoring at several locations in the watercourse).

Bat snag mapping and acoustic monitoring for possible SAR bats on the property can be completed in suitable ELC vegetation communities (where tree removals have been

proposed) at a future project stage as Draft Plan Conditions to be cleared prior to subdivision registration. A species-specific inventory and assessment of Black Ash located within 30m of the proposed development limits can also be completed in the future as a Draft Plan Condition to be cleared prior to subdivision registration. Assessment of fall fish spawning areas can be completed in fall 2024, as well as a full season of water temperature monitoring, with results provided in an EIS Addendum.

In addition, RiverStone inquired in regards to whether:

4) An evaluation of wetlands on the property based on the Ontario Wetland Evaluation System was warranted (see Section 3.2 below); and,
5) Species-specific snake surveys had been completed (see Section 3.3.5 below).

Azimuth has not received Terms of Reference review comments from the SSEA at the time of report submission.

3.1 Background Information

A review of the following background/mapping sources provided additional information on property characteristics, habitat, wildlife, rare species and communities and general cultural/historic aspects of the study area:

- Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC; MNR, 2024a);
- Ontario Ministry of Natural Resources (OMNR) Natural Heritage Reference Manual (NHRM; OMNR, 2010);
- Atlas of the Breeding Birds of Ontario (OBBA; Cadman *et al.*, 2007);
- iNaturalist (NHIC) Rare Species of Ontario (iNaturalist, 2024);
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2024);
- MECP's Species at Risk Ontario list (MECP, 2024a);
- MECP Ontario Regulation (O. Reg.) 6/24 - Black Ash species protections (MECP, 2024b);
- MECP Ontario Regulation (O. Reg.) 7/24 - Black Ash habitat protections (MECP, 2024c);
- Air photos available for the study area (Google, VuMap);
- Government of Canada's Species at Risk Public Registry;
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Aquatic/fisheries SAR interactive mapping (DFO, 2024);
- MNR Land Information Ontario, Ontario Geohub. Aquatic resource area line segment online database (MNR, 2024b);

- MNR Land Information Ontario, Ontario Geohub. Aquatic resource area survey point online database (MNR, 2024c);
- Simcoe County interactive mapping (2024);
- County OP (2023); and,
- Township OP (2010).

3.2 Vegetation Community Mapping and Surveys

Prior to undertaking field studies, an initial classification of vegetation communities was undertaken using recent air photo imagery for an area encompassing the study area. Vegetation community boundaries were then checked in the field on June 9, July 27 and September 21, 2023 during the growing season when the emergent ground cover vegetation layer was present. Vegetation community types were classified using ELC protocols. Since the wetland communities on the property were associated with an existing Open Space area with a history of land use disturbance as a golf course, use of the OWES system to document the wetlands and their characteristics was considered unnecessary. However, the Azimuth ecologist who surveyed the vegetation communities, including wetlands, was OWES-certified and ensured wetland boundaries were delineated in accordance with provincial standards.

Property visits were undertaken by a qualified ecologist with existing knowledge related to rare, Threatened and Endangered plant species with potential to occur in the area. The property assessment was focused during ELC work to ensure that appropriate effort was made to detect any federally or provincially designated species, notably SAR as identified under the ESA (*e.g.* Butternut, Black Ash). Any observations of rare plant species were noted.

As part of an assessment of whether or not woodland vegetation communities on the property were part of a larger regional Significant Woodland, the tracing tool in Google Earth Pro was used to estimate the size (in ha) of contiguous woodland cover on and adjacent to the property not separated by gaps ≥20m wide based on current aerial imagery (OMNR, 2010). Woodland cover on the west side of Uhthoff Line was excluded from the size estimation of contiguous cover because those areas were separated from woodlands on-property by gaps ~22-36m wide. Since municipal criteria to determine woodland significance were not available at the time of preparing this report, determination of whether or not woodlands were Significant Woodlands was based on provincial criteria in the NHRM (OMNR, 2010).

3.3 Wildlife Surveys

Wildlife species using the study area were identified from direct observation, auditory signs and/or through interpretation of other signs (tracks, scats, vocalizations, *etc.*) as a matter of course while conducting field surveys.

3.3.1 Species at Risk

The SAR assessment undertaken for the scope of this assignment included consideration of SAR with potential to occur at the County scale. The County list was modified based on habitat features in the area and species' ranges. Where potentially suitable habitat was present, the assessment also considered SAR occurrence records in NHIC 1x1km grid squares 17PK2343, 17PK2342, 17PK2243 and 17PK2242, OBBA 10x10km grid square 17TPK24 (highest breeding evidence; Cadman *et al.*, 2007) and ORAA 10x10km grid square 17PK24 that encompassed the study area (Appendix B). iNaturalist ("Verifiable" filter) was also searched for SAR records in the study area as part of the background review ((iNaturalist, 2024) (Appendix B). Habitat requirements and appropriate designations (Endangered, Threatened or Special Concern) are outlined in Table 1. The SAR assessment followed the MECP guidance document - Client's Guide to Preliminary Screening for SAR (MECP, 2019) that emphasizes SAR screenings are to be undertaken as a proponent-driven exercise.

3.3.2 Dawn Breeding Birds

Two dawn breeding bird surveys were conducted on June 6 and June 29, 2023 guided by point count methodology presented in Appendix D of the OBBA Guide for Participants (2001). Surveys were conducted no earlier than one half hour before sunrise and were completed by ~10:30am. Surveys were completed under suitable weather conditions [*i.e.* no precipitation and light winds (Beaufort wind scale ≤3), see Table 4], with an observation period of 10min carried out at the 15 point count stations shown on Figure 2B. Conditions for breeding remained favourable throughout in a manner that would not be expected to undermine survey results. The point count stations used conferred reasonable property coverage.

Given the potential for Red-headed Woodpecker (Endangered) to be present on the property based on habitat characteristics, two Red-headed Woodpecker playback surveys were conducted at the 15 point count stations. The playback surveys were completed on June 6 and June 22, 2023. The June 22, 2023 visit (Red-headed Woodpecker playback survey only) allowed completion of the second Red-headed Woodpecker playback within the peak activity period for the species.

Red-headed Woodpecker playbacks were based on a protocol developed by the Wisconsin Department of Natural Resources (2017), as provided by the MECP for

projects where Red-headed Woodpecker surveys were appropriate. In accordance with the protocol, playbacks were performed under suitable conditions (no fog or rain, wind B≤2) between May 25 and June 30 when the species is considered to be most detectable (if present). Each playback survey involved a 5min silent observation period during which time the surveyor listened for vocalizations from the species, followed by a 3min playback and a second 5min silent observation period. Playbacks on June 6, 2023 were conducted after the dawn breeding bird survey at a given point count station.

3.3.3 Amphibian Breeding

Three evening calling amphibian surveys were conducted at 17 survey stations to assess amphibian breeding on and/or adjacent to the property in accordance with the Great Lakes Marsh Monitoring Program (Bird Studies Canada, 2008) protocol (Figure 2B). Sixteen of the 17 stations were associated with the 25 naturalized ponds/wetlands located on-property, and one naturalized pond/wetland immediately southeast of the property on adjacent lands. In accordance with the protocol, the surveys were completed during the period between 30min after sunset and midnight, on an evening with winds Beaufort <4. Stations provided appropriate coverage of the property plus adjacent pond/wetland habitat.

The early-spring survey was conducted over two evenings on April 14 [Stations #1-12; minimum (min.) temperature of 5°C] and April 16, 2023 [Stations #13-17; min. temperature of 5°C]. The mid-spring survey was completed on May 29, 2023 (min. temperature of 10°C). The late-spring survey was completed on June 28, 2023 (min. temperature of 17°C). Surveys were 5 min in duration.

3.3.4 Nocturnal Breeding Birds

Two nocturnal breeding bird surveys were conducted during the “mid-season” window (optimal timing) and one during the “late-season” window (breeding season timing) based on areas covered by the 17 evening calling amphibian survey stations (Figure 2). The first two mid-season nocturnal breeding bird surveys were completed on May 29 and June 9, 2023. In accordance with provincial survey protocols (OMNR, 2014), survey dates were chosen within the optimal survey windows either the week leading up to the full moon (May 28-June 3, 2023) or the week after the June full moon (June 4-June 10, 2023) to provide the ideal conditions for the species to be active and detected (if present). The third nocturnal breeding bird survey was completed on June 28, 2023 in the week leading up to the July full moon (June 27-July 3, 2023). The surveys for nocturnal birds were conducted proximal to the evening calling amphibian survey stations in areas of potentially suitable habitat, and survey station location distribution (~500m apart) was considered to provide full detection coverage. Breeding evidence was assessed using

OMNR (2014) criteria (males calling on two or more surveys from the same general location conferred "Probable" breeding).

3.3.5 Turtles and Other Reptiles

To screen for possible presence of SAR turtles, five visual encounter (basking) turtle surveys were completed in 2023 on May 12 (9:45-13:00), May 15 (10:40-14:30), May 16 (10:40-14:30), May 25 (12:50-16:20) and June 5 (8:45-12:15) in accordance with the open water wetlands/ponds provincial protocol for Blanding's Turtle (OMNRF, 2015). As per the protocol, the surveys were completed during the period of spring ice-off and June 15 between 08:00 and 17:00 during sunny weather with air temperatures at least 10ºC, or on partly overcast days with air temperatures above 15ºC. Each survey was ~15-20min in duration, with surveys spread out over at least three weeks (OMNR, 2015). Due to property size, basking surveys were conducted at 13 of the 25 naturalized ponds/wetlands on the property considered to have potentially suitable habitat for turtles. Survey locations are shown on Figure 2B. For the purposes of this assessment, the ponds are treated as naturalized features with potential for use by turtles.

Any observations for snakes were undertaken as a matter of course during fieldwork. Given the nature of the area for development (an open, disturbed golf course with high levels of activity throughout the season), and the limited number of sensitive snake species considered to have the potential to be present (see Table 1), dedicated snake surveys were not completed.

3.3.6 Bats and Bat Habitat

Several roosting bat species (including Endangered bats Little Brown Myotis, Northern Myotis and Tri-colored Bat) may use large trees [*e.g.* ≥25 centimetres (cm) diameter at breast height (DBH)], although trees smaller than 25cm DBH in early stages of decay may also be used (MECP, 2022a; MECP, 2022b). Trees used by roosting bats are "snag" trees - those having features such as cracks, splits, cavities/holes, hollows, *etc.* that could feasibly provide access for bats. Given the extent of woodland cover on the property, the presence of candidate bat snag trees was assumed for this study. Detailed bat snag mapping and acoustic monitoring have not been completed to date.

3.4 Fish and Fish Habitat

Azimuth completed fish habitat investigations in the spring (May 23, 2023) and summer (June 30, 2023) on the subject lands to document the extent of fish habitat features under both low flow and high flow conditions. Property investigations were aimed at understanding the location of watercourses and drainage features on the property, noting channel features such as wetted width, water depths, flow, bank slopes, vegetation

communities, substrate material, general morphometrics and observations of fish to determine characteristics of fish habitat and fish habitat sensitivity.

Background information pertaining to fish community data and thermal regime were reviewed using MNR Land Information Ontario (LIO) online databases (MNR 2024a/2024b). Fish sampling was also completed on May 30, 2024 under an MNRF Licence to Collect Fish for Scientific Purposes (AMOS-2023-FWCA-00038). Fish sampling was primarily completed to verify if Brook Trout were present within Silver Creek and any of its tributaries as historical records indicated they were once present within this system. All drainage features and online ponds were also sampled on May 30, 2024.

4.0 EXISTING CONDITIONS

4.1 Land Use

The ~126ha property is located northwest of the core populated area of Orillia, ~2.1km west of Lake Couchiching. The property is bound by Division Road West to the north, Burnside Line to the east, Highway 11 to the south and Uhthoff Line to the west. The site of the existing Hawk Ridge Golf Course and Country Club, the property is comprised of three golf courses and amenities (Figure 2). Topography in the study areas is generally flat at ~230-235m above sea level (mASL) (VuMap 2.0).

At the landscape scale, the adjacent lands are a combination of woodland areas (to the south, west, north and northeast), residential development (to the east on Hurlwood Lane and Hawk Ridge Crescent) and commercial/residential land use (to the east). Highway 11 runs ~800m to the east and 400m to the south of the property. Additional golf course lands occur to the east of the southern extent of the property. The core area of Orillia is to the east and south on the other side of Highway 11.

4.2 Terrestrial Resources

4.2.1 Vegetation

The limits of the thirty-seven (37) ELC community types identified in the study area are illustrated on Figure 2A. A complete list of vascular plant species identified on the property is presented in Tables 2A-2C, organized by ELC polygon for each of spring, summer and fall respectively). Summary descriptions of the vegetation communities are presented in Table 3. Appendix C provides a photographic record of the property, including some habitat photographs.

The property is a mosaic of upland forest, woodland and meadow vegetation communities, some of which occur in multiple locations across the property (Figure 2A).

In general, the majority of the ELC vegetation communities are distributed in the northern and southern regions of the property, in addition to the riparian areas that are associated with Silver Creek (Figure 2A).

None of the vegetation communities or species documented were of federal or provincial conservation concern (MNR, 2024). There are no elements of occurrence (EO_ID) in the study area for provincially Endangered or Threatened, or provincially rare vegetation species according to the NHIC database (MNR, 2024). Black Ash (Endangered) was identified during property investigations. The general areas within the ELC communities on the property where Black Ash were observed are illustrated on Figure 2B; a detailed Black Ash inventory and health assessment have not been completed. No Butternut trees were found. Further, no provincially rare (S1-S3) species were observed during the field program (NHIC, 2024; Tables 2A-2C).

4.2.2 Wildlife

Mammals

Evidence of eight mammalian species [Eastern Gray Squirrel, Eastern Chipmunk, Red Squirrel (direct observations); Eastern Coyote, White-tailed Deer, Muskrat, Otter (tracks); Beaver (teeth marks on trees)] was observed. Given proximity of the study area to large natural areas in the greater landscape, it is expected that the following other mammals could conceivably be encountered in the study area: small mammal species (various mice, voles, and shrews), Northern Flying Squirrel, weasel species, Striped Skunk, Eastern Cottontail, Snowshoe Hare, Porcupine, Raccoon, Red Fox.

Areas of contiguous woodland cover that extend off the property to the north, northwest or south were observed to have potential candidate bat snag trees. On May 29, 2023 during the second evening calling amphibian survey, two individual bats (species unknown) were observed in the area of survey Station #10.

Amphibians

Results of the three evening calling amphibian surveys are presented in Table 4. As seen in Table 4, a total of six (6) evening calling amphibian species were detected during the survey effort. Although American Bullfrog was not heard during the three surveys, one individual was observed basking in Pond #8 on June 5, 2023.

No salamanders or newts were observed during the field program, and no evidence of vernal pooling providing possible breeding opportunities for salamanders was observed.

Consistent with field data, background review of ORAA data revealed recent (2018-2019) evening calling amphibian records for American Bullfrog, Gray Treefrog, Green

Frog, Northern Leopard Frog, Spring Peeper, Western Chorus Frog (not detected during surveys) and Wood Frog (Appendix B) in the 100km^2 grid square 17PK24 encompassing the study area.

Breeding Birds

Fifty-one (51) bird species were recorded during the June 6 and June 29, 2023 dawn breeding bird surveys, including three (3) species that were either identified incidentally only or were detected only during the Red-headed Woodpecker playback survey component of the dawn birds survey effort (Table 5). One additional bird species, Barred Owl, was observed with young as an incidental observation only in the FOCM3-1 north-central region of the property, for a total of 52 bird species detected.

Consistent with review of OBBA records within 100km^2 of the property (Appendix B), two Special Concern bird species were identified: Eastern Wood-pewee (two individuals detected) and Wood Thrush (one individual detected) (Table 5, see also Table 1). An OBBA record for Barn Swallow (Special Concern) was identified, but the species was not detected on-property during the field program. Background OBBA records were also found for Chimney Swift, Bobolink and Eastern Meadowlark (all Threatened) within 100km^2 of the study area (Appendix B); these three species were not detected during dedicated breeding bird surveys or as incidental observations. An Eastern Wood-pewee record was also found in NHIC (Appendix B). No other provincially at-risk bird species were identified in NHIC (Appendix B). Two provincially rare (S1-S3) bird species records were found for lands within 1km of the study area: American Coot and Blue-winged Teal (both S3), but the species were not observed.

Red-headed Woodpecker (Endangered) was detected during field investigations. During the Red-headed Woodpecker playback survey on June 6, 2023 (6:57am to 10:44am), at Point Count Station #11, one Red-headed Woodpecker flew over the speaker during the playback segment from the northeast but did not vocalize. On June 22, 2023, no responses by the target species were observed during the playback survey (6:40am to 9:56am). However, one Red-headed Woodpecker was observed incidentally with a juvenile and heard calling proximal to Pond #8 at 10:04am on June 22, 2023, evidence of Confirmed breeding as per the OBBA protocol.

No Whip-poor-will or Common Nighthawk were heard on the property or adjacent lands during the three nocturnal bird surveys.

Turtles and Other Reptiles

During the five basking turtle surveys of the 13 ponds, a total of five (5) Snapping Turtles (Special Concern) and four (4) Midland Painted Turtles were observed (Table A).

Review of iNaturalist and the ORAA (most recent record 2019) identified a record for Snapping Turtle (Appendix B). Records from the ORAA were also found for Blanding's Turtle (Threatened; most recent record 2018) and Northern Map Turtle (Special Concern; most recent record 2018) in the 100km^2 grid square encompassing the study area (Appendix B). These two species were not observed on the property during the field program, nor would be anticipated in the study area based on habitat (see Table 1).

Table A. Results of SAR Basking Turtle Surveys

	No. of Turtles Observed				
Pond No.	**Survey 1**	**Survey 2**	**Survey 3**	**Survey 4**	**Survey 5**
1	0	0	0	0	0
2	0	0	0	1 P	0
3	1 P	0	0	0	0
4	1 S	0	0	0	0
5	1 S	0	0	0	0
6	0	0	0	0	0
7	0	0	0	1 S	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	1 P, 1 S	0	0	1 P	0
12	0	0	0	0	1 S
13	0	0	0	0	0
Total:	**5**	**0**	**0**	**3**	**1**

See Figure 2B for ponds surveyed.
Turtles observed: "P" = Midland Painted Turtle; "S" = Snapping Turtle; no Threatened or Endangered turtle species were observed. No turtle nesting observed.

Data from ORAA indicated records from 1989-2019 for six snake species in the 100km^2 grid square 17PK24, including a subspecies of Eastern Ribbonsnake, the Northern Ribbonsnake (Appendix B). No snakes were observed during the field program.

4.3 Species at Risk

The SAR assessment (Table 1) fully considers SAR with potential to occur in the planning area. Based on the SAR assessment in combination with vegetation communities and other environmental features observed during field investigations, the following species are considered below in this report:

- **Threatened or Endangered**:
  - Black Ash;

- Little Brown Myotis (Potential);
- Northern Myotis (Potential);
- Red-headed Woodpecker;
- Tri-colored Bat (Potential);

- **Special Concern**:
  - Eastern Wood-pewee;
  - Snapping Turtle; and,
  - Wood Thrush.

Only species designated Threatened or Endangered receive individual and habitat protection under Section 9 and Section 10 of the ESA. Special Concern species are discussed further in the context of SWH (Habitat for Special Concern and Rare Wildlife Species) below.

4.4 Wetlands

Consistent with field surveys, there are wetlands on the property according to County, Township, (Appendix A) and provincial mapping resources (Appendix B), including the Silver Creek Swamp Locally Significant Wetland Complex. Provincial NHIC mapping from 2023 shows one isolated wetland unit each in central and southern regions of the property as being part of the Silver Creek Swamp Locally Significant Wetland Complex. Mapping from Ontario GeoHub (MNR, 2024c) for the Complex shows the feature as being in the northern area of the property only. For the purposes of this assessment, the 2024 Ontario GeoHub data layer has been used. Over the course of the study, it was determined that background provincial NHIC mapping was not completely accurate, and was thus refined (Figure 2A).

There are no mapped Provincially Significant Wetlands (PSW) on or adjacent to the property (Appendix B). Mapping from NHIC indicates additional unevaluated wetlands on adjacent lands to the east, south and west of the property limits (Appendix B). For the purposes of this assessment, unevaluated wetland units are referred to as "Other" wetlands. Wetland limits confirmed within the property boundaries are similarly referred to as "Other" wetlands for the purpose of this assessment.

4.5 Candidate Significant Woodlands

Provincial mapping shows part of the northern and southern regions of the property as "Woodland" (Appendix B). Other treed areas of the property are associated with the golf course and are generally comprised of landscape trees. The Township does not have criteria for assessing woodland significance or Significant Woodland mapping.

In the northern region of the study area, aerial imagery shows two forest/woodland units ("woodlands"), as illustrated on Figure 2A. Based on ELC vegetation community mapping in the field, Woodland Unit #1 includes primarily FOMM7(a), FOCM3-1 and SWCM1 ELC polygons (shown as woodland sub-units 1a, 1b and 1c on Figure 2A; ~20.7ha combined). Woodland Unit #2 contains FOCM3-1 (Figure 2A; 4.9ha). Based on aerial imagery interpretation, the overall Woodland #1 is separated from Woodland #2 by a gap >20m. In the southern portion of the property, two additional woodland areas were estimated at ~6.5ha (Woodland Unit #3) and ~4ha (Woodland Unit #4) (see Appendix A). Woodlands #3-4 are separated by a gap >20m. The significance of the woodland units on the property is assessed below.

4.5.1 Woodland Size

A Candidate Significant Woodland feature represents a forested block that remains unbroken (≤20m gaps per NHRM criterion). The four woodland units on the property are bound by Uhthoff Line to the west, agricultural land to the north, agricultural/residential lands to the east and planned residential development to the south toward Highway 11. The woodland units are treated as individual units for the purposes of this assessment because they are separated by gaps in contiguous woodland cover by ~25-30m (OMNR, 2010) with shrubland/open areas. The Township has ~56.5% woodland cover (MNRF, 2013; Appendix A). According to the NHRM (OMNR, 2010), in areas where woodland cover is 30-60% of the land cover in the planning area, woodlands are "Significant Woodlands" if they are 50ha or larger in size. Consequently, each of the four woodland units on the property is not considered to be part of larger Significant Woodland features in the region based on size. The woodland features do not meet Woodland Size criteria for significance described in the NHRM (OMNR, 2010). It follows that the woodland units on the property are treated as "Non-significant Woodland" for the purposes of this assessment with regard for the Woodland Size criterion.

4.5.2 Woodland Interior

Woodland interior is defined as any portion of woodland greater than 100m from any woodland edge, including those less than 20m in width such as roads or hydro corridors (NHRM, 2010). Based on the range of 30-60% woodland cover in the planning area, the overall shape of woodlands on the property and application of a 100m buffer from the woodland edge (NHRM, 2010), the four woodland units would not contain 8.0ha or more of woodland interior habitat (Figure 3). Consequently, the woodlands would not be considered Significant Woodlands based on the amount of interior woodland habitat.

Since the woodland units do not meet the size criterion, the remaining assessment criteria [Proximity to Other Woodlands or Habitats, Linkages, Water Protection, Woodland Diversity, Uncommon Characteristics; (NHRM, 2010)] do not need to be considered.

The assessment of woodland significance has determined that the four woodland units on the property are not Significant Woodlands based on the criteria evaluated, and are not considered further in the assessment.

4.6 Candidate Significant Valleylands

No portion of the study area is identified as Significant Valleyland nor assigned a similar designation on municipal or provincial mapping resources. The NHRM (2010) was used to assess candidacy for Significant Valleylands. Criteria for Significant Valleylands include Surface Water Functions, Groundwater Functions, Landform Prominence, Distinctive Geographic Landforms, Degree of Naturalness, Community and Species Diversity, Unique Communities and Species and Linkage Function. Consideration of the criteria is based on their appropriateness to a study (NHRM, 2010).

4.6.1 Surface Water Functions

Silver Creek is a permanent watercourse on the property with a defined stream channel holding water year-round (*i.e.* at least two months of the year). The creek conveys water from the Silver Creek Basin [C.F. Crozier & Associates Inc. (Crozier); Crozier, 2024a]. The Silver Creek Basin has a catchment area ≥50ha, estimated at ~460ha (Crozier, 2024a), and the creek is associated with wetlands. However, there are no areas of historic or active erosion, characterized by exposed soils along the shoreline, river banks or valley walls. There are also no instream islands or areas of historic or active deposition of alluvial soils (*e.g.* bottomlands, terraces, levees or deltas). As such, the feature would not be considered to meet the surface water functions criteria for Significant Valleylands.

4.6.2 Groundwater Functions

In regards to groundwater functions, groundwater infiltration monitoring has not been completed for the property, as of the time of this EIS, so an evaluation to identify areas making an important regional contribution to groundwater infiltration cannot be conducted at this time. Overall, however, the wetlands and two minor springs on the property (see Figure 2B) would not be considered to represent areas of significant groundwater release deemed important for maintaining wetlands, streams and rivers at a regional scale. Furthermore, no seepage slopes were observed. Therefore, based on the information available, Silver Creek would not be considered to meet the groundwater functions criteria for significance.

4.6.3 Landform Prominence

Landform prominence standards require “large, well-defined valleylands” that “are significant landscape features essential to the character of an area.” Presence of a well-defined valley morphology (*e.g.* valley slopes) with an average width of ≥25m (NHRM,

2010). In the central region of the property, a section of Tributary A appears to have been redirected (see Section 4.9.2 below). As such, a narrow/steep cut through the forested lands was observed for a short section of the tributary. However, the steepness of the cut would not be considered to attribute landform "prominence" to the feature as a whole, and was limited to the tributary. The majority of the feature is relatively shallow and with a mostly flat floodplain. Silver Creek and its mostly flat, diffuse floodplain is not considered to have landform prominence.

4.6.4 Distinctive Geographic Landforms

For a valleyland to be considered significant, the feature must have water action that demonstrates development of distinctive, specific landforms within the landscape, such as oxbows, bottomlands, terraces and deltas. Silver Creek and its tributaries do not exhibit these landforms. The feature would not be considered a Significant Valleyland based on this criterion.

4.6.5 Degree of Naturalness

Degree of Naturalness relates to valleylands that are relatively undisturbed as well as a high proportion of natural, contiguous vegetation cover (*e.g.* > 25% natural cover). In the case of riparian vegetation, the riparian vegetation width on each side of the permanent watercourse should be at least 30m wide. The standards in the NHRM (2010) also note the distinction between natural vegetation cover versus cultural areas such as golf courses or landscaped parkland. The property is a disturbed site that is used as a golf course. The extent of natural riparian cover is substantially less than 30m on each side of Silver Creek. Consequently, the feature would not be considered to meet this criterion.

4.6.6 Community/Species Diversity and Unique Communities and Species

The property does not contain areas of high community and/or species diversity, particularly including seasonally important and unusual habitats or a high proportion of rare species or habitats. The communities and species present are considered relatively common overall. The property would not be considered to meet this criterion.

4.6.7 Linkage Function

The standards for this criterion include a valleyland with continuous natural vegetation corridors that are ≥100m wide. The property would not be considered to have this linkage function for being considered a Significant Valleyland.

In summary and pending additional groundwater infiltration data, the property has been determined to not meet provincial criteria for Significant Valleylands. Candidacy for Significant Valleylands is not considered further in the assessment.

4.7 Candidate Significant Wildlife Habitat

An assessment of the potential for SWH in study area was conducted using criteria outlined in the SWH Technical Guide (OMNR, 2000) and the accompanying Ecoregion 6E Criteria Schedules (MNRF, 2015). Assessment of Candidate and Confirmed SWH categories relative to documented vegetation communities and habitats in the study area is presented in Table 6. The following Candidate/Confirmed SWH types were determined to be present or have the potential to be present in the study area based on the results of the field program:

- Bat Maternity Colonies (Candidate);
- Seeps and springs (Confirmed);
- Amphibian Breeding Habitat – Woodland (Confirmed);
- Habitat for Special Concern and Rare Wildlife Species:
    - Eastern Wood-pewee (Confirmed);
    - Snapping Turtle (Confirmed); and,
    - Wood Thrush (Candidate).

4.8 Areas of Natural and Scientific Interest

There are no Areas of Natural and Scientific Interest in the study area according to Township, County (Appendix A) or Provincial mapping resources (Appendix B).

4.9 Fish and Fish Habitat

The property is located near the upper limits of the Silver Creek drainage system. The property has been historically altered for golf course operations since the late 1980s according to Simcoe County interactive mapping (2024). As a result, drainage features on the property and their associated fish habitat have been manipulated over the years, and multiple online/offline ponds have been created for drainage and irrigation purposes. A summary of all the watercourses, drainage features and ponds is provided below, along with a summary in Table B. Fish habitat features are provided on Figure 2C for reference, and representative property photographs are provided in Appendix C.

4.9.1 Silver Creek

The main branch of Silver Creek flows in a northerly direction through the property as shown on Figure 2C. Based on aerial photographs, Silver Creek originates upstream of the property from a wetland feature to the west of Uhthoff Line and flows north through the Hawk Ridge Golf Course before outletting into the North River ~6km downstream. During the investigations, Silver Creek was observed to be a permanent feature with defined banks, clear flow and watercress vegetation (an indicator of groundwater contributions). Segments of Silver Creek flow directly adjacent to manicured lawn on the

golf course, but there are reaches of natural riparian vegetation that provide dense shading of the watercourse. Substrate was dominated by cobble intermixed with sand and gravel. Channel characteristics of Silver Creek on the property were fairly uniform, consisting of a riffle/run/pool morphology with depths of up to 1m in the pool features and an average wetted width of 2-3m. Banks along Silver Creek were steep with undercuts but appeared relatively stable. Fish were observed throughout the property within Silver Creek. One fish barrier was noted at the upstream limits of the property where a culvert outlet was perched 20cm at a cart path crossing.

According to the MNR online ARA database (MNR, 2024b), Silver Creek has a coldwater thermal regime and is known to inhabit the following fish species: Brook Trout, Brown Trout, Central Mudminnow, Creek Chub, Longnose Dace, Mottled Sculpin, Northern Pearl Dace and Rainbow Trout (MNR, 2024b). Of these species, Brook Trout, Brown Trout, Mottled Sculpin and Rainbow Trout are all coldwater indicator species. During fish sampling in the spring of 2023 completed by Azimuth, Brook Trout were captured on the property within Silver Creek. Therefore, Silver Creek would be characterized as a permanent feature that supports direct coldwater fish habitat.

4.9.2 Tributary A

Tributary A originates from lands to the east where an off-property pond discharges into a culvert that flows underneath the golf course lands before outletting into a treed area on the property. The open water segment of Tributary A consists of a riffle/run morphology with an average wetted width of 0.7m and water depths of 5-10cm. Watercress and cattails are present within/along the feature, and flow was present in both the spring and summer field investigations. At the midway point of the feature, the drainage path appears to have been redirected to avoid flowing into the fairway, which is evident by a narrow/steep cut through the forested lands that has a hard clay bottom. Tributary A then enters a drainage pipe that flows under golf course lands before discharging into an online pond (Pond #15) as shown on Figure 2C. The drainage pipe upstream of the pond appears undersized at 300mm, and the outlet is perched 5cm. The online pond is devoid of riparian trees or shading. Tributary A then enters a straight drainage channel to the west before outletting into Silver Creek. Another hydraulic drop/knickpoint of 30cm is also present between the online pond and Silver Creek, which would act as a fish barrier for upstream movement. The undersized drainage culvert/perch upstream of the online pond is also expected to act as a fish barrier, along with the 100m long culvert at the upstream limits of Tributary A that originates at the off-property pond to the east. It is understood that the online pond upstream drains into an outlet pipe/drop structure that would not be passable by fish.

During fish sampling, the following species were captured by Azimuth in Tributary A: Northern Redbelly Dace and Brook Stickleback. The fish barriers and habitat within Tributary A (*i.e.*, shallow water with a lack of deep refuge pools) is expected to limit Brook Trout access/use of a majority of Tributary A. However, given the proximity and direct connection to Silver Creek, Tributary A is characterized as a permanent feature that should be managed as a coldwater system.

4.9.3 Tributary B

Tributary B is a tributary of Silver Creek that originates from lands to the southeast and outlets into Silver Creek on the property as shown on Figure 2C. Tributary B is a small drainage feature with a wetted width of 1m and maximum depth of 0.2-0.3m. Flow was present during both spring and summer field investigations. Channel banks were poorly defined in the upstream segment which meanders though a wetland feature with riparian grasses and grass hummock edges. Substrate in the upstream limits was composed of silt and organic material, which transitioned to predominantly sand/silt downstream in the forested area.

During fish sampling, the following species were captured by Azimuth in Tributary B: Northern Redbelly Dace and Brook Stickleback. No fish barriers were observed in Tributary B, which is directly connected to Silver Creek. Therefore, Brook Trout would be expected to use/access Tributary B. Therefore, Tributary B is characterized as a permanent feature that should be managed as a coldwater system.

4.9.4 Tributary C

Tributary C drains into Tributary B and originates from lands to the south of the property. During the spring field investigation, diffuse trickle flow was observed in a poorly defined swale feature along the Tributary C flow path. There was not enough surface water in the spring (<1cm) to complete fish sampling. There were no defined banks, and substrate consisted of thick organic debris with no substrate sorting noted. During the summer field investigation, no surface flow/water was present within the feature, only moist soils. Therefore, direct fish use within this feature is not anticipated to occur. The feature would provide indirect fish habitat features (*i.e.* the conveyance of flow and nutrients to downstream receiving watercourses), and would therefore still be protected under the Federal *Fisheries Act*.

4.9.5 Tributary D

Tributary D consists predominantly of a man-made drainage channel that was historically created to capture parking lot and golf course drainage to the east. Tile drain outlets into Tributary D are present that had trickle flows during the spring field investigation. A majority of the feature was dry during the spring investigations and was therefore not

sampled for fish. This feature would not be expected to host fish at any time of the year. Tributary D would function as indirect fish habitat to Silver Creek. (*i.e.* the conveyance of flow and nutrients to downstream receiving watercourses), and would therefore still be protected under the Federal *Fisheries Act*.

4.9.6 Tributary E

Tributary E is a defined feature that drains east across the property, originating from lands to the west of Uhthoff Line and outletting into Silver Creek on the property. The channel had steep, incised banks with a wetted width of 0.8m and depth of 20-30cm. Channel morphology consisted of runs/riffles/pools with a maximum depth of 0.5m. Substrate was predominantly sand with small segments of detritus/organic material. Riparian vegetation was a mix of manicured lawn along the golf course and treed/natural vegetation.

During fish sampling, the following species were captured by Azimuth in Tributary E: Brook Trout (juvenile and adult), Yellow Perch, Mottled Sculpin, Creek Chub, Northern Redbelly Dace, Blacknose Dace and Brook Stickleback. No fish barriers were observed within Tributary E, which is directly connected to Silver Creek. Given the captures of Brook Trout and Mottled Sculpin, Tributary E would be characterized as a permanent feature that supports direct coldwater fish habitat.

4.9.7 Tributary F

Tributary F is a poorly defined swale feature the drains east into Silver Creek. The feature appears to have been dredged historically due to its straight morphology. Tributary F appears to originates from tile drainage outlets and a small wetland feature to the west. During the spring field investigation, the feature had standing water but no flow was observed. Segments of the feature were also dry during the spring, and the entire feature was predominantly dry during the summer investigation. No substrate sorting or aquatic vegetation was present, which indicates the feature rarely flows or holds water. Therefore, Tributary G is expected to provide marginal/poor indirect fish habitat functions (*i.e.*, the conveyance of flow and nutrients to downstream receiving watercourses), and would be protected under the Federal *Fisheries Act*.

4.9.8 Tributary G

Tributary G is an anthropogenic drainage features that drains two online ponds (Ponds #8 and 9) (Figure 2C). The feature originates to the east of Silver Creek between the two pond features that outlet directly into the channel. Tributary G then flows west between the ponds and across a cart path via a culvert that is perched before discharging directly into Silver Creek. The ponds host fish and function as direct fish habitat, and Tributary G is directly connected to Silver Creek. Therefore, all direct fish habitat features would be

protected under the Federal *Fisheries Act*. Due to their connection and proximity to Silver Creek, it is our understanding that these features should be managed as coldwater systems, although the habitat of the ponds and drainage feature likely only support a cool/warmwater fish community. This was evident by the fish captures within the two ponds completed by Azimuth in 2023 which included the following species: Brook Stickleback, Northern Redbelly Dace, Creek Chub, Fathead Minnow and Blacknose Dace. To the east of the ponds, a poorly defined drainage swale is present within a narrow tree line. The feature had a trickly flow in the spring but was dry during the summer investigation. This segment of Tributary G is characterized as marginal/poor indirect fish habitat and would also be protected under the Federal *Fisheries Act*.

4.9.9 Tributary H

Tributary H is a small drainage feature in the northwest corner of the property that largely flows through forested lands before discharging into Silver Creek on the property. This feature had a wetted width of 1m, maximum depth of 15cm, and had segments of non-continuous/poorly defined banks at the upstream segment on the property. A majority of the feature had water depths of ~5cm. Substrate was predominantly sand/silt and was well shaded by the forested riparian lands. Tributary H crosses the golf course lands via a narrow grass strip between the fairway vegetation. Similar flow and channel characteristics were observed during the summer investigation. Fish sampling was completed at three locations along the Tributary H reach, but no fish were captured. Direct fish use may be limited in Tributary H due to the shallow and narrow channel characteristics, but seasonal fish use is still anticipated due to the permanent flow observed. Therefore, Tributary H would be characterized as a permanent feature that supports direct coldwater fish habitat.

4.9.10 WC1

WC1 is a historically straightened feature that predominantly follows the edge of the golf course lands as shown on Figure 2C. The feature originates at a stormwater drain outlet from adjacent subdivision lands. WC1 flows north on the subject lands before crossing Burnside Line and eventually outlets into Silver Creek downstream of Division Road West. A majority of WC is densely covered with aquatic vegetation consisting of cattails and filamentous algae. Patches of watercress were noted in sections indicating that groundwater contributions may be present. Flow was observed during both the spring and summer field investigations, with a wetted width of 2-3m and water depths that range from 15-30cm. Overall, fish habitat in WC1 was poor due to the historical alterations/straightening and lack of riparian shading/natural vegetation along a majority of the feature.

During fish sampling, the following species were captured by Azimuth in WC1: Creek Chub, Northern Redbelly Dace and Brook Stickleback. No fish barriers were observed within WC1. While the fish captures and channel characteristics are more indicative of a warm/coolwater fish community, it is understood that the connection to Silver Creek downstream means that WC1 is to be managed as a coldwater system.

4.9.11 Online and Offline Ponds

All pond features on the property were inspected to confirm if they were online or offline. Ponds are considered "online" if they are constructed along the alignment of a watercourse feature and/or if they were directly connected to a fish bearing watercourse (*i.e.* fish can access the pond from a watercourse feature). Of all the ponds on the property, three were characterized as online. Ponds #8 and 9 are directly connected to Silver Creek via Tributary G, and fish within the ponds can enter Silver Creek. Pond #15 was constructed along the drainage alignment of Tributary A, and fish can enter/exit the pond from the tributary at the outlet. Therefore, Ponds #8, 9, and 15 would be protected under the Federal *Fisheries Act*. All other pond features are isolated in nature and would not be protected under the Federal *Fisheries Act*.

2.2.4 Aquatic Species at Risk

There are no known aquatic SAR in the Study Area based on available background information collected from MNRF ARA database (MNR, 2024b) and DFO's aquatic SAR mapping (DFO, 2024).

Table B below summarizes the fish habitat characterizations for the property, as discussed above.

Table B. Fish Habitat Summary

Feature ID	Fish Habitat*	Feature Permanency**	Thermal Regime
Silver Creek	Direct	Permanent	Coldwater
Tributary A	Direct	Permanent	Coldwater
Tributary B	Direct	Permanent	Coldwater
Tributary C	Indirect	Intermittent	Coldwater
Tributary D	Indirect	Intermittent	Coldwater
Tributary E	Direct	Permanent	Coldwater
Tributary F	Indirect	Intermittent	Coldwater
Tributary G	Direct downstream of ponds, indirect east/upslope of ponds.	Permanent downstream of ponds, intermittent east/upslope of ponds.	Coldwater
Tributary H	Direct	Permanent	Coldwater
WC1	Direct	Permanent	Coldwater
Ponds 8, 9, and 15	Direct	Permanent	Coldwater
All remaining ponds	Not fish habitat	NA	NA

* Fish Habitat is defined as direct, indirect, not fish habitat.
**Feature Permanency: permanent, intermittent, ephemeral.

5.0 NATURAL HERITAGE FEATURES AND FUNCTIONS

The results of Azimuth's field studies, combined with review of background information, indicate the potential for the following candidate KNHFs in the study area:

- Habitat for Threatened or Endangered Species:
    - Black Ash;
    - Little Brown Myotis (Potential);
    - Northern Myotis (Potential);
    - Red-headed Woodpecker;
    - Tri-colored Bat (Potential);
- Other Wetlands;
- Candidate Significant Woodlands;
- Candidate Significant Wildlife Habitat:
    - Bat Maternity Colonies;
    - Seeps and springs (Confirmed);
    - Amphibian Breeding Habitat – Woodland (Confirmed);
    - Habitat for Special Concern and Rare Wildlife Species:
        - Eastern Wood-pewee (Confirmed);
        - Snapping Turtle (Confirmed);

- Wood Thrush;

- Fish habitat;
  - Direct coldwater fish habitat features (Table B);
  - Indirect fish habitat features (Table B); and,
  - Ponds #8, 9 and 15 - direct fish habitat.

6.0 PROPOSED DEVELOPMENT

The proposed Development Concept Plan consists of construction of a residential subdivision involving 290 single detached dwellings (~11.95ha), 310 townhouses (~6.65ha) and 250 stacked townhouses ("golf villas") (~4.05ha) on the ~126ha property (Figure 3, see also Appendix D). The subdivision would occupy an estimated footprint of ~22.65ha, plus ~11.45ha of an internal road network and utility servicing. There would be one road connection crossing Silver Creek next to Pond #14. The road crossing would traverse the central area of the subdivision, connecting Hurlwood Lane and Uhthoff Line. The proposed development would also include a wastewater treatment plant (~0.97ha) located in the northeast corner of the subdivision footprint, an adjacent stormwater management pond (SWMP; ~0.74ha) and one water tower (~0.28ha) at the southern limit of the subdivision immediately east of the 30m buffer for Silver Creek Tributary B (Figure 3, Appendix D). Floodplain (Crozier, 2024a) and hydrogeology (Crozier, 2024b) assessment reports (Crozier, 2024b) have been prepared for the project. The subdivision would replace part of an existing ~83.15ha golf course ("other" lands) on the property.

7.0 IMPACT ASSESSMENT

This impact assessment is prepared specifically in regards to the construction footprint of the proposed residential subdivision development, associated amenities and grading limits, as described above and shown on Figure 3. Areas on the Development Concept Plan identified as Park/Open Space have been excluded at this project stage from feature loss or encroachment calculations. Once the details of the Park/Open Space areas are known during Detailed Design, the impact assessment can be updated, as required. Below we provide an impact assessment for the KNHFs summarized in Section 5.0.

7.1 Habitat for Threatened or Endangered Species

Impacts with regards to the ESA and Habitat of Threatened or Endangered 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. Section 10 covers destruction or damage to habitat of Threatened or Endangered species. The following Threatened or Endangered species have the potential or are confirmed to occur in the study area limits.

7.1.1 Black Ash

Endangered Black Ash was identified during property investigations in the following ELC polygons on-property (north to south on Figure 2A): MAMM3; SWMM1-1(a); FOCM3-1; SWDM2-1; SWMM1-1(b); SWCM1; SWDM3 and SWDM4-5(b). Black Ash was also observed in the SWDM4-5(a) ELC polygon on adjacent lands at the southeast corner of the property.

Black Ash is listed as Endangered under Ontario's ESA. As of January 26, 2024 under O. Reg. 6/24 (MECP, 2024a) and 7/24 (MECP, 2024b), species and habitat protections respectively for "healthy" Black Ash are in effect. For **species protections**, as per O. Reg. 6/24, a healthy Black Ash tree is one that appears to have survived exposure to Emerald Ash Borer (*Agrilus planipennis*), is in a healthy condition (*e.g.* relatively low extent of Emerald Ash Borer infestation), is 1.37m tall or taller and has a trunk diameter at breast height (DBH; at 1.37m height) of 8 centimetre (cm) or greater. Only Black Ash determined to be healthy based on a health assessment by a qualified professional are afforded species protections according to O. Reg. 6/24. In terms of **habitat protections**, O. Reg. 7/24 applies a radial distance of 30m around each individual healthy Black Ash tree as protected habitat for the individual of the species.

To accommodate the proposed subdivision development, the MAMM2/SWDM4 ELC vegetation community (0.62ha) near the west-central side of the property will be removed completely, and the SWDM3 ELC vegetation community immediately to the east will be removed partially (0.12ha of the 0.51ha wetland; Figures 2A and 3, Appendix D). The SWDM3 community was observed to contain Black Ash (Figure 2B). Given the habitat connectivity between these wetlands, the MAMM2/SWDM4 community may also be habitat for the species. Removal of the 0.62ha MAMM2/SWDM4 community, its 0.45ha buffer, encroachment of approximately 0.12ha of the 0.51ha SWDM3 ELC polygon (24%) and 0.13ha of its 0.46ha buffer (28%) will represent a direct impact to Black Ash in these two ELC polygons for individuals of the species occupying the portions of the wetlands planned for removal (total wetland loss = 0.74ha, total wetland buffer loss = 0.58ha). Any Black Ash within 30m of the development limit encroachment will also be impacted in the form of an impact to their protected 30m root zone.

Black Ash inventory and assessment work in these two wetland areas will be required at a future project stage to determine the extent of impact to Black Ash and its habitat (see Section 8.1 below for recommendations). Should it be determined that species and/or habitat protections to Black Ash apply, MECP consultation would be advised in regards to possible authorization under the ESA. The other ELC polygons on the property that were observed to contain Black Ash are not anticipated to be impacted directly by construction of the subdivision based on the current development concept [*i.e.* MAMM3,

SWMM1-1(a), FOCM3-1, SWDM2-1, SWMM1-1(b), SWCM1, SWDM3, SWDM4-5(b) and SWDM4-5(a)] (Figures 2A and 3).

7.1.2 Endangered Bats

At this development concept stage of the project, bat snag mapping and acoustic monitoring in potentially suitable ELC vegetation communities on-property to identify areas of Candidate SAR bat habitat that may be impacted by the development (Figure 3) have not been completed. The proponent intends to complete SAR bat habitat/SAR bat surveys at a future project stage. Once those data have been collected and analyzed, the survey results along with an updated impact assessment can be provided in an EIS Addendum. In the event that SAR bat habitat/species are identified that is/are anticipated to be impacted by the proposed residential development, consultation with the MECP and/or mitigation considerations to avoid negative impacts to SAR bat species may be warranted. As noted above, bat habitat surveys (and acoustic monitoring - if bat maternity roosting habitat is confirmed) for possible SAR bats can be completed at a future project stage in regards to impact mitigation as part of the process of clearing Draft Plan Conditions.

7.1.3 Red-headed Woodpecker

Red-headed Woodpeckers generally prefer habitat areas such as open deciduous forests, dead trees groupings, floodplain forests and other open treed areas like orchards or cemeteries (COSEWIC, 2018; see Table 1). Fieldwork confirmed the presence of breeding Red-headed Woodpecker on the property in the vicinity of Ponds #8-9 (Figure 2B). As per the proposed residential subdivision development concept, the subdivision footprint would remain outside of where the species was observed and outside of the estimated area of breeding by the species (Figure 3). The general breeding area identified for Red-headed Woodpecker would be ~120m northwest of the nearest subdivision northwestern limit. Adult breeders are often return to the same area to breed year after year, establishing territories up to 2.8ha in size (Smith *et al*. 2000). Since woodlands north and west of the estimated breeding area would remain post-development of the subdivision, and the development would remain outside of and an estimated 120m away from the breeding habitat for Red-headed Woodpecker, no direct impact to the species or its habitat would be expected. Habitat for the species would remain post-development, as would its habitat function.

In regards to the potential for indirect impact to SAR and/or SAR habitat, provided that mitigation measures recommended in Section 8.0 below are followed, the potential for indirect impact to Red-headed Woodpecker and their habitat is considered mitigable.

7.2 Other Wetlands

According to the PPS (MMAH, 2020), development and site alteration are not permitted in significant wetlands (*i.e.* PSWs) in Ecoregions 5E, 6E and 7E. The Silver Creek Locally Significant Wetland Complex, mapped as occurring on the property, is not a PSW based on provincial background mapping (Appendix B). Portions of these Other wetlands are associated with the riparian corridor of Silver Creek (Appendix B). The proposed subdivision and amenities would not encroach into the majority of Other wetlands or their proposed wetland buffers (see below) (Figure 3, Appendix D).

As illustrated on Figure 3, the portion of the Silver Creek Locally Significant Wetland Complex ("Other" wetlands) that occurs in the northern region of the property is proximal to existing golf course ("other") lands. Since this region of the feature has a history of proximity to golf course lands, and these golf course lands are understood to remain post-development, a 10m ELC wetland buffer has been recommended around the Silver Creek Locally Significant Wetland Complex. Wetlands on the property have historically been adjacent to golf course lands, wetland edges are manicured as part of ongoing golf course maintenance, the existing conditions have established within the context of the golf course land use with local wildlife completing life cycle processes. It follows that no cumulative potential impact would be anticipated in relation to the proposed development, and local wildlife would be expected to continue to use the lands post-development. Consequently, in this case, a 10m wetland buffer is justified. Application of 10m wetland buffers has occurred in other municipalities (*e.g.* Township of Centre Wellington).

In regards to the Other wetlands SWDM4-5 (b) ELC community in the southern portion of the property, the proposed subdivision would similarly not encroach into this wetland unit or its 10-30m wetland/fish habitat buffer (Figure 3). As such, no direct or indirect impacts to the Silver Creek Locally Significant Wetland Complex or its buffer would be anticipated.

In terms of Other (other unevaluated) wetlands on the property, the proposed subdivision would result in removal of the 0.62ha MAMM2/SWDM4 ELC vegetation community (and the pond) associated with Pond #11, as well as a 0.12ha (24%) encroachment into the SWDM3 wetland community (Figures 2A and 3, Appendix B). It follows that the proposed development would pose a direct impact to these two unevaluated wetland units (0.74ha wetland loss) and their wetland buffers (0.58ha wetland buffer loss). Overall, this impact would represent a wetland loss of ~3% of the 22.34ha of wetlands on the property.

Provided that mitigation measures recommended in Section 8.0 below are followed, the potential for indirect impact to retained wetlands on the property is considered mitigable.

7.3 Candidate Significant Wildlife Habitat

According to the PPS (MMAH, 2020), development and site alteration are not permitted in SWH in Ecoregion 6E unless it can be demonstrated there will be no negative impacts on the feature or its ecological functions. For the purposes of this assessment, Candidate/Confirmed SWH described below is treated as significant:

- Bat Maternity Colonies (Candidate);
- Seeps and springs (Confirmed);
- Amphibian Breeding Habitat – Woodland (Confirmed);
- Habitat for Special Concern and Rare Wildlife Species:
    - Eastern Wood-pewee (Confirmed);
    - Snapping Turtle (Confirmed); and,
    - Wood Thrush (Candidate).

7.3.1 Bat Maternity Colonies

Endangered bat species use bat snag trees of varying DBH in early stages of decay for maternity roosting (MECP, 2022a; MECP, 2022b). Maternity colonies are typically found in deciduous or mixed woodlands where trees are of suitable size and provide snag features for use by bats. Please see Section 7.1.2 above for an outline of a future impact assessment regarding SAR bats and SAR bat habitat. The potential for impact in relation to SAR bats and their habitat, as discussed above, would apply to the Bat Maternity Colonies SWH function, should an impact to bats/bat habitat be confirmed. If an impact to bat habitat is identified, the proposed development would not compromise the Bat Maternity Colonies SWH function. The habitat function would remain post-development on the remaining 95% of woodland cover on- property (*e.g.* in the northern and southern regions) as well as regionally across the landscape. See Section 8.0 for mitigation measures recommended to mitigate against potential indirect impacts.

7.3.2 Seeps and Springs

Two areas of seeps and springs were observed during the field program. The SWH type is associated with the southwest-flowing Tributary A of Silver Creek in the southern region of the property (Figure 3). Since the proposed development would result in retainment of ~50% of these two features; the habitat function would be expected to remain for local wildlife.

7.3.3 Amphibian Breeding Habitat - Woodland

Evening calling amphibian surveys confirmed the presence of Amphibian Breeding Habitat - Woodland on the property in association with Ponds #2, 3, 5, 7, 10, 11, 12, 13, 14 and 22, as well as along the Silver Creek riparian corridor near Pond #15 (Figure 2B). The subdivision development would result in removal of Ponds #11, 16 and 22; the remaining eight (73%) of the ponds on-property where the SWH type was identified would remain post-development. Consequently, no loss of ecological function as it relates to woodland amphibian breeding SWH would be expected. Despite the minor loss of Amphibian Breeding Habitat – Woodland associated with Ponds #11, 16 and 22, the habitat function would remain post-development in the form of other eight ponds and the 95% of retained woodland cover on the property.

7.3.4 Habitat for Special Concern and Rare Wildlife Species

Eastern Wood-pewee

Eastern Wood-pewee (Special Concern) generally occur in intermediate-aged to mature deciduous and mixed woodlands with relatively open understory (COSEWIC, 2012a; see Table 1). Two singing Eastern Wood-pewee were detected as being associated with the FOCM3-1 mixed forest ELC community in the northcentral region of the property during both dawn breeding bird surveys (Figure 3). Given the repeated detections, the individuals are considered to be Probable breeders (Table 4) and detection locations treated as being within breeding territories, confirming the SWH function. While listed as Special Concern, Eastern Wood-pewee are commonly found throughout immature to mature woodlots in Ontario. As proposed, the subdivision development would not result in encroachment or loss of the FOCM3-1 community (Figure 3), and similar habitat occurs extensively across the landscape (Figure 3, Appendix B). Consequently, there would be no expectation of the development posing a direct negative impact for Eastern Wood-pewee in regards to SWH function. Function would remain post-development locally and regionally. See Section 8.0 for recommendations regarding mitigation of potential indirect impacts.

Snapping Turtle

The range of Snapping Turtles (Special Concern) is extensive across southern Ontario. Although the species generally prefers vegetated, relatively shallow water areas with soft, mud substrate (COSEWIC, 2008; see Table 1), it can also be found in other water areas. Five Snapping Turtles were observed during basking turtle surveys in Ponds #4, 5, 7, 11 and 12 on the property (Figure 2B, Table A above). Removal of Pond #11 would represent a loss of habitat for this Special Concern species; however, Ponds #4, 5, 7 and 12 will remain post-development, in addition to numerous other ponds throughout the property. It follows that habitat for the species will remain. Consequently, there would be no loss of SWH function for Snapping Turtle.

Wood Thrush

Wood Thrush (Special Concern) are typically found in mature deciduous and mixed conifer-deciduous forests with trees that are relatively large and that contain moist areas with well-developed undergrowth (COSEWIC, 2012b; see Table 1). One singing Wood Thrush was detected in the FOCM3-1 mixed forest ELC community in the northcentral region of the property during both dawn breeding bird surveys (Figure 2B). Given the repeated detections, the individual is considered to be a Probable breeder (Table 4) and the detections are treated as being within a breeding territory, confirming SWH function for the species. As proposed, the subdivision development would not result in encroachment or loss of the FOCM3-1 community (Figure 3). Similar habitat occurs extensively across the landscape (Figure 3, Appendix B). It follows that there would be no expectation of the development posing a direct impact for the species in regards to SWH function. Function would remain post-development locally as well as regionally. See Section 8.0 for recommendations regarding mitigation of potential indirect impacts.

7.4 Fish Habitat

Silver Creek and a majority of the associated tributaries on the property are characterized as providing permanent direct fish habitat to a coldwater fish community. These features are known to host Brook Trout, which are a sensitive coldwater species that are susceptible to changes in water temperature and sediment concentrations. The proposed residential subdivision (Figure 3, Appendix D) will require works in proximity to the main branch of Silver Creek, Tributaries A-F, and online Pond #15. All other fish habitat features that would be protected under the Federal *Fisheries Act* are not in proximity to the proposed works, and are not expected to be directly or indirectly impacted by the proposed development. The following outlines the potential impacts and mitigation measures for the fish habitat features in proximity to the development.

7.4.1 Riparian Buffers

A 30m riparian buffer has been applied to all direct fish habitat features along the proposed development. This 30m buffer meets the recommended minimal natural vegetation cover adjacent to coldwater fish habitat as per the NHRM (OMNR, 2010). Therefore, a majority of the potential impacts associated with the proposed development can be mitigated using standard erosion and sediment control (ESC) measures. Indirect impacts from nearby works (*i.e.* turbid laden site runoff during construction activities such as site grading, vegetation clearing, housing construction, *etc.*) can be mitigated using standard ESC measures as outlined in Section 8.0. It is recognized that at this time, the 30m riparian buffer has been drawn from the centerline of the watercourses as top-of-bank surveys have not yet been completed. During the Detailed Design process, the top-of-bank surveys will be used to finalize the 30m buffer. A Draft Plan Condition may be

included to finalize this buffer prior to subdivision registration. This review of the 30m setback will be included in a Detailed Design "Fisheries Screening" which will be completed by a qualified ecologist once design has been advanced and impacts to fish habitat (if any) from the final design are known.

A segment of Tributary D is proposed to be infilled as part of the proposed development (Figure 3, Appendix D). Tributary D functions as marginal/poor seasonal fish habitat, and the upstream limits of Tributary D proposed to be infilled were dry during both spring and summer field investigations. Therefore, infilling these features is not expected to result in a HADD to fish habitat if the appropriate mitigation measures are implemented during Detailed Design. A water balance assessment would need to be completed during Detailed Design to ensure to significant impacts to flow quantity or quality would not occur as a result of infilling the upper portion of Tributary D. It is assumed that through the use of LIDs and on-site drainage that flow can be maintained to Silver Creek in a similar manner post-development. Once engineering plans have been advanced, the "Fisheries Screening" will need to be completed to review the riparian vegetation setbacks and infilling of Tributary D to determine what mitigation measures need to be implemented and if DFO review is needed.

7.4.2 Street Crossing

A street crossing is proposed as part of the residential subdivision (Figure 3, Appendix D). It is our understanding that a street crossing of Silver Creek is required for both access and safety/emergency response purposes given the limited access to the existing/proposed subdivision lands to the east of Silver Creek. The proposed crossing location was selected as it crosses Silver Creek where the channel is relatively narrow and already devoid of natural riparian vegetation due to golf course operations. A bridge design for the street crossing has not been developed to date. The bridge design will need to be reviewed as part of a "Fisheries Screening" during Detailed Design. Given the known coldwater fisheries within Silver Creek, a clear span bridge is being recommended to ensure groundwater contributions are not impacted and that the channel remains untouched during future development activities for the street crossing. The DFO Code of Practice (COP) for Clear Span Bridges should be followed, if possible, which would mitigate impacts to fish habitat and allow works to proceed without the need for DFO review.

7.4.3 In-water Works at Tributary A

The existing flow path and channel alignment of Tributary A will be retained post-development. However, the existing piped segments of Tributary A will be utilized for street crossings during development of the property. Therefore, in-water work will be required to upgrade the crossings so they are suitable for street traffic. Overall, no

additional infilling or realignment of direct/indirect fish habitat is proposed. Details on the street crossings are unknown at this time, but will be reviewed as part of Detailed Design to ensure the development incorporates measures to protect and mitigate impacts to fish habitat features. The existing piped drainage features at these two locations are currently undersized and/or perched, which act as permanent fish barriers for fish movement upstream. The proposed development would review the hydraulic and fish passage requirements at these two locations and could improve fish habitat along Tributary A by restoring fish passage. During the Detailed Design stage once engineering plans have been advanced, a "Fisheries Screening" will need to be completed to review these two crossing locations. As required, a Draft Plan Condition may be included to finalize a fisheries impact assessment prior to subdivision registration.

7.4.4 Stormwater Management Ponds (SWMP)

The proposed residential subdivision includes two SWMPs that will require outlets into Silver Creek and/or its tributaries (Figure 3, Appendix D). Details on the SWMPs and their outlets are unknown at this time and will need to be assessed once the design has been advanced during Detailed Design. If a SWMP outlet channel is constructed, measures should be incorporated into the design to reduce sedimentation and thermal impacts on the receiving watercourse. Stormwater runoff can be warmed significantly as it drains off warm pavement and experience further warming as it sits in a pond. Detailed Design considerations can include, but not be limited to, the following best management practices (BMPs):

- Implement a bottom-draw outlet design to discharge cool water along the pond bottom prior to warm surface water;
- Design the pond in a north-south orientation of the SWM facility to reduce sun exposure;
- Install riparian plantings around the facility and basin to shade water and reduce surface water temperatures;
- Install plantings all the outlet to further shade water and stabilize soils;
- Install cooling trenches and/or lengthen the outlet channels, if possible, to increase the shading potential, reduce flows during storm events, and allow sediment to settle; and,
- Install energy dissipation devices at the outlet to reduce flows rates and potential scouring at the receiving channel outlet location.

During the Detailed Design stage, the "Fisheries Screening" will include a review of the potential impacts of the SWMP design and outlet construction on nearby fish habitat, and will provide mitigation measures to avoid a HADD to fish habitat. During Detailed

Design, the need for DFO review can also be determined once the impacts of the SWM pond discharge and outlet construction are known.

7.4.5 Infilling and Decommissioning Offline Ponds

Multiple offline ponds will need to be infilled to accommodate the proposed development. Consideration should be given to re-location of any frog and turtle species that are present prior to any works in golf course ponds. A biologist/ecologist should be on-property during decommissioning of ponds to identify and re-locate any wildlife found. Re-location of amphibian and reptile species should occur during the most active times of the year. Typically, re-location is recommended between May-September; however, this activity range depends on weather conditions. Pond decommissioning will require a professional ecologist to apply for an MNR Wildlife Scientific Collector's Authorization (WSCA) permit prior to decommissioning for relocation of amphibians and reptiles. Prior to initiating the wildlife salvage, coordination with the contractor would be needed to ensure that the pond(s) has (have) been dewatered to a sufficient depth to effectively capture and relocate wildlife. Relocation of wildlife to a suitable location would be required, as per conditions of the WSCA permit, which would be determined during the WSCA permit application process.

While DFO review or approval is not required due to the ponds being offline, the contractor is still required to relocate and/or humanely euthanize fish in the ponds should they be infilled to remain in compliance with the Federal *Fisheries Act*. Therefore, a qualified fisheries ecologist shall obtain a Licence to Collect Fish for Scientific Purposes (LCFSP) from the MNR, and all fish in the pond(s) to be decommissioned should be captured prior to decommissioning and either relocated or euthanized based on MNR's conditions of the LCFSP. Similar to the wildlife salvage, coordination with the contractor would be needed to ensure that the pond has been dewatered to a sufficient depth to effectively capture fish.

At this time, details regarding the need for dewatering of the construction area are unknown. If dewatering is required, all water should be pumped to a filter bag (*i.e.* envirobag or equivalent) prior to being released into any waterbodies. Filter bags should be placed a minimum of 30m from all waterbody features on stable, vegetated ground to allow fines to settle out of the water. Monitoring of dewatering operations should occur throughout the construction process to ensure water is free of fines before entering nearby waterbodies.

8.0 RECOMMENDATIONS

8.1 Species at Risk

It should be noted that the absence of a protected species in the study area does not indicate that they will never occur in the area. Given the dynamic character of the natural environment, there is constant variation in habitat use. Care should be taken in the interpretation of presence of species of concern including those listed under the ESA. Changes to policy or the natural environment could result in shifts, removal or addition of new areas to the list of areas currently considered candidate KNHFs. This report is intended as a point in time assessment of the potential to impact SAR; it is not intended 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 works.

For vegetation communities where Black Ash occur in the study area, a detailed inventory and health assessment of each Black Ash tree of suitable size are recommended during a future project stage to confirm each tree's health status and the extent to which any of the individual Black Ash meet the criteria for species protection under ESA O. Reg. 6/24 (MECP, 2024a) (*e.g.* ≥8cm DBH, ≥1.37m in height and assessed as "healthy" as per provincial assessment criteria) and habitat protection as per O. Reg. 7/24 (MECP, 2024b).

8.1.1 Worker Training

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

The contractor should educate all site personnel to ensure that, if identified, SAR are not wantonly injured or killed, and to ensure that damage to features which could constitute habitat is avoided. Information should be conveyed through a SAR expert and 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 to avoid harming the species or damaging/destroying habitat.

The expert should be a qualified biologist who specializes in ecology/biology or SAR.

8.2 Migratory Breeding Birds and Bats

Activities involving removal of trees/vegetation should be restricted from occurring during the avian breeding season. Migratory birds, nests and eggs are protected by the *Migratory Birds Convention Act*, 1994 (MBCA) and the *Fish and Wildlife Conservation Act,* 1997 (FWCA). Environment and Climate Change Canada (ECCC; 2024) outlines dates when activities in any region have potential to impact nests. In Zones C1 and C2, tree/vegetation clearing should be avoided April 1-August 31 of a given year in recognition of Neotropical migratory breeding birds, and (within suitable woodland habitats) from January-February of a given year in recognition of potential winter breeding by owls. If works require tree/vegetation clearing between January-March or April 1-August 31 of a given year, screening by an ecologist with knowledge of bird species present in the area should be undertaken to ensure that the vegetation has been confirmed to be free of nests prior to clearing.

Activities involving tree removal, particularly in woodlands on the property should be avoided **April 1-September 30** of any given year during the active period for bat species that may possibly be using snag trees for maternity and/or day roosting. It is anticipated that adherence to this timing restriction will avoid impacts to individual SAR bats (if present), therefore remaining in compliance with Section 9 of the ESA affording individual protection to Endangered species. The presence of SAR bats/bat habitat in association with the proposed development footprint will be evaluated in detail at a future project stage, as part of clearing Draft Plan Conditions.

8.3 Erosion and Sediment Controls

Diligent application of erosion and sediment controls (ESCs) based on BMPs is recommended for all future construction activities to minimize the extent of accidental or unavoidable impacts to adjacent vegetation communities and wildlife habitat. Prior to the commencement of works, silt fencing should be applied along the length of directly adjacent natural or naturalized features (including wetlands, woodlands, fish habitat and ponds to be retained), and routine inspection/maintenance of the silt fencing should occur throughout construction. It is recommended that ESCs be maintained until vegetation is re-established post-construction.

Material storage on the property (*e.g.* soil stockpiles) should be located over 30m from natural features where feasible, including at least 30m away from Silver Creek and its

tributaries. Material storage areas should be contained with ESCs to avoid potential indirect impacts to natural features on or adjacent to the property.

8.4 Operations

All maintenance activities (including refueling) required during future construction should be conducted at least 30m away from natural features to prevent accidental spillage of deleterious substances that may harm natural environments.

Snow fencing or equivalent should be installed at the limit of the work area to prevent accidental intrusion of machinery operations into adjacent undisturbed natural areas.

The contractor is recommended to have a Contaminant and Spill Management Plan in place prior to initiation of works. This Plan should include keeping an emergency spill kit on site at all times. In the event of a spill, the contractor must report it immediately to the provincial Spills Action Centre (SAC).

8.5 Habitat Enhancement

Installation of native species plantings to enhance the Silver Creek corridor are recommended to further naturalize the area and improve wildlife/fish microhabitat. Selection of plant species would be based on the vascular plant list to ensure that the species planted are suitable. For example, enhancement plantings in areas of wetland vegetation communities proximal to Silver Creek would help offset wetland losses elsewhere on the property.

8.6 Fish and Fish Habitat

As specified above, construction activities occurring on the property should have regard for the adjacent natural environmental features, and utilize BMPs during construction as follows:

- All ESC measures are to be installed prior to any ground disturbance, and shall be maintained until all disturbed soils have been restored and stabilized following construction. Regarding fish habitat, silt fencing should be applied along the length of the 30m riparian buffer to contain site runoff and avoid any unintentional intrusion into the setback/buffer area adjacent to direct fish habitat. It is recommended that heavy duty silt fence be applied along the 30m buffer due to the coldwater nature of Silver Creek and its tributaries;
- Should in-water works be proposed within direct or indirect fish habitat features, all in-water work should respect the applicable in-water timing window to protect spawning fish. In-water work would only be permitted from July 1-September 30 (to be confirmed with MNR during Detailed Design);

- All dewatering is to discharge into a filter bag (*i.e.* envirobag or equivalent). Filter bags should be placed a minimum of 30m from fish habitat on stable, vegetated ground to allow fines to settle out of the water. Monitoring of dewatering operations should occur throughout the construction process to ensure water is free of fines before entering the watercourse;
- All site disturbance should be minimized to the extent possible;
- Disposal of material should occur in a timely fashion to minimize risk of entry into the watercourse; and,
- All machinery maintenance/refueling is recommended to maintain a minimum distance of 30m from retained woodlands, wetland and fish habitat to prevent accidental spillage of deleterious substances.

9.0 CONCLUSIONS

Based on our analysis, it is concluded that the environmental conditions are not limiting to the proposed development through incorporation of the environmental protection measures described in Section 8.0 of this report.

At this time, our findings are summarized as follows:

- The proposed development is consistent with the applicable natural heritage policies of the PPS, ESA, County of Simcoe OP and Township of Severn OP;

- Our impact assessment has given full consideration to habitat requirements of all SAR assumed and documented to occur in the area, and results indicate the proposed development will not result in negative direct or indirect impacts to habitat of SAR, providing conformance is demonstrated to mitigation measures described in Section 8.0. It is noted that further assessment pertaining to Black Ash and Endangered bats will be required, as requested by the Township's peer reviewer. Pending the results of the additional assessment for Black Ash and SAR bats, the proposed development is consistent with MECP direction in regards to development not resulting in loss of overall ecological habitat function for SAR. This conclusion is based on the assumption that areas where wetland/woodland canopy cover occurs and contain habitat for Black Ash and/or bats will be determined during a future project stage as part of the process of clearing Draft Plan Conditions and to be in compliance with Ontario's ESA;

- The proposed works are not expected to negatively impact the ecological functions of the habitat for Threatened or Endangered species, Candidate or Confirmed Significant Wildlife Habitat outlined in Section 5.0 (further

assessment regarding Bat Maternity Colonies pending) or Candidate Significant Valleylands outlined in Section 4.6 (Detailed Design assessment of Groundwater Functions pending) if the appropriate mitigation measures outlined in Section 8.0 are followed;

- As requested by the Township's peer reviewer, further fish habitat assessment pertaining to fall spawning is planned for fall 2024. Upon request by DFO during Detailed Design, water temperature monitoring could be completed. Pending the additional data, the proposed development is anticipated to avoid direct and indirect fish habitat features, and has implemented a 30m riparian buffer to protect sensitive coldwater features in Silver Creek and its tributaries;

- A Fisheries Screening Report will need to be completed during Detailed Design to determine potential impacts to fish habitat and DFO reporting requirements (if any) with respect to the following proposed works:
    - Verify that the 30m buffer to direct fish habitat features is applied from the top-of-bank;
    - SWMP design and construction, including outlets into receiving watercourses;
    - In-water works required to replace/upgrade two crossing locations along Tributary A;
    - Infilling a segment of Tributary D (poor/marginal indirect fish habitat); and,
    - Design review and permitting requirements of street crossing over main branch of Silver Creek.

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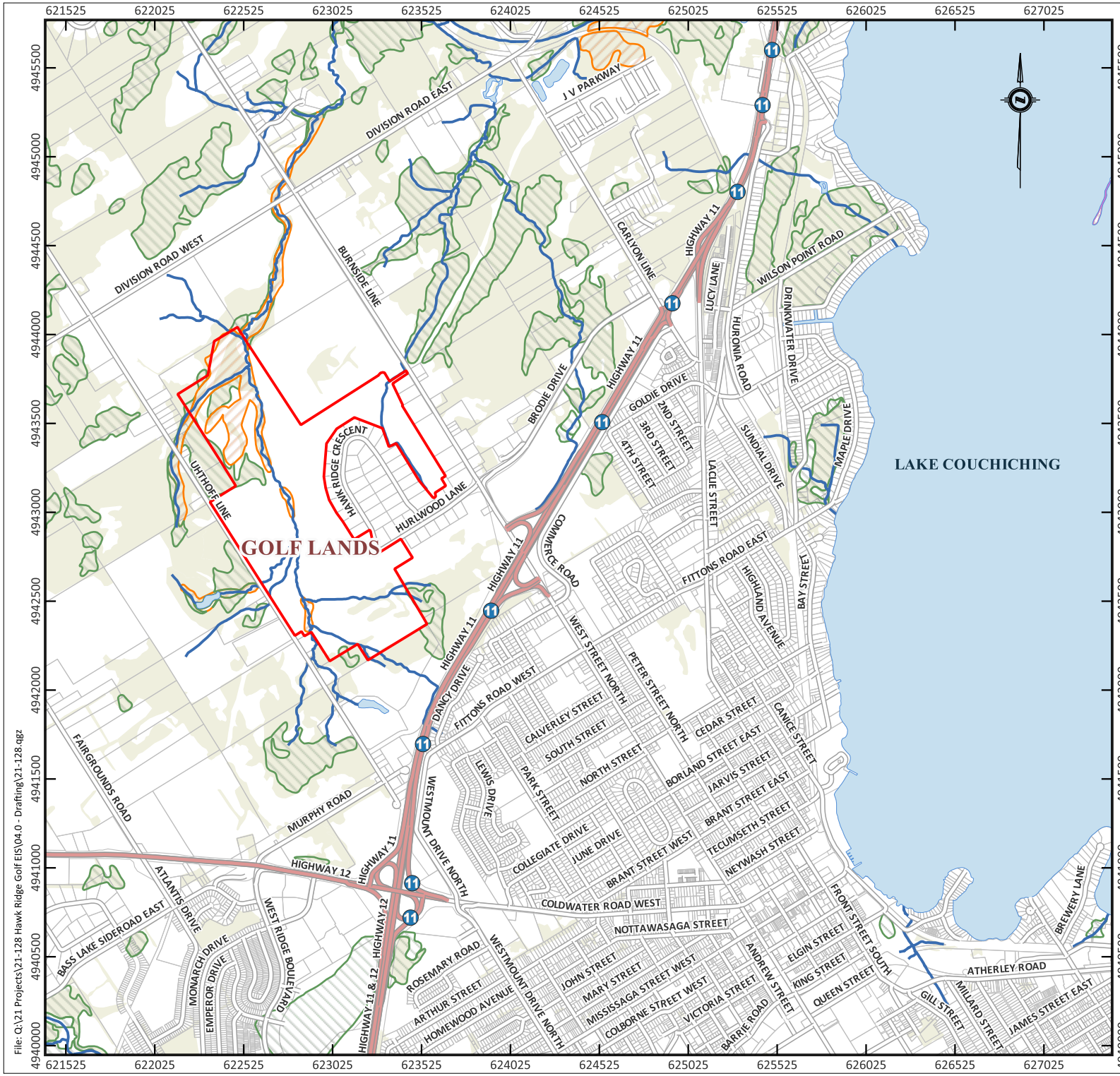
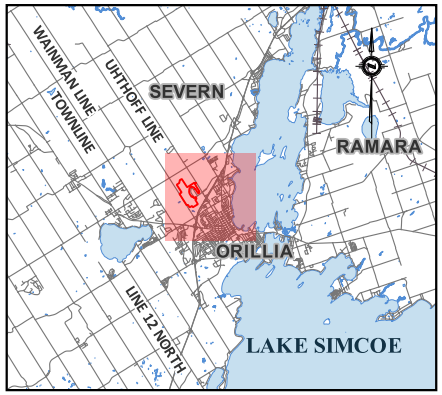


LEGEND

- Approx. Property Boundaries
- Unevaluated Wetland
- Evaluated Wetland
- Provincially Significant Wetland
- Waterbody
- Permanent Watercourse
- Wooded Area
- Road
- Highway

REGIONAL MAP

SCALE 1:500000



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KILOMETERS

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
ENVIRONMENTAL ASSESSMENTS & APPROVALS

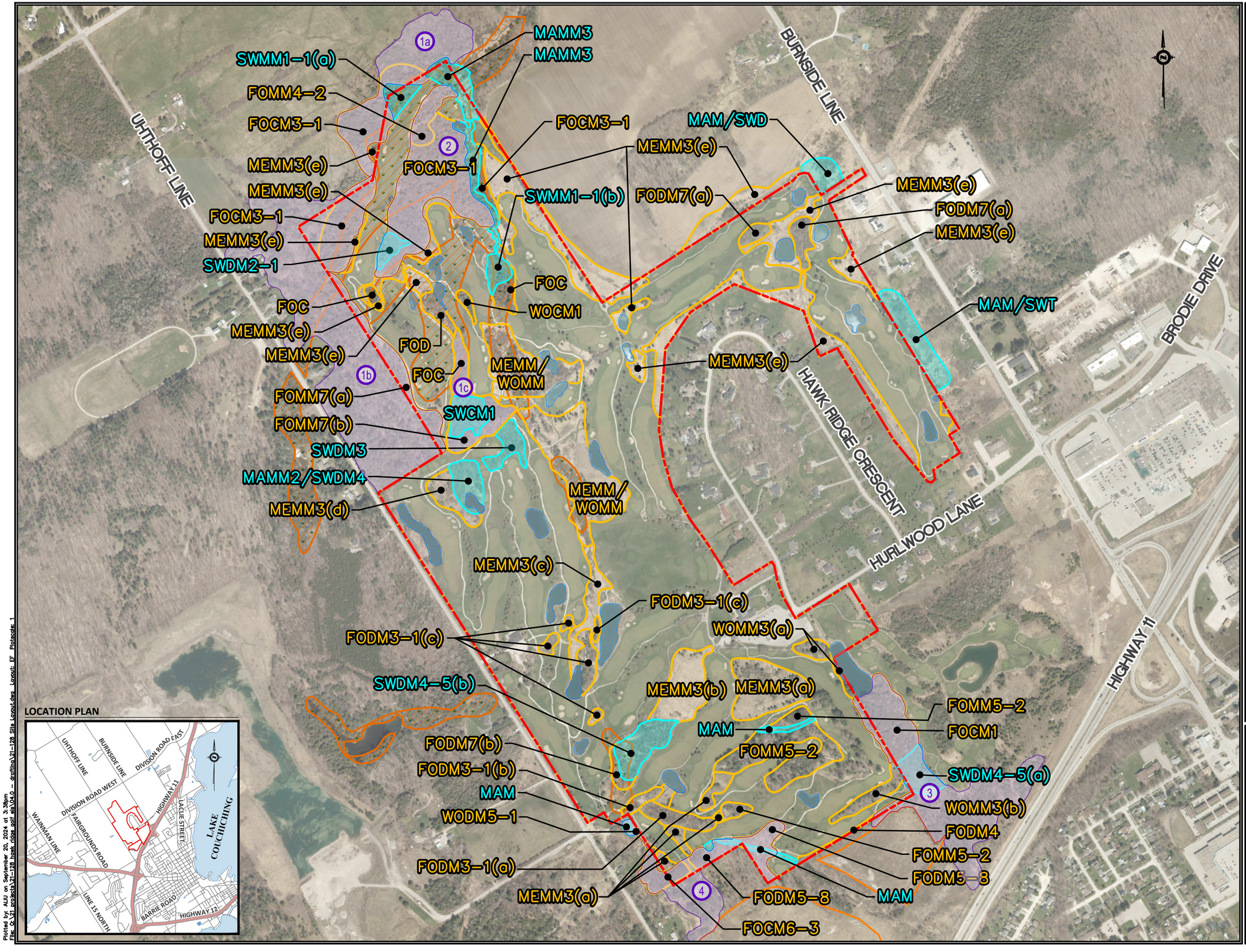
SITE LOCATION

Hawk Ridge Golf Course, A3 Lands & Inch Farm Subdivision Due Diligence for LIV Communities

ORILLIA, ON

DATE ISSUED:	SEPTEMBER 2024	Figure No. 1
CREATED BY:	A.L.	
PROJECT NO.:	21-128	
BASE MAP:	MNRF	

File: Q:\21 Projects\21-128 Hawk Ridge Golf EIS\04.0 - Drafting\21-128.ggz



LOCATION PLAN

LEGEND:

- APPROX. PROPERTY BOUNDARY
- CLEARED LANDS
- SILVER CREEK SWAMP (SE8) LOCALLY SIGNIFICANT WETLAND (MNR, 2024)
- # SIGNIFICANT WOODLAND

ELC UPLAND COMMUNITIES:

FOC	CONIFEROUS FOREST
FOCM1	DRY–FRESH PINE CONIFEROUS FOREST
FOCM3	FRESH–MOIST HEMLOCK CONIFEROUS FOREST
FOCM3–1	FRESH–MOIST HEMLOCK CONIFEROUS FOREST
FOCM6–3	DRY–FRESH SCOTS PINE NATURALIZED CONIFEROUS PLANTATION
FOD	DECIDUOUS FOREST
FOD7	FRESH–MOIST LOWLAND DECIDUOUS FOREST
FODM	MIXED DECIDUOUS FOREST
FODM3–1	DRY–FRESH POPLAR DECIDUOUS FOREST
FODM4	MINERAL DECIDUOUS FOREST
FODM5–8	DRY–FRESH SUGAR MAPLE–WHITE ASH DECIDUOUS FOREST
FODM7	FRESH–MOIST LOWLAND DECIDUOUS FOREST
FOM	MIXED FOREST
FOMM4–2	DRY–FRESH WHITE CEDAR–POPLAR MIXED FOREST
FOMM5–2	DRY–FRESH POPLAR MIXED FOREST
FOMM7	
MEMM3	DRY–FRESH MIXED MEADOW
MEMM /WOMM	MIXED MEADOW/WOODLAND
WOCM1	DRY–FRESH CONIFEROUS WOODLAND
WOD	DECIDUOUS WOODLAND
WOMM3	DRY–FRESH MIXED WOODLAND

ELC WETLAND COMMUNITIES:

MAM	MEADOW MARSH
MAM/SWD	MEADOW MARSH / DECIDUOUS SWAMP COMPLEX
MAMM2/ SWDM4	FORB MINERAL MEADOW MARSH/ MINERAL DECIDUOUS SWAMP
MAM/SWT	MEADOW MARSH / THICKET SWAMP COMPLEX
MAMM3	MIXED MINERAL MEADOW MARSH
SWCM1	WHITE CEDAR MINERAL CONIFEROUS SWAMP
SWD	DECIDUOUS SWAMP
SWDM2–1	BLACK ASH MINERAL DECIDUOUS SWAMP
SWDM3	MAPLE MINERAL DECIDUOUS SWAMP
SWDM4–5	POPLAR MINERAL DECIDUOUS SWAMP
SWMM1–1	WHITE CEDAR–HARDWOOD MINERAL MIXED SWAMP
OAO	OPEN AQUATIC / POND

0 200.00 400.0

HORIZONTAL SCALE 1:8000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
ENVIRONMENTAL ASSESSMENTS & APPROVALS

ENVIRONMENTAL FEATURES - ECOLOGICAL LAND CLASSIFICATIONS

HAWK RIDGE GOLF COURSE EIS ORILLIA, ON

DATE ISSUED:	*SEPTEMBER 2024*	Figure No. 2A
CREATED BY:	*A.L.*	
PROJECT NO.:	*21-128*	
REFERENCE:	*SIMCOE COUNTY*	

UHTHOFF LINE

BURNSIDE LINE

BRODIE DRIVE

HAWK RIDGE CRESCENT

HURLWOOD LANE

HIGHWAY 11

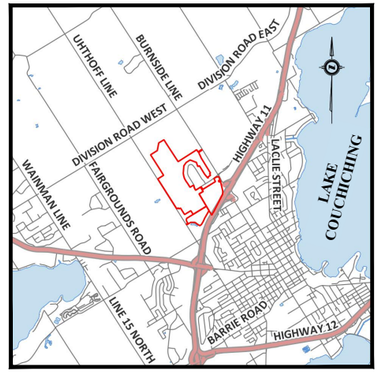
SILVER CREEK

RED-HEADED WOODPECKER BREEDING

LEGEND:

- APPROX. PROPERTY BOUNDARY
- SILVER CREEK SWAMP (SE8) LOCALLY SIGNIFICANT WETLAND (MNR, 2024)
- UPLAND COMMUNITY
- WETLAND COMMUNITY
- OPEN AQUATIC / POND
- SEEP LOCATION
- POND I.D. / BASKING TURTLE SURVEYS
- POND I.D. / BASKING TURTLE HABITAT
- POND I.D. / NO BASKING TURTLE SURVEYS
- EVENING CALLING AMPHIBIAN SURVEY STATION
- DAWN BREEDING BIRD SURVEY STATION
- EASTERN WOOD-PEWEE LOCATION
- WOOD THRUSH LOCATION
- RED-HEADED WOODPECKER BREEDING
- BA BLACK ASH LOCATION

LOCATION PLAN



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HORIZONTAL SCALE 1:8000

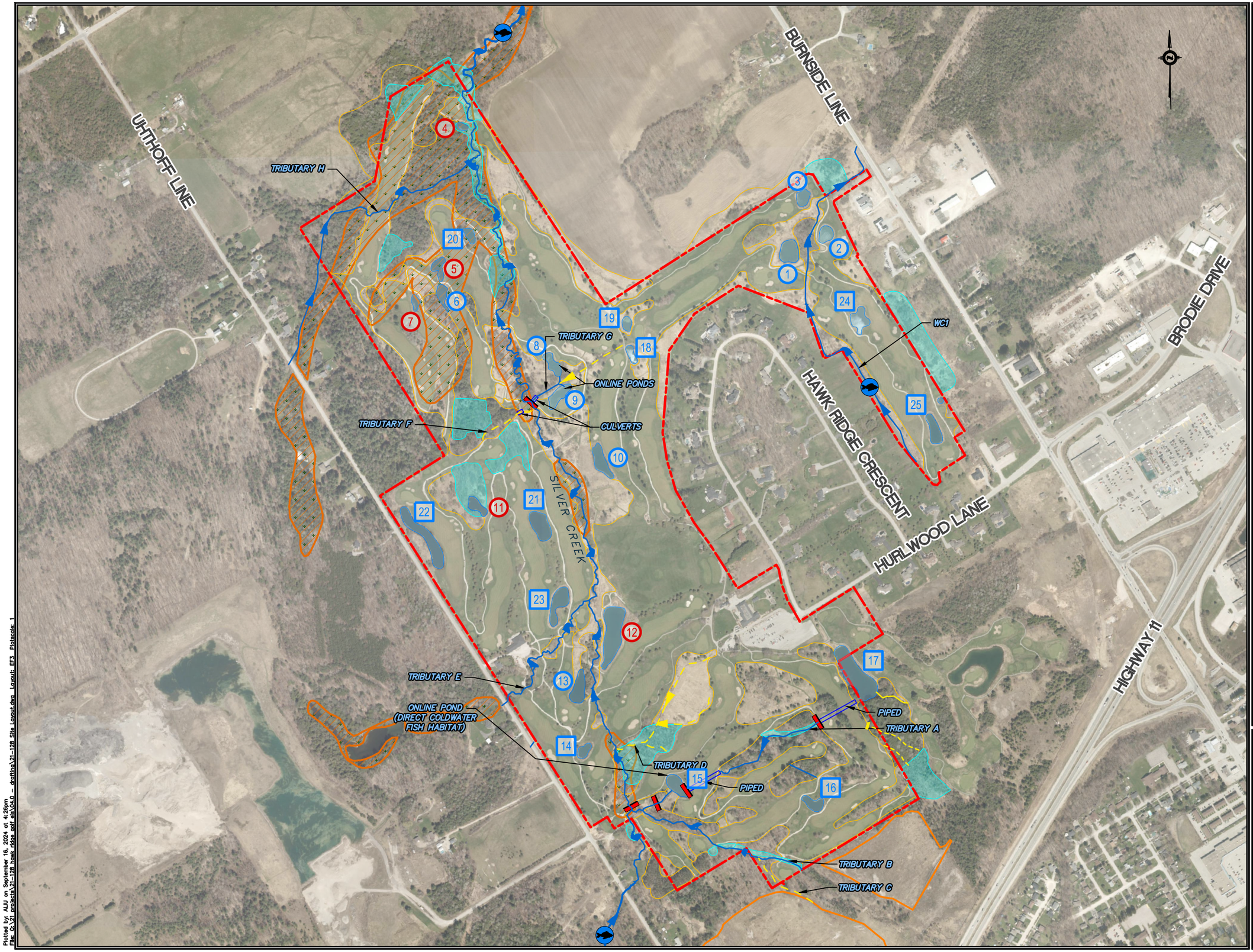
AZIMUTH ENVIRONMENTAL CONSULTING, INC.
ENVIRONMENTAL ASSESSMENTS & APPROVALS

ENVIRONMENTAL FEATURES - SAR HABITAT, SWH & SURVEY LOCATIONS

HAWK RIDGE GOLF COURSE EIS ORILLIA, ON

DATE ISSUED:	*SEPTEMBER 2024*	Figure No.
CREATED BY:	*A.L.*	2B
PROJECT NO.:	*21-128*	
REFERENCE:	*SIMCOE COUNTY*	

Plotted by: ALU on September 16, 2024 at 4:21pm
File: G:\21 projects\21-128 hawk ridge golf eis\04.0 - drafting\21-128 Site Layout.dwg - Layout: 2B EF - SAR HABITAT - SWH AND SURVEY LOCATIONS - Plotscale: 1



LEGEND:

- APPROX. PROPERTY BOUNDARY
- SILVER CREEK SWAMP (SE8) LOCALLY SIGNIFICANT WETLAND (MNR, 2024)
- UPLAND COMMUNITY
- WETLAND COMMUNITY
- OPEN AQUATIC / POND
- COLDWATER THERMAL REGIME

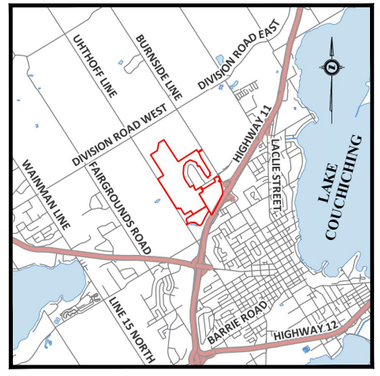
FISH HABITAT:

- PERMANENT WATERCOURSE
- PERMANENT WATERCOURSE/ INDIRECT FISH HABITAT
- INTERMITTENT DRAINAGE FEATURE/ INDIRECT FISH HABITAT
- EPHEMERAL DRAINAGE FEATURE/ INDIRECT FISH HABITAT
- CULVERT
- FISH BARRIER (COUNT: 5)

NOTES

1. ALL DIRECT AND INDIRECT FEATURES ARE COLDWATER FISH HABITAT

LOCATION PLAN



0 200.00 400.0

HORIZONTAL SCALE 1:8000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
ENVIRONMENTAL ASSESSMENTS & APPROVALS

ENVIRONMENTAL FEATURES - FISH HABITAT

HAWK RIDGE GOLF COURSE EIS ORILLIA, ON

DATE ISSUED:	*SEPTEMBER 2024*	Figure No. 2C
CREATED BY:	*A.L.*	
PROJECT NO.:	*21-128*	
REFERENCE:	*SIMCOE COUNTY*	

Plotted by: ALU on September 16, 2024 at 4:26pm
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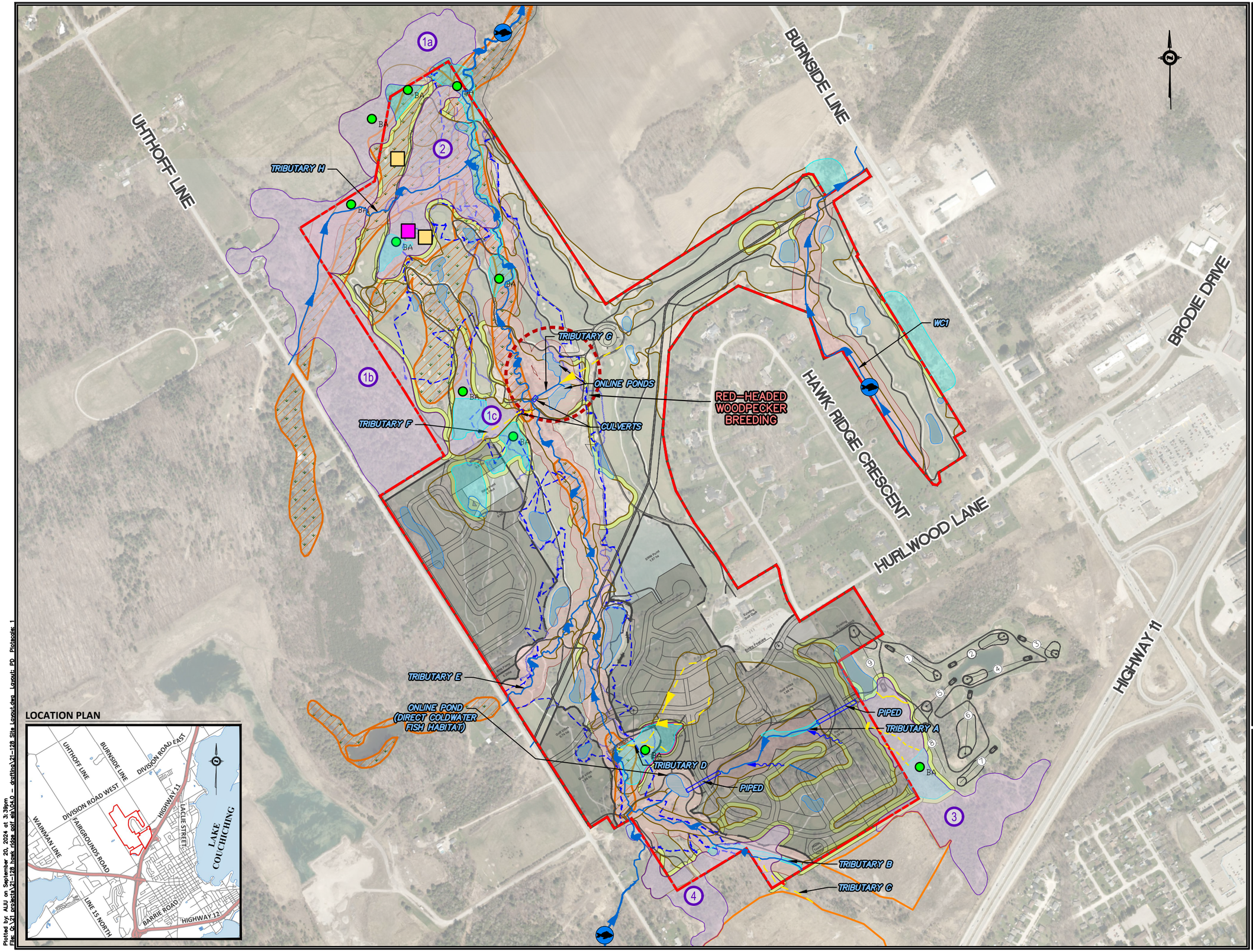

LOCATION PLAN

LEGEND:

- APPROX. PROPERTY BOUNDARY
- SILVER CREEK SWAMP (SE8) LOCALLY SIGNIFICANT WETLAND (MNR, 2024)
- SIGNIFICANT WOODLAND
- UPLAND COMMUNITY
- WETLAND COMMUNITY
- OPEN AQUATIC / POND
- COLDWATER THERMAL REGIME
- SEEP LOCATION

FISH HABITAT:

- PERMANENT WATERCOURSE
- PERMANENT WATERCOURSE/ INDIRECT FISH HABITAT
- INTERMITTENT DRAINAGE FEATURE/ INDIRECT FISH HABITAT
- EPHEMERAL DRAINAGE FEATURE/ INDIRECT FISH HABITAT
- CULVERT
- 30m BUFFER TO DIRECT FISH HABITAT
- 10m BUFFER TO WOODLAND AND WETLAND
- EASTERN WOOD-PEWEE LOCATION
- WOOD THRUSH LOCATION
- BARRED OWL LOCATION
- RED-HEADED WOODPECKER HABITAT AREA
- BA — BLACK ASH LOCATION
- FLOODPLAIN LINE
- PROPOSED FLOODPLAIN ADJUSTMENT FOR NEW DEVELOPABLE AREA

NOTES

1. ALL DIRECT AND INDIRECT FEATURES ARE COLDWATER FISH HABITAT

0 200.00 400.0

HORIZONTAL SCALE 1:8000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.
ENVIRONMENTAL ASSESSMENTS & APPROVALS

PROPOSED DEVELOPMENT

HAWK RIDGE GOLF COURSE EIS ORILLIA, ON

DATE ISSUED:	SEPTEMBER 2024	Figure No. 3
CREATED BY:	A.L.	
PROJECT NO.:	21-128	
REFERENCE:	SIMCOE COUNTY	

Plotted by: ALU on September 20, 2024 at 3:39pm
File: G:\21 projects\21-128 hawk ridge golf eis\04.0 - drafting\21-128 Site Layout.dwg, Layout: PD, Plotscale: 1

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species[1]	Initial Assessment
American Hart's-tongue Fern	*Asplenium scolopendrium* var. *americanum*	SC	SC	Grows on calcareous rocks in deep shade on slopes in deciduous forest. Most occurrences are in maple-beech forest (MECP, 2022). ESA Protection: N/A	Species not present.
Barn Swallow	*Hirundo rustica*	SC	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	Species records exist within 100km^2 of the property as per OBBA data (Appendix B). However, structures on the property are in good condition and not suitable for species. No nesting observed. Species not observed during surveys.
Black Ash	*Fraxinus nigra*	END	No Status	Facultative wetland tree species frequently found in floodplain forests, swamps, seepage areas, shoreline margins and fens. Occupied sites are generally seasonally-flooded (COSEWIC, 2018a). ESA Protection: Species and general habitat protection (ESA protections take effect January 27, 2024)	**Species present in several wetland areas on-property. Considered further in main text.**
Blanding's Turtle	*Emydoidea blandingii*	THR	END	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, 2016a). ESA Protection: Species and general habitat protection	Anthropogenic ponds on the property generally do not have a high density of aquatic vegetation. Suitable habitat for species not considered to be present (*e.g.* natural wetlands with open water areas, nutrient-rich and some vegetated areas, lakes, streams with sufficient water depth). Other wetlands in study area generally densely treed and deemed not suitable for species (*e.g* . basking, nesting, movement). Species not observed during surveys.
Bobolink	*Dolichonyx oryzivorus*	THR	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	OBBA record exists in the 100km^2 area (Appendix B), but suitable habitat for species not present and species not observed.
Broad Beech Fern	*Phygopteris hexagonoptera*	SC	SC	Rich soils in deciduous forests, such as Maple-Beech forests (MECP, 2022). ESA Protection: N/A	Species not present.
Butternut	*Juglans cinerea*	END	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, 2017). ESA Protection: Species and general habitat protection	Species not observed during surveys.
Canada Warbler	*Cardellina canadensis*	SC	THR	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, 2020). ESA Protection: N/A	Suitable habitat not present. Species not observed during surveys.
Cerulean Warbler	*Dendroica cerulea*	THR	END	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	Suitable habitat not present. Species not observed during surveys.
Chimney Swift	*Chaetura pelagica*	THR	THR	Nests primarily in chimneys though some populations (*i.e* . in rural northern areas) may nest in cavity trees (COSEWIC, 2018b). 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	Although there is an OBBA record in grid square 17PK24 within 100km^2 of the property (Appendix B), suitable structures for the species not present. Species not observed during surveys.
Common Nighthawk	*Chordeiles minor*	SC	THR	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, 2018c). ESA Protection: N/A	Open areas with gravel paths present, but species not observed during field program.

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species[1]	Initial Assessment
Eastern Meadowlark	*Sturnella magna*	THR	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 5ha (COSEWIC, 2011b). ESA Protection: Species and general habitat protection	OBBA record exists in the 100km^2 area (Appendix B), but suitable habitat for species not present and species not observed.
Eastern Musk Turtle	*Sternotherus oderatus*	SC	SC	Inhabit littoral zones of waterways such as rivers, lakes, bays, streams, ponds, canals, and swamps with slow to no current and soft bottoms. During the active season they prefer shallow water (<2m) with abundant vegetation. Most are found close to shore and do not venture onto land except to nest or access adjacent wetlands (COSEWIC, 2012a). ESA Protection: N/A	Anthropogenic ponds on the property have limited perimeter aquatic vegetation in shallow areas. Some ponds have no perimeter aquatic vegetation with grassed/sodded edges. Species not observed during surveys.
Eastern Ribbonsnake	*Thamnophis sauritus*	SC	SC	Found in wetland habitats with both flowing and standing water such as marshes, bogs, fens, ponds, lake shorelines and wet meadows. Most sightings occur near the water's edge (COSEWIC, 2012b). ESA Protection: N/A	A 2018 record exists in the ORAA for the species within 100km^2 of the property, but species not observed throughout field program. Suitable habitat not present in study area.
Eastern Whip-poor-will	*Antrostomus vociferus*	THR	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, 2009). ESA Protection: Species and general habitat protection	Species not detected during targeted surveys.
Eastern Wood-pewee	*Contopus virens*	SC	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, 2012c). ESA Protection: N/A	**Two individual Eastern Wood-pewee were detected during dawn breeding bird surveys in northern region of property. Considered further in main text.**
Golden-winged Warbler	*Vermivora chrysoptera*	SC	THR	Areas of early successional scrub surrounded by mature forests including dry uplands, swamp forests, and marshes (COSEWIC, 2006). ESA Protection: N/A	Potentially suitable habitat is present in association with adjacent field edge perimeters but not on the property. Species not detected during surveys.
Little Brown Myotis	*Myotis lucifugus*	END	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 (MNRF, 2014) (COSEWIC, 2013). ESA Protection: Species and general habitat protection	**Forest/woodland cover extending onto adjacent lands located in the north/northwest and southern regions of the property may provide suitable habitat for Species at Risk bats. Potentially suitable habitat may also occur adjacent on the west side of Uhthoff Line. Considered further in main text.**
Monarch	*Danaus plexippus*	SC	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, 2016b). ESA Protection: N/A	Sparse Common Milkweed observed in some areas of meadow habitat on the property, but species not observed. No records for the species in background review. Not considered further in our assessment.
Northern Brook Lamprey	*Ichthyomyzon fossor*	SC	SC	Inhabits clear, coolwater streams. Adults are found in fast flowing riffles comprised of rock or gravel (MECP, 2022). ESA Protection: N/A	Potentially suitable habitat in main channel of Silver Creek, although preference is for coolwater streams, not coldwater. No historic records in NHIC or DFO mapping.
Northern Myotis	*Myotis septentrionalis*	END	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, 2013). ESA Protection: Species and general habitat protection	**Forest/woodland cover extending onto adjacent lands located in the north/northwest and southern regions of the property may provide suitable habitat for Species at Risk bats. Potentially suitable habitat may also occur adjacent on the west side of Uhthoff Line. Considered further in main text.**
Northern Map Turtle	*Grapetemys geographica*	SC	SC	Inhabits rivers and lakes where it basks on emergent rocks, banks, logs and fallen trees. Prefer shallow, soft-bottomed aquatic habitats with exposed objects for basking (COSEWIC, 2012d). ESA Protection: N/A	Species not observed during surveys.

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species[1]	Initial Assessment
Olive-sided Flycatcher	*Contopus cooperi*	SC	THR	Natural forest openings, forest edges near natural openings (such as wetlands) or open to semi-open forest stands. Occasionally human made openings (such as clear cuts). Presence of tall snags and residual live trees is essential (COSEWIC, 2018d). ESA Protection: N/A	Although potentially suitable habitat is present in the study area, the species was not observed during surveys.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	END	END	Occurs in open deciduous forests, particularly those dominated by oak and beech, groves of dead trees, floodplain forests, orchards, cemeteries, savannas and savanna-like grasslands. Although the species occupies a range of habitat types, key habitat is characteristically composed of woodlands where tall trees are of large crcumference (i.e.mature cover) and are at a low density. A high density of snag trees is also an indicator of key habitat types (COSEWIC, 2018e). ESA Protection: Species and general habitat protection.	**Species present in north-central region of property near Ponds #8-9. Considered further in main text.**
Snapping Turtle	*Chelydra serpentina*	SC	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, 2008). ESA Protection: N/A	**Species present. Considered further in main text.**
Tri-colored Bat	*Perimyotis subflavus*	END	END	Maternity roost sites include forests and modified landscapes (barns or human-made structures). Overwintering sites include mines and caves (COSEWIC, 2013). ESA Protection: Species and general habitat protection	**Forest/woodland cover extending onto adjacent lands located in the north/northwest and southern regions of the property may provide suitable habitat for Species at Risk bats. Potentially suitable habitat may also occur adjacent on the west side of Uhthoff Line. Considered further in main text.**
West Virginia White	*Pieris virginiensis*	SC	No Status	This species lives in moist, deciduous woodlands and requires a supply of toothwort, a small, spring-blooming plant that is a member of the mustard family, since it is the only food source for the larvae (MNRF, 2014). ESA Protection: N/A	Suitable habitat (*i.e.* Toothwort) not present. Species would not be expected to occur.
Wood Thrush	*Hylocichla mustelina*	SC	THR	Found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches (COSEWIC, 2012e). ESA Protection: N/A	**Species detected in northern part of property. Considered further in main text.**
Wood Turtle	*Glyptemys insculpta*	END	THR	Rivers and streams with sand or gravel bottoms and prefers clear, meandering streams with moderate current. Riparian areas with diverse, patchy cover are most commonly used across the range (COSEWIC, 2018f). ESA Protection: Species and regulated habitat protection	Species not observed during surveys.

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

Species at Risk in Ontario List (June 13, 2017)
Best, T., and J. Jennings. 1997. Mammalian Species, *Myotis leibii* . The American Society of Mammalogists. No. 547, pp. 1-6, 5 figs.
Cadman, M., D. Sutherland, G. Beck, D. Lepage and A. Couturier. 2007. Atlas of the Breeding Birds of Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario
COSEWIC. 2006. 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.
COSEWIC. 2008. 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.
COSEWIC. 2009. 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.
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.
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Table 2A: Vascular Plant List (Spring), Hawk Ridge EIS, Severn (2023 Surveyor: Adam McClelland **AEC21-128**

			Vegetation Communities[2]															Conservation Rankings[3]		
FAMILY[1]	**SCIENTIFIC NAME[1]**	**COMMON NAME[1]**	**WOMM3(a)**	**MEMM3(a)**	**FOCM1**	**SWDM4-5**	**WOMM3(b)**	**FODM4**	**FODM5-8**	**FOMM5-2**	**FODM3-1**	**FOCM6-3**	**WODM5-1**	**FODM3-1**	**SWDM4-5**	**MEMM3**	**FODM3-1**	**GRANK**	**SRANK**	**TRACK**
Aceraceae	*Acer negundo*	Manitoba Maple		X			X	X			X	X	X	X	X	X	X	G5	S5	N
Aceraceae	*Acer platanoides*	Norway Maple															X	GNR	SE5	N
Aceraceae	*Acer rubrum*	Red Maple							X	X								G5	S5	N
Aceraceae	*Acer saccharum*	Sugar Maple			X				X	X	X			X				G5	S5	N
Anacardiaceae	*Rhus typhina*	Staghorn Sumac		X				X										G5	S5	N
Anacardiaceae	*Toxicodendron radicans var. radicans*	Eastern Poison Ivy			X	X	X	X		X	X				X			G5T5	S5	N
Apiaceae	*Daucus carota*	Wild Carrot	X	X			X									X		GNR	SE5	N
Apocynaceae	*Asclepias syriaca*	Common Milkweed		X			X					X	X			X	X	G5	S5	N
Asteraceae	*Achillea millefolium*	Common Yarrow					X											G5	SE5?	N
Asteraceae	*Cirsium arvense*	Canada Thistle					X						X	X		X	X	G5	SE5	N
Asteraceae	*Cirsium vulgare*	Bull Thistle		X			X											GNR	SE5	N
Asteraceae	*Erigeron philadelphicus*	Philadelphia Fleabane	X	X	X		X		X	X		X						G5	S5	P
Asteraceae	*Euthamia graminifolia*	Grass-leaved Goldenrod		X			X		X				X			X		G5	S5	N
Asteraceae	*Eutrochium maculatum*	Spotted Joe Pye Weed		X									X		X	X	X	G5	S5	N
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy					X			X			X			X		GNR	SE5	N
Asteraceae	*Solidago altissima*	Tall Goldenrod		X			X	X								X		G5	S5	P
Asteraceae	*Solidago canadensis*	Canada Goldenrod	X	X	X				X	X		X	X	X		X	X	G5	S5	N
Asteraceae	*Solidago rugosa*	Rough-stemmed Goldenrod		X														G5	S5	N
Asteraceae	*Sonchus arvensis*	Field Sow-thistle		X														GNR	SE5	N
Asteraceae	*Symphyotrichum cordifolium*	Heart-leaved Aster			X													G5	S5	N
Asteraceae	*Symphyotrichum lanceolatum*	Panicled Aster	X	X	X	X	X	X	X						X	X	X	G5	S5	P
Asteraceae	*Symphyotrichum novae-angliae*	New England Aster		X			X	X					X		X	X		G5	S5	N
Asteraceae	*Symphyotrichum puniceum*	Purple-stemmed Aster													X			G5	S5	N
Asteraceae	*Taraxacum officinale*	Common Dandelion	X							X				X				G5	SE5	N
Asteraceae	*Tragopogon pratensis*	Meadow Goatsbeard	X	X														GNR	SE5	N
Asteraceae	*Tussilago farfara*	Coltsfoot			X		X							X		X		GNR	SE5	N
Balsaminaceae	*Impatiens capensis*	Spotted Jewelweed						X					X	X	X		X	G5	S5	N
Betulaceae	*Betula alleghaniensis*	Yellow Birch							X									G5	S5	N
Betulaceae	*Betula papyrifera*	Paper Birch	X	X			X		X						X		X	G5	S5	N
Brassicaceae	*Barbarea vulgaris*	Bitter Wintercress		X													X	GNR	SE5	N
Caprifoliaceae	*Lonicera tatarica*	Tatarian Honeysuckle		X										X	X		X	GNR	SE5	N
Caprifoliaceae	*Sambucus racemosa*	Red Elderberry															X	G5	S5	N
Caprifoliaceae	*Viburnum lentago*	Nannyberry		X		X									X			G5	S5	N
Caprifoliaceae	*Viburnum opulus*	Cranberry Viburnum		X	X	X				X	X		X	X	X		X	G5	S5	N
Cornaceae	*Cornus alternifolia*	Alternate-leaved Dogwood									X	X		X	X			G5	S5	N
Cornaceae	*Cornus racemosa*	Grey Dogwood		X														G5	S5	N
Cornaceae	*Cornus sericea*	Red-osier Dogwood		X		X	X	X	X	X			X	X		X		G5	S5	N
Cupressaceae	*Thuja occidentalis*	Eastern White Cedar		X	X	X				X			X		X		X	G5	S5	N
Cyperaceae	*Carex gracillima*	Graceful Sedge							X									G5	S5	N
Cyperaceae	*Carex lacustris*	Lake Sedge												X				G5	S5	N
Cyperaceae	*Carex rostrata*	Swollen Beaked Sedge											X					G5	S4?	N
Cyperaceae	*Carex stipata*	Awl-fruited Sedge													X			G5	S5	N
Dennstaedtiaceae	*Pteridium aquilinum*	Bracken Fern						X										G5	S5	N
Dryopteridaceae	*Dryopteris intermedia*	Evergreen Wood Fern			X				X									G5	S5	N
Dryopteridaceae	*Matteuccia struthiopteris*	Ostrich Fern				X						X						G5	S5	N
Dryopteridaceae	*Onoclea sensibilis*	Sensitive Fern	X	X	X	X	X	X	X		X	X	X	X	X			G5	S5	N
Dryopteridaceae	*Polystichum acrostichoides*	Christmas Fern							X									G5	S5	N
Equisetaceae	*Equisetum arvense*	Field Horsetail	X	X			X		X		X			X				G5	S5	N
Equisetaceae	*Equisetum fluviatile*	Water Horsetail				X												G5	S5	N
Equisetaceae	*Equisetum hyemale*	Common Scouring-rush							X									G5	S5	N
Equisetaceae	*Equisetum pratense*	Meadow Horsetail				X									X			G5	S5	N
Fabaceae	*Gleditsia triacanthos*	Honey Locust														X		G5	S2?	Y
Fabaceae	*Lotus corniculatus*	Garden Bird's-foot Trefoil														X		GNR	SE5	N
Fabaceae	*Medicago lupulina*	Black Medick														X		GNR	SE5	N
Fabaceae	*Melilotus albus*	White Sweet-clover		X														G5	SE5	N
Fabaceae	*Securigera varia*	Purple Crown-vetch					X											GNR	SE5	N
Fabaceae	*Trifolium pratense*	Red Clover		X														GNR	SE5	N
Fabaceae	*Trifolium repens*	White Clover											X	X		X		GNR	SE5	N
Fabaceae	*Vicia cracca*	Tufted Vetch	X	X				X					X			X	X	GNR	SE5	N
Fagaceae	*Fagus grandifolia*	American Beech							X									G5	S4	N
Fagaceae	*Quercus alba*	White Oak		X														G5	S5	N
Fagaceae	*Quercus rubra*	Northern Red Oak							X	X	X	X	X					G5	S5	N
Grossulariaceae	*Ribes americanum*	American Black Currant											X					G5	S5	N
Grossulariaceae	*Ribes nigrum*	European Black Currant									X							GNR	SE2	N
Liliaceae	*Maianthemum canadense*	Wild Lily-of-the-valley			X													G5	S5	N
Liliaceae	*Maianthemum racemosum*	Large False Solomon's Seal								X								G5T5	S5	N
Oleaceae	*Fraxinus americana*	White Ash	X	X	X		X	X	X	X	X	X	X	X				G4	S4	N
Oleaceae	*Fraxinus nigra*	Black Ash				X									X			G5	S4	Y
Oleaceae	*Fraxinus pennsylvanica*	Red Ash				X												G4	S4	N
Oleaceae	*Syringa vulgaris*	Common Lilac														X	X	GNR	SE5	N
Onagraceae	*Circaea canadensis*	Broad-leaved Enchanter's Nightshade					X	X	X	X	X	X			X			G5	S5	N
Pinaceae	*Larix laricina*	Tamarack		X									X					G5	S5	N
Pinaceae	*Picea abies*	Norway Spruce	X	X														G5	SE3	N
Pinaceae	*Picea glauca*	White Spruce	X	X		X		X		X	X					X		G5	S5	N
Pinaceae	*Picea pungens*	Blue Spruce		X														G5	SE1	N
Pinaceae	*Pinus nigra*	Austrian Pine		X														GNR	SE3	N
Pinaceae	*Pinus resinosa*	Red Pine								X								G5	S5	N
Pinaceae	*Pinus strobus*	Eastern White Pine	X	X	X		X			X	X						X	G5	S5	N
Pinaceae	*Pinus sylvestris var. sylvestris*	Scots Pine		X								X	X					GNRTNR	SE5	N
Plantaginaceae	*Plantago lanceolata*	English Plantain														X		G5	SE5	N
Poaceae	*Agrostis gigantea*	Redtop		X			X									X	X	G4G5	SE5	N
Poaceae	*Bromus inermis*	Smooth Brome	X	X									X		X		X	G5T5	SE5	N
Poaceae	*Dactylis glomerata*	Orchard Grass	X				X										X	GNR	SE5	N
Poaceae	*Elymus repens*	Quackgrass		X												X		GNR	SE5	N
Poaceae	*Phalaris arundinacea*	Reed Canarygrass		X			X	X		X			X	X	X	X	X	G5	S5	N
Poaceae	*Phragmites australis ssp. australis*	European Reed													X	X		G5T5	SE5	N
Primulaceae	*Lysimachia nummularia*	Creeping Yellow Loosestrife											X					GNR	SE5	N
Ranunculaceae	*Anemonastrum canadense*	Canada Anemone															X	G5	S5	N
Ranunculaceae	*Clematis virginiana*	Virginia Clematis		X							X		X		X		X	G5	S5	N
Ranunculaceae	*Ranunculus acris*	Common Buttercup	X				X	X			X		X	X			X	G5	SE5	N
Rhamnaceae	*Rhamnus cathartica*	European Buckthorn	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	GNR	SE5	N
Rosaceae	*Amelanchier laevis*	Smooth Serviceberry												X				G5	S5	N
Rosaceae	*Fragaria virginiana*	Wild Strawberry	X	X					X			X		X				G5	S5	N
Rosaceae	*Prunus pensylvanica*	Pin Cherry													X	X		G5	S5	N
Rosaceae	*Prunus serotina*	Black Cherry	X							X								G5	S5	N
Rosaceae	*Prunus virginiana*	Chokecherry				X					X			X				G5	S5	N
Rosaceae	*Rubus allegheniensis*	Allegheny Blackberry		X							X							G5	S5	N
Rosaceae	*Rubus idaeus ssp. idaeus*	European Red Raspberry	X	X			X	X		X	X	X			X			G5T5	SE1	N
Rosaceae	*Rubus occidentalis*	Black Raspberry													X			G5	S5	N
Rosaceae	*Sorbus aucuparia*	European Mountain-ash		X	X					X								G5	SE4	N
Rosaceae	*Spiraea alba*	White Meadowsweet				X												G5	S5	N
Rubiaceae	*Galium palustre*	Common Marsh Bedstraw		X									X					G5	S5	N
Salicaceae	*Populus balsamifera*	Balsam Poplar	X	X		X	X	X		X	X		X		X	X	X	G5	S5	N
Salicaceae	*Populus grandidentata*	Large-toothed Aspen							X			X						G5	S5	N

Table 2A: Vascular Plant List (Spring), Hawk Ridge EIS, Severn (2023 Surveyor: Adam McClelland **AEC21-128**

			Vegetation Communities[2]														Conservation Rankings[3]		
FAMILY[1]	**SCIENTIFIC NAME[1]**	**COMMON NAME[1]**	**WOMM3(a)**	**MEMM3(a)**	**FOCM1**	**SWDM4-5**	**WOMM3(b)**	**FODM4**	**FODM5-8**	**FOMM5-2**	**FODM3-1**	**FOCM6-3**	**WODM5-1**	**FODM3-1**	**SWDM4-5**	**MEMM3**	**FODM3-1**	**GRANK**	**SRANK**	**TRACK**
Salicaceae	*Populus tremuloides*	Trembling Aspen	X	X	X	X	X	X	X	X	X	X		X	X	X	X	G5	S5	N
Salicaceae	*Salix bebbiana*	Bebb's Willow					X									X		G5	S5	N
Salicaceae	*Salix discolor*	Pussy Willow					X									X		G5	S5	N
Salicaceae	*Salix petiolaris*	Meadow Willow														X		G5	S5	N
Solanaceae	*Solanum dulcamara*	Bittersweet Nightshade								X					X			GNR	SE5	N
Tiliaceae	*Tilia americana*	Basswood							X		X				X			G5	S5	N
Typhaceae	*Typha angustifolia*	Narrow-leaved Cattail		X												X		G5	SE5	N
Typhaceae	*Typha latifolia*	Broad-leaved Cattail	X			X	X			X								G5	S5	N
Ulmaceae	*Ulmus americana*	White Elm		X											X		X	G4	S5	N
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper	X				X			X	X	X		X	X			G5	S5	N
Vitaceae	*Vitis riparia*	Riverbank Grape	X				X	X				X	X	X			X	G5	S5	N

[1] Nomenclature based on Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC; MNR, 2024)

[2] ELC Codes based on Ecological Land Classification for Southern Ontario manual (Lee et al., 1998, 2008)

[3] Conservation Rankings: From Ontario Ministry of Natural Resources and Forestry, Natural Heritage Information Centre (https://www.ontario.ca/page/natural-heritage-information-centre)

Table 2B: Vascular Plant List (Summer), Hawk Ridge EIS, Severn (202 Surveyor: Adam McClelland **AEC21-128**

			Vegetation Communities[2]															Conservation Rankings[3]		
FAMILY[1]	SCIENTIFIC NAME[1]	COMMON NAME[1]	MEMM3	SWDM3	MEMM3(d)	MEMM3	FODM7	MAMM3-1	FOCM3-1	FOMM4-2	SWMM1-1a	FOCM3	SWDM2-1	FOMM7a	SWMM1-1b	WOCM1	SWCM1	GRANK	SRANK	TRACK
Aceraceae	*Acer negundo*	Manitoba Maple	X			X	X	X							X			G5	S5	N
Aceraceae	*Acer rubrum*	Red Maple		X					X	X	X		X	X	X		X	G5	S5	N
Aceraceae	*Acer saccharinum*	Silver Maple																G5	S5	N
Aceraceae	*Acer saccharum*	Sugar Maple		X		X			X	X		X		X			X	G5	S5	N
Alismataceae	*Alisma triviale*	Northern Water-plantain					X											G5	S5	N
Alismataceae	*Sagittaria latifolia*	Broad-leaved Arrowhead					X											G5	S5	N
Anacardiaceae	*Rhus typhina*	Staghorn Sumac				X												G5	S5	N
Anacardiaceae	*Toxicodendron radicans var. radicans*	Eastern Poison Ivy		X					X	X							X	G5T5	S5	N
Apiaceae	*Daucus carota*	Wild Carrot			X	X												GNR	SE5	N
Apocynaceae	*Asclepias incarnata*	Swamp Milkweed				X												G5	S5	N
Apocynaceae	*Asclepias syriaca*	Common Milkweed	X		X	X												G5	S5	N
Apocynaceae	*Vinca minor*	Lesser Periwinkle				X												GNR	SE5	N
Araliaceae	*Aralia nudicaulis*	Wild Sarsaparilla							X									G5	S5	N
Asteraceae	*Arctium minus*	Common Burdock				X	X		X									GNR	SE5	N
Asteraceae	*Bidens frondosa*	Devil's Beggarticks															X	G5	S5	N
Asteraceae	*Cichorium intybus*	Wild Chicory				X												GNR	SE5	N
Asteraceae	*Cirsium arvense*	Canada Thistle	X		X	X												G5	SE5	N
Asteraceae	*Cirsium vulgare*	Bull Thistle				X												GNR	SE5	N
Asteraceae	*Doellingeria umbellata*	Flat-top White Aster			X													G5	S5	N
Asteraceae	*Erigeron philadelphicus*	Philadelphia Fleabane		X		X			X									G5	S5	P
Asteraceae	*Eupatorium perfoliatum*	Common Boneset						X										G5	S5	N
Asteraceae	*Euthamia graminifolia*	Grass-leaved Goldenrod	X		X	X												G5	S5	N
Asteraceae	*Eutrochium maculatum*	Spotted Joe Pye Weed	X	X		X	X	X					X					G5	S5	N
Asteraceae	*Lactuca canadensis*	Canada Lettuce															X	G5	S5	N
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy				X			X	X								GNR	SE5	N
Asteraceae	*Rudbeckia hirta*	Black-eyed Susan				X												G5	S5	N
Asteraceae	*Solidago altissima*	Tall Goldenrod	X		X	X				X								G5	S5	P
Asteraceae	*Solidago canadensis*	Canada Goldenrod	X	X	X	X	X	X									X	G5	S5	N
Asteraceae	*Solidago nemoralis*	Grey-stemmed Goldenrod							X	X				X				G5	S5	P
Asteraceae	*Solidago rugosa*	Rough-stemmed Goldenrod		X	X													G5	S5	N
Asteraceae	*Sonchus arvensis*	Field Sow-thistle			X	X												GNR	SE5	N
Asteraceae	*Symphyotrichum ericoides*	White Heath Aster					X											G5	S5	P
Asteraceae	*Symphyotrichum lanceolatum*	Panicled Aster	X		X	X											X	G5	S5	P
Asteraceae	*Symphyotrichum lateriflorum*	Calico Aster		X									X		X			G5	S5	P
Asteraceae	*Symphyotrichum novae-angliae*	New England Aster	X		X	X		X		X								G5	S5	N
Asteraceae	*Symphyotrichum urophyllum*	Arrow-leaved Aster			X													G4G5	S4	N
Asteraceae	*Tanacetum vulgare*	Common Tansy				X												GNR	SE5	N
Asteraceae	*Tussilago farfara*	Coltsfoot							X	X		X						GNR	SE5	N
Balsaminaceae	*Impatiens capensis*	Spotted Jewelweed	X	X		X	X	X	X			X	X		X			G5	S5	N
Betulaceae	*Alnus glutinosa*	European Black Alder						X							X			GNR	SE4	N
Betulaceae	*Betula alleghaniensis*	Yellow Birch							X			X					X	G5	S5	N
Betulaceae	*Betula papyrifera*	Paper Birch				X								X			X	G5	S5	N
Betulaceae	*Ostrya virginiana*	Eastern Hop-hornbeam										X						G5	S5	N
Boraginaceae	*Myosotis laxa*	Small Forget-me-not											X					G5	S5	N
Boraginaceae	*Myosotis scorpioides*	True Forget-me-not						X							X			G5	SE5	N
Brassicaceae	*Hesperis matronalis*	Dame's Rocket	X			X												G4G5	SE5	N
Campanulaceae	*Lobelia inflata*	Indian-tobacco								X								G5	S5	N
Caprifoliaceae	*Lonicera tatarica*	Tatarian Honeysuckle					X			X								GNR	SE5	N
Caprifoliaceae	*Sambucus canadensis*	Common Elderberry				X											X	G5T5	S5	N
Caprifoliaceae	*Viburnum lantanoides*	Hobblebush							X									G5	S5	N
Caprifoliaceae	*Viburnum opulus*	Cranberry Viburnum					X											G5	S5	N
Clusiaceae	*Hypericum perforatum*	Common St. John's-wort				X												GNR	SE5	N
Cornaceae	*Cornus alternifolia*	Alternate-leaved Dogwood		X					X					X				G5	S5	N
Cornaceae	*Cornus racemosa*	Grey Dogwood	X															G5	S5	N
Cornaceae	*Cornus sericea*	Red-osier Dogwood	X	X	X	X	X	X		X			X		X			G5	S5	N
Cupressaceae	*Thuja occidentalis*	Eastern White Cedar	X	X					X	X	X	X	X	X	X		X	G5	S5	N
Cyperaceae	*Carex crinita*	Fringed Sedge						X										G5	S5	N
Cyperaceae	*Carex intumescens*	Bladder Sedge							X				X				X	G5	S5	N
Cyperaceae	*Carex lacustris*	Lake Sedge							X			X	X					G5	S5	N
Cyperaceae	*Carex retrorsa*	Retrorse Sedge											X					G5	S5	N
Cyperaceae	*Carex vulpinoidea*	Fox Sedge											X					G5	S5	N
Cyperaceae	*Schoenoplectus tabernaemontani*	Soft-stemmed Bulrush				X												G5	S5	N
Cyperaceae	*Scirpus atrovirens*	Dark-green Bulrush				X												G5	S5	N
Cyperaceae	*Scirpus cyperinus*	Common Woolly Bulrush											X					G5	S5	N
Dryopteridaceae	*Dryopteris carthusiana*	Spinulose Wood Fern		X											X			G5	S5	N
Dryopteridaceae	*Dryopteris intermedia*	Evergreen Wood Fern							X		X		X				X	G5	S5	N
Dryopteridaceae	*Dryopteris marginalis*	Marginal Wood Fern										X			X			G5	S5	N
Dryopteridaceae	*Gymnocarpium dryopteris*	Common Oak Fern							X			X					X	G5	S5	N
Dryopteridaceae	*Homalosorus pycnocarpos*	Narrow-leaved Glade Fern													X			G5	S4	N
Dryopteridaceae	*Matteuccia struthiopteris*	Ostrich Fern						X	X				X	X				G5	S5	N
Dryopteridaceae	*Onoclea sensibilis*	Sensitive Fern		X				X	X	X	X	X	X	X	X		X	G5	S5	N
Dryopteridaceae	*Polystichum acrostichoides*	Christmas Fern										X		X			X	G5	S5	N
Equisetaceae	*Equisetum arvense*	Field Horsetail					X		X		X	X	X					G5	S5	N
Equisetaceae	*Equisetum pratense*	Meadow Horsetail													X			G5	S5	N
Equisetaceae	*Equisetum scirpoides*	Dwarf Scouring-rush										X						G5	S5	N
Fabaceae	*Lotus corniculatus*	Garden Bird's-foot Trefoil	X		X	X												GNR	SE5	N
Fabaceae	*Melilotus albus*	White Sweet-clover				X												G5	SE5	N
Fabaceae	*Trifolium pratense*	Red Clover				X												GNR	SE5	N
Fabaceae	*Trifolium repens*	White Clover				X												GNR	SE5	N
Fabaceae	*Vicia cracca*	Tufted Vetch	X		X	X	X	X										GNR	SE5	N
Fagaceae	*Quercus alba*	White Oak		X													X	G5	S5	N
Fagaceae	*Quercus rubra*	Northern Red Oak								X			X	X				G5	S5	N
Geraniaceae	*Geranium robertianum*	Herb-Robert		X			X										X	G5	S5	N
Grossulariaceae	*Ribes americanum*	American Black Currant													X			G5	S5	N
Juglandaceae	*Juglans nigra*	Black Walnut				X	X	X										G5	S4?	N
Juncaceae	*Juncus tenuis*	Path Rush				X												GNR	S5	N
Lamiaceae	*Clinopodium vulgare ssp. vulgare*	Wild Basil				X			X									G5T5	S5	N
Lamiaceae	*Lycopus uniflorus*	Northern Water-horehound										X						G5	S5	N
Lamiaceae	*Mentha canadensis*	Canada Mint											X					G5	S5	N
Lamiaceae	*Prunella vulgaris*	Common Self-heal								X							X	G5	S5	N
Liliaceae	*Maianthemum canadense*	Wild Lily-of-the-valley							X	X							X	G5	S5	N
Liliaceae	*Maianthemum racemosum*	Large False Solomon's Seal							X	X	X							G5T5	S5	N
Liliaceae	*Medeola virginiana*	Indian Cucumber-root							X									G5	S5	N
Liliaceae	*Trillium erectum*	Red Trillium							X			X						G5	S5	N
Lythraceae	*Lythrum salicaria*	Purple Loosestrife				X		X										G5	SE5	N
Monotropaceae	*Monotropa uniflora*	Indian-pipe							X					X				G5	S5	N
Oleaceae	*Fraxinus americana*	White Ash					X	X	X	X		X		X				G4	S4	N
Oleaceae	*Fraxinus nigra*	Black Ash		X				X	X		X	X	X		X		X	G5	S4	Y
Oleaceae	*Fraxinus pennsylvanica*	Red Ash						X			X							G4	S4	N
Onagraceae	*Circaea canadensis*	Broad-leaved Enchanter's Nightshade		X			X		X	X	X	X			X		X	G5	S5	N
Onagraceae	*Epilobium parviflorum*	Small-flowered Hairy Willowherb	X					X										GNR	SE4	N
Orchidaceae	*Epipactis helleborine*	Broad-leaved Helleborine					X		X	X	X	X		X			X	GNR	SE5	N
Pinaceae	*Abies balsamea*	Balsam Fir		X					X	X	X	X		X				G5	S5	N
Pinaceae	*Larix laricina*	Tamarack				X	X											G5	S5	N

			Vegetation Communities[2]															Conservation Rankings[3]		
FAMILY[1]	**SCIENTIFIC NAME[1]**	**COMMON NAME[1]**	**MEMM3**	**SWDM3**	**MEMM3(d)**	**MEMM3**	**FODM7**	**MAMM3-1**	**FOCM3-1**	**FOMM4-2**	**SWMM1-1a**	**FOCM3**	**SWDM2-1**	**FOMM7a**	**SWMM1-1b**	**WOCM1**	**SWCM1**	**GRANK**	**SRANK**	**TRACK**
Pinaceae	*Picea abies*	Norway Spruce				X												G5	SE3	N
Pinaceae	*Picea glauca*	White Spruce			X	X												G5	S5	N
Pinaceae	*Picea pungens*	Blue Spruce			X	X												G5	SE1	N
Pinaceae	*Pinus strobus*	Eastern White Pine			X									X				G5	S5	N
Pinaceae	*Pinus sylvestris var. sylvestris*	Scots Pine				X												GNRTNR	SE5	N
Pinaceae	*Tsuga canadensis*	Eastern Hemlock							X	X		X						G4G5	S5	N
Plantaginaceae	*Plantago lanceolata*	English Plantain				X												G5	SE5	N
Plantaginaceae	*Plantago major*	Common Plantain																G5	SE5	N
Poaceae	*Agrostis gigantea*	Redtop	X		X	X		X										G4G5	SE5	N
Poaceae	*Dactylis glomerata*	Orchard Grass				X												GNR	SE5	N
Poaceae	*Elymus hystrix*	Bottlebrush Grass											X					G5	S5	N
Poaceae	*Elymus repens*	Quackgrass				X												GNR	SE5	N
Poaceae	*Glyceria striata var. striata*	Fowl Mannagrass						X					X		X		X	G5T5	S5	N
Poaceae	*Phalaris arundinacea*	Reed Canarygrass	X			X							X					G5	S5	N
Poaceae	*Phleum pratense*	Common Timothy			X	X												GNR	SE5	N
Poaceae	*Phragmites australis ssp. australis*	European Reed						X										G5T5	SE5	N
Polygonaceae	*Rumex crispus*	Curled Dock				X	X	X										GNR	SE5	N
Primulaceae	*Lysimachia nummularia*	Creeping Yellow Loosestrife		X				X			X				X		X	GNR	SE5	N
Ranunculaceae	*Anemonastrum canadense*	Canada Anemone	X				X											G5	S5	N
Ranunculaceae	*Anemone cylindrica*	Long-headed Anemone								X								G5	S4	N
Ranunculaceae	*Caltha palustris*	Yellow Marsh Marigold						X	X									G5	S5	N
Ranunculaceae	*Clematis virginiana*	Virginia Clematis			X			X							X			G5	S5	N
Ranunculaceae	*Ranunculus acris*	Common Buttercup	X	X	X													G5	SE5	N
Ranunculaceae	*Thalictrum dioicum*	Early Meadow-rue													X			G5	S5	N
Ranunculaceae	*Thalictrum pubescens*	Tall Meadow-rue	X															G5	S5	N
Rhamnaceae	*Rhamnus cathartica*	European Buckthorn	X	X	X	X	X			X					X		X	GNR	SE5	N
Rosaceae	*Fragaria virginiana*	Wild Strawberry		X	X		X											G5	S5	N
Rosaceae	*Potentilla recta*	Sulphur Cinquefoil			X													GNR	SE5	N
Rosaceae	*Prunus pensylvanica*	Pin Cherry				X		X		X								G5	S5	N
Rosaceae	*Prunus virginiana*	Chokecherry		X											X			G5	S5	N
Rosaceae	*Rubus allegheniensis*	Allegheny Blackberry								X								G5	S5	N
Rosaceae	*Rubus idaeus ssp. idaeus*	European Red Raspberry		X	X													G5T5	SE1	N
Rosaceae	*Rubus occidentalis*	Black Raspberry		X		X	X	X	X	X				X	X			G5	S5	N
Rosaceae	*Sorbus aucuparia*	European Mountain-ash				X												G5	SE4	N
Rubiaceae	*Galium palustre*	Common Marsh Bedstraw						X					X		X			G5	S5	N
Rubiaceae	*Galium triflorum*	Three-flowered Bedstraw								X								G5	S5	N
Salicaceae	*Populus balsamifera*	Balsam Poplar	X			X	X	X		X	X							G5	S5	N
Salicaceae	*Populus tremuloides*	Trembling Aspen	X	X	X	X	X	X		X	X			X				G5	S5	N
Salicaceae	*Salix bebbiana*	Bebb's Willow	X		X	X												G5	S5	N
Salicaceae	*Salix discolor*	Pussy Willow	X			X	X											G5	S5	N
Salicaceae	*Salix eriocephala*	Cottony Willow	X			X												G5	S5	N
Salicaceae	*Salix interior*	Sandbar Willow	X		X													G5	S5	N
Salicaceae	*Salix petiolaris*	Meadow Willow				X												G5	S5	N
Salicaceae	*Salix x fragilis*	(Salix alba X Salix euxina)				X	X											GNA		N
Scrophulariaceae	*Verbascum thapsus*	Common Mullein				X												GNR	SE5	N
Solanaceae	*Solanum dulcamara*	Bittersweet Nightshade				X	X	X		X		X	X		X		X	GNR	SE5	N
Thelypteridaceae	*Parathelypteris noveboracensis*	New York Fern												X				G5	S4S5	N
Tiliaceae	*Tilia americana*	Basswood		X			X	X				X	X					G5	S5	N
Typhaceae	*Typha angustifolia*	Narrow-leaved Cattail				X		X					X					G5	SE5	N
Typhaceae	*Typha latifolia*	Broad-leaved Cattail				X												G5	S5	N
Ulmaceae	*Ulmus americana*	White Elm		X	X	X	X		X				X	X	X		X	G4	S5	N
Urticaceae	*Laportea canadensis*	Canada Wood Nettle							X				X					G5	S5	N
Urticaceae	*Urtica dioica ssp. dioica*	European Stinging Nettle				X												G5T5?	SE2	N
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper		X	X		X			X		X			X			G5	S5	N
Vitaceae	*Vitis riparia*	Riverbank Grape	X	X		X	X	X							X			G5	S5	N

[1] Nomenclature based on Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC; MNR, 2024)

[2] ELC Codes based on Ecological Land Classification for Southern Ontario manual (Lee et al., 1998, 2008)

[3] Conservation Rankings: From Ontario Ministry of Natural Resources and Forestry, Natural Heritage Information Centre (https://www.ontario.ca/page/natural-heritage-information-centre)

Table 2C: Vascular Plant List (Fall), Hawk Ridge EIS, Severn (2023) Surveyor: Adam McClelland **AEC21-128**

			Vegetation Communities[2]							Conservation Rankings[3]		
FAMILY[1]	**SCIENTIFIC NAME[1]**	**COMMON NAME[1]**	**FOMM7b**	**MAMM2/SWDM4**	**WOMM4**	**MEMM3(f)**	**FOCM4-1**	**FODM7b**	**Fairway**	**GRANK**	**SRANK**	**TRACK**
Aceraceae	*Acer negundo*	Manitoba Maple			X	X	X	X	X	G5	S5	N
Aceraceae	*Acer rubrum*	Red Maple	X							G5	S5	N
Aceraceae	*Acer saccharum*	Sugar Maple	X					X		G5	S5	N
Anacardiaceae	*Toxicodendron radicans var. radicans*	Eastern Poison Ivy	X	X					X	G5T5	S5	N
Apiaceae	*Daucus carota*	Wild Carrot			X	X			X	GNR	SE5	N
Apocynaceae	*Asclepias syriaca*	Common Milkweed		X	X	X			X	G5	S5	N
Asteraceae	*Bidens frondosa*	Devil's Beggarticks			X					G5	S5	N
Asteraceae	*Cirsium arvense*	Canada Thistle		X		X			X	G5	SE5	N
Asteraceae	*Erigeron canadensis*	Canada Horseweed			X					G5	S5	N
Asteraceae	*Erigeron philadelphicus*	Philadelphia Fleabane							X	G5	S5	P
Asteraceae	*Eupatorium perfoliatum*	Common Boneset		X	X					G5	S5	N
Asteraceae	*Euthamia graminifolia*	Grass-leaved Goldenrod		X	X	X			X	G5	S5	N
Asteraceae	*Eutrochium maculatum*	Spotted Joe Pye Weed		X	X	X			X	G5	S5	N
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy							X	GNR	SE5	N
Asteraceae	*Solidago altissima*	Tall Goldenrod		X	X	X			X	G5	S5	P
Asteraceae	*Solidago canadensis*	Canada Goldenrod				X		X	X	G5	S5	N
Asteraceae	*Solidago rugosa*	Rough-stemmed Goldenrod		X						G5	S5	N
Asteraceae	*Sonchus arvensis*	Field Sow-thistle				X				GNR	SE5	N
Asteraceae	*Symphyotrichum lanceolatum*	Panicled Aster	X	X		X		X	X	G5	S5	P
Asteraceae	*Symphyotrichum lateriflorum*	Calico Aster	X	X					X	G5	S5	P
Asteraceae	*Symphyotrichum novae-angliae*	New England Aster		X	X	X		X	X	G5	S5	N
Asteraceae	*Symphyotrichum puniceum*	Purple-stemmed Aster		X						G5	S5	N
Balsaminaceae	*Impatiens capensis*	Spotted Jewelweed		X	X			X		G5	S5	N
Betulaceae	*Alnus glutinosa*	European Black Alder			X					GNR	SE4	N
Betulaceae	*Betula alleghaniensis*	Yellow Birch	X							G5	S5	N
Betulaceae	*Betula papyrifera*	Paper Birch	X						X	G5	S5	N
Boraginaceae	*Myosotis scorpioides*	True Forget-me-not							X	G5	SE5	N
Brassicaceae	*Alliaria petiolata*	Garlic Mustard							X	GNR	SE5	N
Brassicaceae	*Barbarea vulgaris*	Bitter Wintercress							X	GNR	SE5	N
Caprifoliaceae	*Sambucus canadensis*	Common Elderberry							X	G5T5	S5	N
Caprifoliaceae	*Viburnum opulus*	Cranberry Viburnum					X	X		G5	S5	N
Cornaceae	*Cornus alternifolia*	Alternate-leaved Dogwood					X			G5	S5	N
Cornaceae	*Cornus sericea*	Red-osier Dogwood		X	X	X	X	X	X	G5	S5	N
Cupressaceae	*Thuja occidentalis*	Eastern White Cedar	X	X	X		X	X		G5	S5	N
Cyperaceae	*Carex aurea*	Golden Sedge							X	G5	S5	N
Cyperaceae	*Carex gracillima*	Graceful Sedge							X	G5	S5	N
Cyperaceae	*Carex vulpinoidea*	Fox Sedge			X					G5	S5	N
Cyperaceae	*Scirpus atrovirens*	Dark-green Bulrush			X					G5	S5	N
Cyperaceae	*Scirpus microcarpus*	Red-tinged Bulrush							X	G5	S5	N
Dryopteridaceae	*Cystopteris bulbifera*	Bulblet Bladder Fern					X			G5	S5	N
Dryopteridaceae	*Dryopteris intermedia*	Evergreen Wood Fern	X							G5	S5	N
Dryopteridaceae	*Matteuccia struthiopteris*	Ostrich Fern	X	X			X			G5	S5	N
Dryopteridaceae	*Onoclea sensibilis*	Sensitive Fern	X						X	G5	S5	N
Equisetaceae	*Equisetum arvense*	Field Horsetail			X		X		X	G5	S5	N
Equisetaceae	*Equisetum pratense*	Meadow Horsetail		X						G5	S5	N
Fabaceae	*Lotus corniculatus*	Garden Bird's-foot Trefoil			X					GNR	SE5	N
Fabaceae	*Melilotus albus*	White Sweet-clover			X	X				G5	SE5	N
Fabaceae	*Trifolium pratense*	Red Clover			X					GNR	SE5	N
Fabaceae	*Trifolium repens*	White Clover							X	GNR	SE5	N
Fabaceae	*Vicia cracca*	Tufted Vetch			X	X			X	GNR	SE5	N
Fagaceae	*Quercus alba*	White Oak					X			G5	S5	N
Fagaceae	*Quercus macrocarpa*	Bur Oak		X						G5	S5	N
Fagaceae	*Quercus rubra*	Northern Red Oak							X	G5	S5	N
Geraniaceae	*Geranium robertianum*	Herb-Robert	X							G5	S5	N
Juncaceae	*Juncus tenuis*	Path Rush			X					GNR	S5	N
Lamiaceae	*Lycopus uniflorus*	Northern Water-horehound		X						G5	S5	N
Lamiaceae	*Scutellaria lateriflora*	Mad-dog Skullcap							X	G5	S5	N
Liliaceae	*Maianthemum canadense*	Wild Lily-of-the-valley	X							G5	S5	N
Oleaceae	*Fraxinus americana*	White Ash			X				X	G4	S4	N
Oleaceae	*Fraxinus nigra*	Black Ash	X							G5	S4	Y
Oleaceae	*Fraxinus pennsylvanica*	Red Ash				X			X	G4	S4	N
Oleaceae	*Syringa vulgaris*	Common Lilac							X	GNR	SE5	N
Onagraceae	*Circaea canadensis*	Broad-leaved Enchanter's Nightshade	X				X			G5	S5	N
Onagraceae	*Epilobium parviflorum*	Small-flowered Hairy Willowherb			X					GNR	SE4	N
Onagraceae	*Oenothera biennis*	Common Evening-primrose			X					G5	S5	N
Orchidaceae	*Epipactis helleborine*	Broad-leaved Helleborine	X							GNR	SE5	N
Pinaceae	*Abies balsamea*	Balsam Fir	X	X						G5	S5	N
Pinaceae	*Larix laricina*	Tamarack							X	G5	S5	N
Pinaceae	*Picea abies*	Norway Spruce			X				X	G5	SE3	N
Pinaceae	*Picea glauca*	White Spruce		X					X	G5	S5	N
Pinaceae	*Picea pungens*	Blue Spruce			X	X				G5	SE1	N
Pinaceae	*Pinus nigra*	Austrian Pine							X	GNR	SE3	N
Pinaceae	*Pinus strobus*	Eastern White Pine							X	G5	S5	N
Pinaceae	*Pinus sylvestris var. sylvestris*	Scots Pine				X			X	GNRTNR	SE5	N
Plantaginaceae	*Plantago lanceolata*	English Plantain							X	G5	SE5	N
Plantaginaceae	*Plantago major*	Common Plantain			X					G5	SE5	N
Poaceae	*Agrostis gigantea*	Redtop			X	X			X	G4G5	SE5	N
Poaceae	*Bromus inermis*	Smooth Brome						X	X	G5T5	SE5	N
Poaceae	*Dactylis glomerata*	Orchard Grass							X	GNR	SE5	N
Poaceae	*Phalaris arundinacea*	Reed Canarygrass		X	X	X		X	X	G5	S5	N
Poaceae	*Phleum pratense*	Common Timothy				X				GNR	SE5	N
Primulaceae	*Lysimachia nummularia*	Creeping Yellow Loosestrife	X							GNR	SE5	N

Table 2C: Vascular Plant List (Fall), Hawk Ridge EIS, Severn (2023) Surveyor: Adam McClelland **AEC21-128**

			Vegetation Communities[2]							Conservation Rankings[3]		
FAMILY[1]	**SCIENTIFIC NAME[1]**	**COMMON NAME[1]**	**FOMM7b**	**MAMM2/SWDM4**	**WOMM4**	**MEMM3(f)**	**FOCM4-1**	**FODM7b**	**Fairway**	**GRANK**	**SRANK**	**TRACK**
Ranunculaceae	*Anemonastrum canadense*	Canada Anemone		X					X	G5	S5	N
Ranunculaceae	*Clematis virginiana*	Virginia Clematis						X		G5	S5	N
Ranunculaceae	*Ranunculus acris*	Common Buttercup							X	G5	SE5	N
Ranunculaceae	*Thalictrum dioicum*	Early Meadow-rue					X			G5	S5	N
Rhamnaceae	*Rhamnus cathartica*	European Buckthorn	X	X	X		X	X		GNR	SE5	N
Rosaceae	*Agrimonia gryposepala*	Hooked Agrimony	X							G5	S5	N
Rosaceae	*Rubus allegheniensis*	Allegheny Blackberry	X							G5	S5	N
Rosaceae	*Rubus idaeus ssp. idaeus*	European Red Raspberry		X						G5T5	SE1	N
Rosaceae	*Rubus occidentalis*	Black Raspberry						X		G5	S5	N
Rubiaceae	*Galium palustre*	Common Marsh Bedstraw							X	G5	S5	N
Salicaceae	*Populus balsamifera*	Balsam Poplar		X	X	X		X	X	G5	S5	N
Salicaceae	*Populus tremuloides*	Trembling Aspen		X	X	X				G5	S5	N
Salicaceae	*Salix bebbiana*	Bebb's Willow		X					X	G5	S5	N
Salicaceae	*Salix discolor*	Pussy Willow			X	X			X	G5	S5	N
Salicaceae	*Salix eriocephala*	Cottony Willow			X					G5	S5	N
Salicaceae	*Salix interior*	Sandbar Willow		X						G5	S5	N
Solanaceae	*Solanum dulcamara*	Bittersweet Nightshade		X						GNR	SE5	N
Thelypteridaceae	*Thelypteris palustris*	Marsh Fern							X	G5	S5	N
Tiliaceae	*Tilia americana*	Basswood	X	X	X					G5	S5	N
Typhaceae	*Typha angustifolia*	Narrow-leaved Cattail		X					X	G5	SE5	N
Typhaceae	*Typha latifolia*	Broad-leaved Cattail							X	G5	S5	N
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper		X				X	X	G5	S5	N
Vitaceae	*Vitis riparia*	Riverbank Grape			X		X	X	X	G5	S5	N

[1] Nomenclature based on Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC; MNR, 2024)

[2] ELC Codes based on Ecological Land Classification for Southern Ontario manual (Lee et al., 1998, 2008)

[3] Conservation Rankings: From Ontario Ministry of Natural Resources and Forestry, Natural Heritage Information Centre (https://www.ontario.ca/page/natural-heritage-information-centre)

Table 3: Ecological Land Classification of Vegetation Communities, Hawk Ridge EIS, Severn (2023)

Ecological Land Classification				
System	**Community Class**	**Community Series**	**Ecosite/Vegetation Type**	**Description**
Terrestrial	Woodland	WOM, Mixed Woodland	WOMM3(a), Dry-Fresh Mixed Woodland	Mixed woodland consisting of White Spruce (*Picea glauca*), White Ash (*Fraxinus americana*), White Pine (*Pinus strobus*) and Poplar (*Populus* spp.)
Terrestrial	Meadow	MEM, Mixed Meadow	MEMM3(a), Dry-Fresh Mixed Meadow	Open meadow containing common forb and graminoid species, including Canada Goldenrod (*Solidago canadensis*), Redtop (*Agrostis gigantea*), Panicled Aster (*Symphyotrichum lanceolatum*) and Grass-leaved Goldenrod (*Euthamia graminifolia*).
Terrestrial	Forest	FOC, Coniferous Forest	FOCM1, Dry-Fresh Pine Coniferous Forest	Coniferous forest dominated by White Pine; Eastern White Cedar (*Thuja occidentalis*), White Ash and Trembling Aspen (*Populus tremuloides*) were also observed.
Wetland	Swamp	SWD, Deciduous Swamp	SWDM4-5(a), Poplar Mineral Deciduous Swamp	Deciduous swamp dominated by Trembling Aspen and Balsam Poplar (*Populus balsamifera*). Eastern White Cedar, Green Ash (*Fraxinus pennsylvanica*) and Black Ash (*Fraxinus nigr* a) were also observed.
Terrestrial	Woodland	WOM, Mixed Woodland	WOMM3(b), Dry-Fresh Mixed Woodland	Mixed woodland consisting of White Pine, Trembling Aspen, Paper Birch (*Betula papyrifera*) and Balsam Poplar.
Terrestrial	Forest	FOD, Deciduous Forest	FODM4, Mineral Deciduous Forest	Deciduous forest containing Trembling Aspen, White Ash, White Pine, Red Oak (*Quercus rubra*) and Common Buckthorn (*Rhamnus cathartica*).
Terrestrial	Forest	FOD, Deciduous Forest	FODM5-8, Dry-Fresh Sugar Maple-White Ash Deciduous Forest	Deciduous forest dominated by Sugar Maple (*Acer saccharum*) and White Ash; Trembling Aspen, Paper Birch and American Beech (*Fagus grandifolia*) were also observed.
Terrestrial	Forest	FOM, Mixed Forest	FOMM5-2, Dry-Fresh Poplar Mixed Forest	Mixed forest consisting of Trembling Aspen, White Pine, Red Maple (*Acer rubrum*), White Ash and Eastern White Cedar.
Terrestrial	Forest	FOD, Deciduous Forest	FODM3-1(a), Dry-Fresh Poplar Deciduous Forest	Deciduous forest dominated by Trembling Aspen; Sugar Maple, White Ash and Red Oak were also observed.
Terrestrial	Forest	FOC, Coniferous Forest	FOCM6-3, Dry-Fresh Scots Pine Naturalized Coniferous Plantation	Plantation dominated by Scots Pine (*Pinus sylvestris*); Trembling Aspen, White Ash and Common Buckthorn were also observed.
Terrestrial	Woodland	WOD, Deciduous Woodland	WODM5-1, Fresh-Moist Poplar Deciduous Woodland	Woodland dominated by Balsam Poplar; Red Oak, Scots Pine and Manitoba Maple (*Acer negundo*) were also observed. This community contains a marsh inclusion.
Terrestrial	Forest	FOD, Deciduous Forest	FODM3-1(b), Dry-Fresh Poplar Deciduous Forest	Deciduous forest dominated by Trembling Aspen; White Ash and Alternate-leaved Dogwood (*Cornus alternifolia*) were also observed.
Wetland	Swamp	SWD, Deciduous Swamp	SWDM4-5(b), Poplar Mineral Deciduous Swamp	Deciduous swamp dominated by Trembling Aspen; other species observed included Black Ash, Manitoba Maple, Common Buckthorn and Nannyberry (*Viburnum lentago*).
Terrestrial	Meadow	MEM, Mixed Meadow	MEMM3(b), Dry-Fresh Mixed Meadow	Open meadow containing common forb and graminoid species, including Tall Goldenrod (*Solidago altissima*), Reed Canary Grass (*Phalaris arundinacea*), Redtop (*Agrostis gigantea*), and Tufted Vetch (*Vicia cracca*).
Terrestrial	Forest	FOD, Deciduous Forest	FODM3-1(c), Dry-Fresh Poplar Deciduous Forest	Deciduous forest consisting of Balsam Poplar, Paper Birch, White Elm (*Ulmus americana*), Trembling Aspen and Manitoba Maple.
Terrestrial	Meadow	MEM, Mixed Meadow	MEMM3(c), Dry-Fresh Mixed Meadow	Open meadow containing common forb and graminoid species, including Canada Goldenrod, Reed Canary Grass, Grass-leaved Goldenrod and Willow species (*Salix* spp.).
Wetland	Swamp	SWD, Deciduous Swamp	SWDM3, Maple Mineral Deciduous Swamp	Deciduous swamp consisting of Sugar Maple, White Elm, White Oak (*Quercus alba*), Black Ash, Red Oak and Tremblng Aspen.
Terrestrial	Meadow	MEM, Mixed Meadow	MEMM3(d), Dry-Fresh Mixed Meadow	Open meadow containing common forb and graminoid species, including Goldenrod (*Solidago* spp.), Timothy (*Phleum pratense*), Grass-leaved Goldenrod, and New England Aster (*Symphyotrichum nova-angliae*).
Terrestrial	Meadow	MEM, Mixed Meadow	MEMM3(e), Dry-Fresh Mixed Meadow	Open meadow containing common forb and graminoid species, including Goldenrod (*Solidago* spp.), Common Milkweed (*Asclepias syriaca*), Reed Canary Grass, Wild Carrot, Redtop, Grass-leaved Goldenrod, and Aster (*Symphyotrichum* spp.).
Terrestrial	Forest	FOD, Deciduous Forest	FODM7(a), Fresh-Moist Lowland Deciduous Forest	Deciduous forest consisting of Balsam Poplar, Crack Willow (*Salix x fragilis*), Trembling Aspen, American Basswood (*Tilia americana*), White Ash, Black Walnut (*Juglans nigra*) and Tamarack (*Larix laricina*).
Wetland	Marsh	MAM, Meadow Marsh	MAMM3-1, Mixed Mineral Meadow Marsh	Meadow marsh dominated by forb and graminoid species, including Reed Canary Grass, Spotted Joe-pyeweed (*Eutrochium maculatum*), Narrow-leaved Cattail (*Typha angustifolia*) and Spotted Jewelweed (*Impatiens capensis*).
Terrestrial	Forest	FOC, Coniferous Forest	FOCM3-1, Fresh-Moist Hemlock Coniferous Forest	Coniferous forest dominated by Eastern Hemlock (*Tsuga canadensis*), Eastern White Cedar and Yellow Birch (*Betula alleghaniensis*).
Terrestrial	Forest	FOM, Mixed Forest	FOMM4-2, Dry-Fresh White Cedar-Poplar Mixed Forest	Mixed forest consisting of Trembling Aspen, Eastern White Cedar, White Ash, Red Maple, Sugar Maple, Eastern Hemlock, Balsam Poplar and Balsam Fir (*Abies balsamea*).
Wetland	Swamp	SWM, Mixed Swamp	SWMM1-1(a), White Cedar-Hardwood Mineral Mixed Swamp	Mixed swamp conisting of Green Ash, Black Ash, Eastern White Cedar, Balsam Fir, Balsam Poplar, Trembling Aspen and Red Maple.
Terrestrial	Forest	FOC, Coniferous Forest	FOCM3, Fresh-Moist Hemlock Coniferous Forest	Coniferous forest dominated by Eastern Hemlock and Eastern White Cedar; Balsam Fir, Sugar Maple and Yellow Birch were also observed.
Wetland	Swamp	SWD, Deciduous Swamp	SWDM2-1, Black Ash Mineral Deciduous Swamp	Deciduous swamp consisting of Black Ash, Red Maple, White Elm, American Basswood and Eastern White Cedar.
Terrestrial	Forest	FOM, Mixed Forest	FOMM7(a), Fresh-Moist White Cedar-Hardwood Mixed Forest	Mixed forest consisting of Eastern White Cedar, Red Maple, White Pine, White Elm, Paper Birch, Balsam Fir and Trembling Aspen.
Wetland	Swamp	SWM, Mixed Swamp	SWMM1-1(b), White Cedar-Hardwood Mineral Mixed Swamp	Mixed swamp consisting of Eastern White Cedar, Red Maple, Black Ash and White Elm.
Terrestrial	Woodland	WOC, Coniferous Woodland	WOCM1, Dry-Fresh Coniferous Woodland.	Coniferous Woodland consisting of Eastern Hemlock, White Spruce, Eastern White Cedar, White Elm and Silver Maple (*Acer saccharinum*).
Wetland	Swamp	SWC, Coniferous Swamp	SWCM1, White Cedar Mineral Coniferous Swamp	Coniferous Swamp dominated by Eastern White Cedar; Black Ash, Sugar Maple, Yellow Birch, Paper Birch, White Elm and Red Maple were also observed.
Terrestrial	Forest	FOM, Mixed Forest	FOMM7(b), Fresh-Moist White Cedar-Hardwood Mixed Forest	Mixed forest consisting of Eastern White Cedar, Paper Birch, Sugar Maple and Yellow Birch.

Table 3: Ecological Land Classification of Vegetation Communities, Hawk Ridge EIS, Severn (2023)

Wetland	Marsh / Swamp	MAM/SWD, Meadow Marsh / Deciduous Swamp	MAMM2 / SWDM4, Forb Mineral Meadow Marsh / Mineral Deciduous Swamp	Marsh/Swamp complex consisting of Poplar species., Bur Oak (*Quercus macrocarpa*), Goldenrod species, Spotted Joe-pyeweed, Spotted Jewelweed, Aster species and Red Osier Dogwood (*Cornus sericea*).
Terrestrial	Woodland	WOM, Mixed Woodland	WOMM4, Fresh-Moist Mixed Woodland	Mixed woodland consisting of Eastern White Cedar, Manitoba Maple, Balsam Poplar, Blue Spruce (*Picea pungens*), White Ash, Trembling Aspen and Norway Spruce (*Picea abies*).
Terrestrial	Meadow	MEM, Mixed Meadow	MEMM3, Dry-Fresh Mixed Meadow	Open meadow dominated by forb and graminoid species, with occasional tree and shrub species.
Terrestrial	Forest	FOC, Coniferous Forest	FOCM4-1, Fresh-Moist White Cedar Coniferous Forest	Coniferous forest dominated by White Cedar. Understory is sparsely vegetated, with Ostrich Fern and Bulblet Fern (*Cystoperis bulbifera*). A watercourse flows through the community.
Terrestrial	Forest	FOD, Deciduous Forest	FODM7(b), Fresh-Moist Lowland Deciduous Forest	Deciduous forest consisting of Balsam Poplar, Sugar Maple and occasional Manitoba Maple.

Table 4: Evening Calling Amphibians Breeding Summary, Hawk Ridge EIS, Severn (2023)

				Species Detection[1]							
Date	**Survey Station #***	**Pond #**	**Start Time**	**Wood Frog**	**Spring Peeper**	**Northern Leopard Frog**	**American Toad**	**Green Frog**	**Gray Treefrog**	**Nothing Heard**	**Adjacent Lands**
14-Apr-23	1	4	20:55		2-2				2-4		
14-Apr-23	2¥	-	21:06							X	American Toad 1-1
14-Apr-23	3	20	20:25	1-1	1-1		2-2		2-3		
14-Apr-23	3	5	20:28		2-8						
14-Apr-23	3	6	20:28		2-2						
14-Apr-23	3	7	20:28	1-1	3-?		2-2				
14-Apr-23	4	8	20:31	1-1	2-4						
14-Apr-23	4	9	20:31		2-4						
14-Apr-23	5	22	21:17	3-?	3-?						Spring Peeper 1-1
14-Apr-23	5	11	21:17		2-6						
14-Apr-23	6	21	21:40		1-3						
14-Apr-23	6	23	21:40		2-8						
14-Apr-23	7	13	21:51		3-?						
14-Apr-23	7	14	21:51		3-?						
14-Apr-23	8	15	21:21							X	
14-Apr-23	8¥	-	21:21		3-?						
14-Apr-23	9	12	20:10	1-1	3-?						
14-Apr-23	10	10	20:17	2-6	3-?						
14-Apr-23	11	16	22:16							X	
14-Apr-23	12	17	22:26		1-2						
16-Apr-23	13	25	20:47		2-6						Spring Peeper 2-4
16-Apr-23	14	24	20:57		2-4						Spring Peeper 3-?
16-Apr-23	15	1	21:10		2-6						
16-Apr-23	15	2	21:10		3-?						
16-Apr-23	15	3	21:10		3-?						
16-Apr-23	16¥	-	21:25		1-2		2-3				
16-Apr-23	17	18	21:32		2-5						American Toad 2-3
16-Apr-23	17	19	21:32		1-2						
29-May-23	1	4	21:23		2-4				1-2		Gray Treefrog 1-2
29-May-23	2¥	-	21:27						2-3		
29-May-23	3	20	21:31				1-2	1-3			
29-May-23	3	5	21:31		3-?						
29-May-23	3	6	21:31						2-5		
29-May-23	3	7	21:31		2-5				1-1		
29-May-23	4	8	21:36		2-4		1-1				

29-May-23	4	9	21:36		2-3		1-5	1-1	2-3		
29-May-23	5	22	21:41		2-5	1-1			3-?		
29-May-23	5	11	21:41		2-6		2-3		3-?		
29-May-23	6	21	21:46		2-3			1-1	2-7		
29-May-23	6	23	21:46						2-2		
29-May-23	7	13	21:52		2-2				2-6		
29-May-23	7	14	21:52		2-2				1-2		
29-May-23	8	15	21:57							X	
29-May-23	8¥	-	21:57							X	
29-May-23	9	12	22:03		2-2				2-3		
29-May-23	10	10	22:09						3-?		
29-May-23	11	16	22:14							X	
29-May-23	12	17	22:18		1-1		1-2		2-8		
29-May-23	13	25	22:20		2-3		1-2		2-3		Gray Treefrog 1-2
29-May-23	14	24	22:24						1-1		
29-May-23	15	1	22:29		2-3		2-2	2-3			
29-May-23	15	2	22:29		2-3		2-2		2-4		
29-May-23	15	3	22:29		2-5		3-?		3-?		
29-May-23	16¥	-	22:35							X	
29-May-23	17	18	22:40		2-3						
29-May-23	17	19	22:40		2-2			1-1			
28-Jun-23	1	4	21:37					1-2			Gray Treefrog 2-4
28-Jun-23	2¥	-	21:41						1-2		American Toad 1-2, Gray Treefrog 2-4
28-Jun-23	3	20	21:45				1-2				
28-Jun-23	3	5	21:45		1-1				2-3		
28-Jun-23	3	6	21:45							X	
28-Jun-23	3	7	21:45		1-1						Green Frog 1-1
28-Jun-23	4	8	21:50							X	
28-Jun-23	4	9	21:50							X	
28-Jun-23	5	22	21:55					1-2			American Toad 1-2
28-Jun-23	5	11	21:55					1-1	1-1		
28-Jun-23	6	21	22:00					1-1			
28-Jun-23	6	23	22:00					1-2			
28-Jun-23	7	13	22:07							X	
28-Jun-23	7	14	22:07					1-1			
28-Jun-23	8	15	22:13					1-1			
28-Jun-23	8¥	-	22:13							X	
28-Jun-23	9	12	22:19					1-1			
28-Jun-23	10	10	22:24					1-1			
28-Jun-23	11	16	22:30							X	
28-Jun-23	12	17	22:34					1-2			
28-Jun-23	13	25	22:37					1-3			Gray Treefrog 1-1

28-Jun-23	14	24	22:41					1-2			
28-Jun-23	15	1	22:44				1-1	1-3			Gray Treefrog 1-1
28-Jun-23	15	2	22:44							X	Green Frog 1-2
28-Jun-23	15	3	22:44					1-1			Green Frog 1-2, Gray Treefrog 1-3
28-Jun-23	16¥	-	22:48							X	
28-Jun-23	17	18	22:52					1-1			
28-Jun-23	17	19	22:52							X	

*See Figure 2A.

¥Calling activity was proximal to riparain corridor (not in a pond).

[1]Detection data format: Call Code - estimated number of individuals.

Weather Conditions

Date	Air Temp. (^{o}C)	Wind (Beaufort)	Cloud Cover	Rain	Noise
14-Apr-23	15	B0	0%	nil	1
16-Apr-23	16	B3	80%	nil	1
29-May-23	21	B1	10%	nil	1
28-Jun-23	17	B1	30%	nil	1

[1] 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.

Table 5: Dawn Breeding Birds Summary, Hawk Ridge EIS (2023)

Surveyor: Dr. Scott Tarof

			Location[1,2]																					
FAMILY	**SCIENTIFIC NAME**	**COMMON NAME**	**1**		**2**		**3**		**4**		**5**		**6**		**7**		**8**		**9**		**10**		
			Visit 1	**Visit 3**	**Visit 1**	**Visit 3**	**Visit 1**	**Visit 3**	**Visit 1**	**Visit 3**	**Visit 1**	**Visit 3**	**Visit 1**	**Visit 3**	**Visit 1**	**Visit 3**	**Visit 1**	**Visit 3**	**Visit 1**	**Visit 3**	**Visit 1**	**Visit 3**	**Visit 2**
Anatidae	*Anas platyrhynchos*	Mallard Duck																					
Anatidae	*Branta canadensis*	Canada Goose											VIS			VIS							
Bombycillidae	*Bombycilla cedrorum*	Cedar Waxwing							S, VIS	S	S		S	S			S					S	
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal		S							S		S		S	S					S	C	
Cardinalidae	*Passerina cyanea*	Indigo Bunting																					
Cathartidae	*Cathartes aura*	Turkey Vulture													VIS				VIS				
Charadriidae	*Charadrius vociferus*	Killdeer																					
Columbidae	*Zenaida macroura*	Mourning Dove									S		S				S						
Corvidae	*Corvus brachyrhynchos*	American Crow	C		C	C	C	C		C		VIS				C			C	C		C	
Corvidae	*Cyanocitta cristata*	Blue Jay		C			C								C				C		C		C
Fringillidae	*Haemorhous purpureus*	Purple Finch																					
Fringillidae	*Spinus tristis*	American Goldfinch		S, C			S	S	S	S	S, C	S	S	S, C	S	S	S	S					S
Hirundinidae	*Tachycineta bicolor*	Tree Swallow										S, F/O		S, F/O									
Icteridae	*Agelaius phoeniceus*	Red-winged Blackbird	C	C			C	S	C	S, C	S, C	S, C	S, C	C	C	C	S, C	S, C, VIS	C	S, C	S, C	C	S, C
Icteridae	*Icterus galbula*	Baltimore Oriole	S			S							S	S	S						S		
Icteridae	*Molothrus ater*	Brown-headed Cowbird									S, VIS					S		S	S			S	
Icteridae	*Quiscalus quiscula*	Common Grackle	VIS					VIS						C		C		C	C, VIS	C			C
Laridae	*Larus argentatus*	Herring Gull													VIS		VIS		VIS				
Mimidae	*Dumetella carolinensis*	Gray Catbird										S											S
Paridae	*Poecile atricapillus*	Black-capped Chickadee	S	S, C		C	S	S, C	S	C				S	S, C	S, C		S, C	C	S, C		C	C
Parulidae	*Geothlypis trichas*	Common Yellowthroat	S	S					S			S		S	S		S	S	S	S			
Parulidae	*Mniotilta varia*	Black and White Warbler	S																				
Parulidae	*Seiurus aurocapilla*	Ovenbird				S					S											S	
Parulidae	*Setophaga pensylvanica*	Chestnut-sided Warbler																					
Parulidae	*Setophaga petechia*	Yellow Warbler				S			S														
Parulidae	*Setophaga pinus*	Pine Warbler	S	S					S		S		S		S		S		S	S			S
Parulidae	*Setophaga ruticilla*	American Redstart				S			S	S			S	S			S, VIS	S	S				
Parulidae	*Setophaga virens*	Black-throated Green Warbler																			S	S	
Passerellidae	*Melospiza melodia*	Song Sparrow	S					S	S	S	S			S		S		S		S	S	S	S
Passerellidae	*Passerculus sandwichensis*	Savannah Sparrow																					
Picidae	*Colaptes auratus*	Northern Flicker														C, VIS		C				C	S
Picidae	*Dryobates pubescens*	Downy Woodpecker					C													C	C		
Picidae	*Dryobates villosus*	Hairy Woodpecker																					
Picidae	*Dryocopus pileatus*	Pileated Woodpecker			C																		
Picidae	*Melanerpes carolinus*	Red-bellied Woodpecker																					
Picidae	*Melanerpes erythrocephalus*	Red-headed Woodpecker																					
Scolopacidae	*Scolopax minor*	American Woodcock																					
Sittidae	*Sitta canadensis*	Red-breasted Nuthatch	S									S				S							S
Strigidae	*Strix varia*	Barred Owl																					
Sturnidae	*Sturnus vulgaris*	European Starling	S, VIS		S		S																
Troglodytidae	*Troglodytes aedon*	House Wren		S	S	S	S	S	S			S	S			C			S	S	S		S
Troglodytidae	*Troglodytes hiemalis*	Winter Wren														S							S
Turdidae	*Hylocichla mustelina*	Wood Thrush									C												
Turdidae	*Turdus migratorius*	American Robin	S, VIS	S, VIS		S, VIS	S, C, VIS	S, VIS	VIS	S	VIS, C	S, VIS	S, VIS	S	S	S	S, C	S, C, VIS	S	S, C, VIS	S	S, C	S, C, VIS
Tyrannidae	*Contopus virens*	Eastern Wood-pewee					S																S

Tyrannidae	*Empidonax minimus*	Least Flycatcher																				
Tyrannidae	*Empidonax traillii*	Willow Flycatcher																				
Tyrannidae	*Myiarchus crinitus*	Great-crested Flycatcher			S							S	VIS									
Tyrannidae	*Sayornis phoebe*	Eastern Phoebe												S								
Tyrannidae	*Tyrannus tyrannus*	Eastern Kingbird					S			S			S, VIS	S		S, C	S	S, VIS	S			S	S
Vireonidae	*Vireo gilvus*	Warbling Vireo	S						S	S	S		S		S	S	S	S		S		S	
Vireonidae	*Vireo olivaceus*	Red-eyed Vireo	S		S		S	S					S			S			S				

[1] Visit 1 (dawn birds and Red-headed Woodpecker playbacks): June 6, 2023, Observer: S.Tarof, Tempurature 12ºC, Cloud Cover 0% , Wind: B1-B2, Precipitation: No rain, Survey Time: 06:57 to 10:41; Visit 2 (Red-headed Woodpecker playbacks only):

[2] Breeding Bird Evidence Codes: X/√ - Species observed or heard, VIS - Visual, C - Call heard, F/O - Flyover (Species presence); H - Species observed in its breeding season in suitable nesting habitat, S - Singing male (Po - Possible Breeding, Pr - Probable Breeding, Co - Confirmed Breeding); P - Pair observed, T - Territorial behaviour, A - Agitated behaviour or anxiety calls of adult, V - Visiting a probably nest site, N - Nest building or excavation of nest hole (Probable Breeding); DD - Distraction display or injury feigning, NU - Used Nest or egg shells, FY - Recently fledged young, AE - Adult leaving or entering nest sites, FS - Adult carrying fecal sac, CF - Adult carrying food for young, NE - Nest containing eggs, NY - Nest with

[3] Conservation Rankings: From Ontario Ministry of Natural Resources, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_.cfm).
S-Rank = Sub-national/provincial scale (from 1-5), S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - Very Common, E - Exotic
G-Rank = Global scale (from 1 - "Critically Imperiled" to 5 - "Secure" or common), G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure.
B = Breeding Populations, N = Non-breeding Populations; M = Migratory Populations; SARO: EXT - Extirpated, END - Endangered, THR - Threatened, SC - Special Concern,
Track (Is the species tracked provincially?) = Y - Yes, N = No, P = Partial
NA - Not Applicable (*i.e.* not native to Ontario), Blank - Not at Risk in Ontario.

COMMON NAME	12		13		14		15						Conservation Rankings[3]				
	Visit 1	Visit 3	Visit 1	Visit 3	Visit 1	Visit 3	Visit 1	Visit 3	Adjacent Lands	Incidental	Breeding Status	Red-headed Woodpecker Playbacks	GRANK	SRANK	ESA	SARA	TRACK
Mallard Duck			F/O		VIS	VIS				X	Pr		G5	S5			N
Canada Goose											Pr		G5	S5			N
Cedar Waxwing	S	S	S			S		S		X	Pr		G5	S5			N
Northern Cardinal							S			X	Pr		G5	S5			N
Indigo Bunting				S							Pr		G5	S5B			N
Turkey Vulture							VIS				Po		G5	S5B, S3N			N
Killdeer										X	Po		G5	S4B			N
Mourning Dove				S	S						Po		G5	S5			N
American Crow	C			C	C		C		X	X	Pr		G5	S5			N
Blue Jay	C				C	S, C				X	Pr		G5	S5			N
Purple Finch										X	Po		G5	S5			N
American Goldfinch		S	S, C	S, C		S, C	S	S		X	Pr		G5	S5			N
Tree Swallow											Po		G5	S4/S5B			N
Red-winged Blackbird	S, C	S, C	S, C		C	S, C	C	C		X	Pr		G5	S5			N
Baltimore Oriole				S						X	Pr		G5	S4B			N
Brown-headed Cowbird							S				Po		G5	S5			N
Common Grackle		C		C, VIS		C		C		X	Pr		G5	S5			N
Herring Gull	VIS						VIS				X		G5	S4B, S5N			N
Gray Catbird										X	Po		G5	S5B, ,S3N			N
Black-capped Chickadee			C	C		C	S	C		X	Pr		G5	S5			N
Common Yellowthroat	S		S	S	S	C, VIS				X	Pr		G5	S5B,S3N			N
Black and White Warbler											Po		G5	S5B			N
Ovenbird										X	Po		G5	S5B			N
Chestnut-sided Warbler			S		S		S				Po		G5	S5B			N
Yellow Warbler	S	S		S						X	Pr		G5	S5B			N
Pine Warbler	S	S				S	S	S			Pr		G5	S5B,S3N			N
American Redstart			S	S						X	Pr		G5	S5B			N
Black-throated Green Warbler										X	Pr		G5	S5B			N
Song Sparrow	S	S		S	S	S				X	Pr		G5	S5			N
Savannah Sparrow										X	Po		G5	S5B, S3N			N
Northern Flicker		S									Pr		G5	S5			N
Downy Woodpecker											Po		G5	S5			N
Hairy Woodpecker										X	Po		G5	S5			N
Pileated Woodpecker										X	Po		G5	S5			N
Red-bellied Woodpecker				C							X		G5	S5			N
Red-headed Woodpecker										X	Co	F/O speaker at Station #11 (Visit #1); incidental observation after Visit #2)	G5	S3	END	END	Y
American Woodcock										X	Po		G5	S4B			N
Red-breasted Nuthatch										X	Po		G5	S5			N
Barred Owl										X	Co		G5	S5			N
European Starling	S				S					X	Po		G5	SNA			N
House Wren		S		S	S					X	Pr		G5	S5B			N
Winter Wren										X	Po		G5	S5B,S4N			N
Wood Thrush											Po		G4	S4B	SC	THR	Y
American Robin	S	S, C	S	S, C	S	S, C, VIS	VIS	S, VIS		X	Pr		G5	S5			N
Eastern Wood-pewee											Pr		G5	S4B	SC	SC	N

Least Flycatcher			S	S						X	Pr		G5	S5B			N
Willow Flycatcher										X	Po		G5	S4B			N
Great-crested Flycatcher										X	Po		G5	S5B			N
Eastern Phoebe										X	Po		G5	S5B			N
Eastern Kingbird	S	S		S	S	S				X	Pr		G5	S4B			N
Warbling Vireo	S	S	S	S				S		X	Pr		G5	S5B			N
Red-eyed Vireo	S					S		S	X	X	Pr		G5	S5B			N

Table 6. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, Hawk Ridge EIS (2023)

Table 1.1 Seasonal Concentrations of Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate SWH		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.	The ELC ecosites do not occur on the property or on adjacent lands. The wildlife habitat is not present. The study area would not be expected to provide the habitat 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.	Although SWD ecosites occur on the property and adjacent lands, they are generally closed in/dense with trees and areas of shallow water sparse. Not associated with lakes, coastal areas etc. SWD areas not considered to be suitable waterfowl stopover and staging habitat. Ponds on the property are anthropogenic, ornamental ponds in a managed landscape as opposed to natural ponds, small lakes or back-bay areas that would provide the habitat function. Of the species listed, only Canada Goose was observed using the open grass areas.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Shorebird Migratory Stopover Area **<u>Rationale:</u>** 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. <u>Information Sources</u> • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	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.	MAM ecosites on the property are small, isolated features across the landscape, and are not associated with lakes, rivers or beach areas. Listed species not observed. The study area would not be expected to provide the habitat function.
Raptor Wintering Area **<u>Rationale:</u>** Sites used by multiple species of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **<u>Special Concern:</u>** Short-eared Owl Bald Eagle	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. <u>Bald Eagle:</u> Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering sites (hawk/owl) need to be > 20 ha with a combination of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be windswept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting. <u>Information Sources:</u> • OMNRF Ecologist or Biologist Field Naturalist Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts Reports and other information available from Conservation Authorities.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #10 and #11 provides development effects and mitigation measures.	Combination (and size) of field and upland forest/woodland habitat not present. Listed species not observed, including not during winter raptor surveys. The study area would not be expected to provide the habitat function.

Wildlife Habitat	Wildlife Species	Candidate SWH		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.	No caves, mine shafts, underground foundations and karsts. No suitable habitat in study area.
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; ○ >10 Big Brown Bats ○ >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.	**FOD, FOM and SWD ecosites occur on the property and have potential to provide maternity roosting habitat for bats. Considered further in main text.**
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.	Ponds on the property are anthropogenic and function as SWMPs. The SWH function would not be expected to be associated with the property.

Wildlife Habitat	Wildlife Species	Candidate SWH		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.	No features were identified in the study area that could provide suitable reptile hibernaculum. The study area would not be expected to provide the habitat function.
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.	No suitable habitat in the study area and listed ecosites are not present. Listed species not observed during surveys. The study area would not be expected to provide the habitat function.
Colonially-Nesting Bird Breeding Habitat	Great Blue Heron Black-crowned Night-Heron	SWM2 SWM3 SWM5	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used.	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species.	While SWD ecosites are present on the property, the vegetation communities are not considered suitable habitat. Not associated with areas of

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
(Tree/Shrubs) **Rationale:** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Egret Green Heron	SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• 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	• 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.	water such as lakes or large wetlands with standing water. Listed ecosites/species not present. Key habitat requirements not met within property limits. It is conceivable for there to be potential habitat to the west beyond the study area, but the study area would not be expected to provide the habitat 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.	One gull *sp.* (Herring Gull) observed as incidental fly-overs; other listed species not observed. Property not associated with a rocky island/peninsula nor is it on a lake/large river. No suitable habitat in study area.
Migratory Butterfly Stopover Areas **Rationale:** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral Special Concern Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: Field: CUM CUT CUS Forest: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake 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. Information Sources • 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.	Property is not located within 5km of Lake Ontario.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
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.	Property is not located within 5km of Lake Ontario.
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.	ELC forest ecosites listed are present on the property and adjacent, but MNR mapping shows no deer yarding habitat in study area. The property would not be expected to provide the habitat function.
Deer Winter Congregation	White-tailed Deer	All Forested Ecosites with these ELC Community	• Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on	Studies confirm: • Deer management is an MNRF responsibility, deer	Although the FOD/FOM/SWD ecosites occur on the property and on adjacent lands, they are well

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
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.		Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	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	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.	below the size threshold of >100ha to typically be considered for this potential SWH function. No deer winter congregation areas mapped in area (MNR mapping). The property would not be expected to provide the habitat function.

Table 1.2.1 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.	No cliffs or talus slopes.
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.	No sand barrens.
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.	No alvar.
Old Growth Forest	Forest Community Series:	Old Growth forests are	Woodland areas 30 ha or greater in size or with at least	Field Studies will determine:	Forest areas associated with northern region of

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
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.	FOD FOC FOM SWD SWC SWM	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.	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	• 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.	property approximately 45 years old based on Simcoe County mapping historical imagery. Forested areas in southern portion of property and to the west of the property appear to be <25 years old. Extent of interior forest habitat in study area does not meet the ≥10ha criterion for old growth forests.
Savannah **Rationale:** Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #18 provides development effects and mitigation measures.	No savannah.
Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	No tallgrass prairie.
Other Rare Vegetation Communities **Rationale:** Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST Index #37 provides development effects and mitigation measures.	No rare vegetation communities in study area.

1.2.2 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.	MAM and SWD ELC ecosites present on and adjacent to the property. Of the listed species, one Mallard Duck pair with young was observed during field surveys in anthropogenic Pond #24 west of Point Count Station #14 in the eastern part of the property. Candidate SWH criteria not met.
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.	FOD/FOC/FOM/SWD ELC ecosite present on property but not associated with lakes, large natural ponds rivers or with forested shorelines. Suitable habitat not considered present. Listed species not observed nor were possible nests of listed species. Habitat function would not be expected to occur.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Woodland Raptor Nesting Habitat **Rationale:** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. Interior habitat determined with a 200m buffer • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. Information Sources • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH . (The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk– A 100m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial. (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST Index #27 provides development effects and mitigation measures.	One of the listed species, Barred Owl, observed incidentally on the property in Woodland Unit #2 (~4.85ha). Contiguous woodland cover for this unit does not meet size criteria for candidacy (≥ 30ha and with >10ha interior habitat). Not considered further in the assessment.
Turtle Nesting Areas **Rationale;** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle Special Concern Species Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. Information Sources • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • 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.	ELC ecosites listed are not present, but areas of exposed mineral soil (*e.g.* sand) present within ~100m of anthropogenic, ornamental ponds where Midland Painted Turtle and Snapping Turtle present (*e.g.* mostly in nearby sand traps). Majority of exposed mineral soil associated with golf course sand traps. Nesting not observed.
Seeps and Springs **Rationale;** Seeps/Springs are typical of headwater areas	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	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.	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	**Two approximate seep/spring locations observed during the field program in southern region of property in ELC community FOMM5-2 (*i.e.* associated with one of the Silver Creek tributaries; Figures 2b and 2c). Confirmatory**

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
and are often at the source of coldwater streams.		Ecosite within the headwater areas of a stream could have seeps/springs.	Information Sources • Topographical Map • Thermography • Hydrological surveys conducted by Conservation Authorities and MOE. • Field Naturalists clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	and groundwater condition need to be considered in delineation the habitat. • SWHMiST Index #30 provides development effects and mitigation measures.	**criteria met.**
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. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records. • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service • 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.	**Evening calling amphibian surveys detected presence of Gray Treefrog (Ponds #10, 11 and 22), Spring Peeper (Ponds #2, 3, 5, 7, 10, 12, 13, 14, 22 and along riparian corridor near Pond #15) and Wood Frog (Pond #22) with call codes of 3 in association with the ponds/wetlands on the property (Table 4). Confirmatory criteria met. Considered further in main text.**
Amphibian Breeding Habitat (Wetlands) **<u>Rationale;</u>** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (*e.g.* Bull Frog) may be adjacent to woodlands.	• Wetlands>500m^2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count.	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.	ELC community classes SW, MA and OA are present on-property. American Toad, Gray Treefrog and Northern Leopard Frog detected, however, none of these species met criteria of two or more of the listed species with at least 20 individuals or with call codes of 3. One American Bullfrog was observed basking in Pond #8 on June 5, 2023 (but no evidence of confirmed breeding). Candidate criteria not met.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
			• OMNRF Districts and wetland evaluations • Reports and other information available from Conservation Authorities		
Woodland Area-Sensitive Bird Breeding Habitat **<u>Rationale:</u>** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern:** Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat. <u>Information Sources</u> • Local bird clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #34 provides development effects and mitigation measures.	FOC/FOD/FOM/SWD ELC ecosites present on the property, but estimated at ~25-45 years old based on Simcoe County mapping. Interior forest habitat of insufficient size. Habitat criteria not met. Of the listed species, Red-breasted Nuthatch, Black-throated Green Warbler, Ovenbird and Winter Wren detected – but only Black-throated Green Warbler determined to be a Probable Breeder (Table 5). No Cerulean Warblers or Canada Warblers present. Confirmatory criteria not met. Not considered further in the assessment.

1.3 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.	Areas of MAM wetlands present, but are small. Periods of shallow water generally limited and sparse (*e.g.* spring snowmelt). ELC ecosites listed not present in study area. Species not observed. The property would not be expected to provide the habitat function.
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.	Listed ELC ecosites not present. The property would not be expected to provide the habitat 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>10ha 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.	Habitat not present. Listed species not observed. The property would not be expected to provide the habitat function.

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Terrestrial Crayfish **Rationale:** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh 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. Information Sources • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of 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.	MAM and SWD ELC ecosites present, but not terrestrial crayfish chimneys observed during field program. The habitat function would not be expected to occur.
Special Concern and Rare Wildlife Species **Rationale:** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites Information Sources • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information" : http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species *e.g.* specific nesting habitat or foraging habitat. • SWHMiST Index #37 provides development effects and mitigation measures.	**Three Special Concern species detected on the property (Eastern Wood-pewee - Probable breeding, Snapping Turtle, Wood Thrush - Possible breeding).** **Habitat present for Eastern Wood-pewee and Snapping Turtle.** **Habitat not ideal for Wood Thrush due to lack of open understory in forest units, and only one individual detected (calling not singing) once at one point count station. No evidence of territorial behaviour.** **Considered further in main text.**

1.4 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.	Amphibian breeding habitat – Wetlands not confirmed on property (see above), thus no movement corridor habitat 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 deer wintering habitat present.

1.5 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.	Not on Bruce Peninsula.
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	Not on Manitoulin Island.

APPENDICES

Appendix A: Municipal Background and Correspondence
Appendix B: Provincial and Federal Background
Appendix C: Photographic Record
Appendix D: Proposed Development Concept

APPENDIX A

Municipal Background and Correspondence

COUNTY OF SIMCOE
For the Greater Good

SCHEDULE 5.1

To the County of Simcoe Official Plan

LAND USE DESIGNATIONS

Designations

- Settlements
- Greenlands
- Agricultural
- Rural
- Strategic Settlement Employment Areas and Economic Employment Districts
- Lands not subject to this plan
- Settlement Area Boundary Under Appeal
- 1 General Location of Site-Specific Appeals
- Lands Subject to Non-Decision

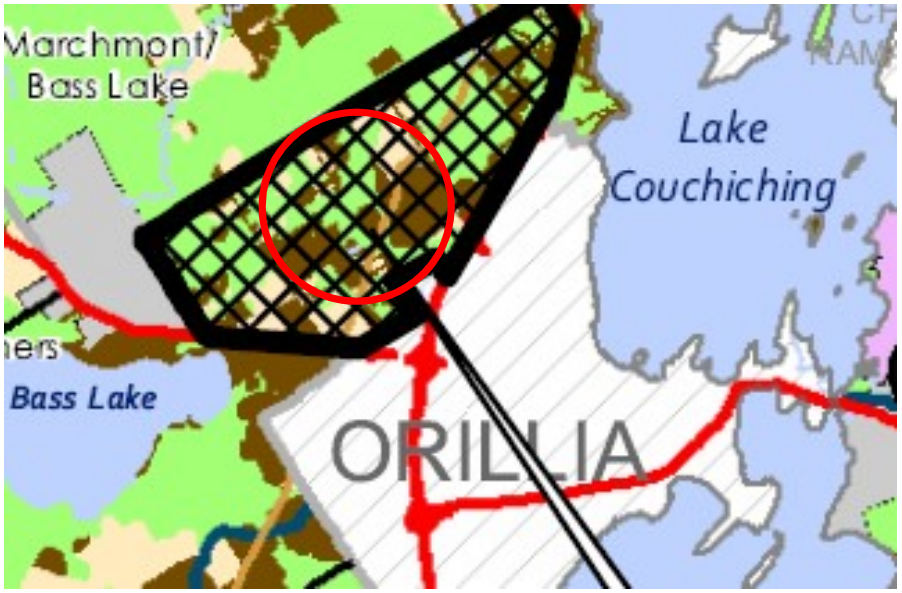
Reference Data

- Settlement Area Boundary
- Built Boundaries
- Special Development Area: Friday Harbour Resort
- Greenbelt Plan - Protected Countryside (Refer to Schedule 5.3.3 For Details)
- Niagara Escarpment Plan Area (Refer to Schedule 5.3.1 For Details)
- Oak Ridges Moraine Conservation Plan Area (Refer to Schedule 5.3.2 For Details)
- Provincial Highway
- County Road
- Trans Canada Pipeline
- Lake Simcoe Protection Plan - Watershed Boundary

** Greenbelt Plan – Protected Countryside, Oak Ridges Moraine Conservation Plan Area and Niagara Escarpment Plan Area are included within the Greenbelt Plan Area*

This schedule must be referred to in conjunction with the text of the County of Simcoe Official Plan

Office Consolidation February 2023



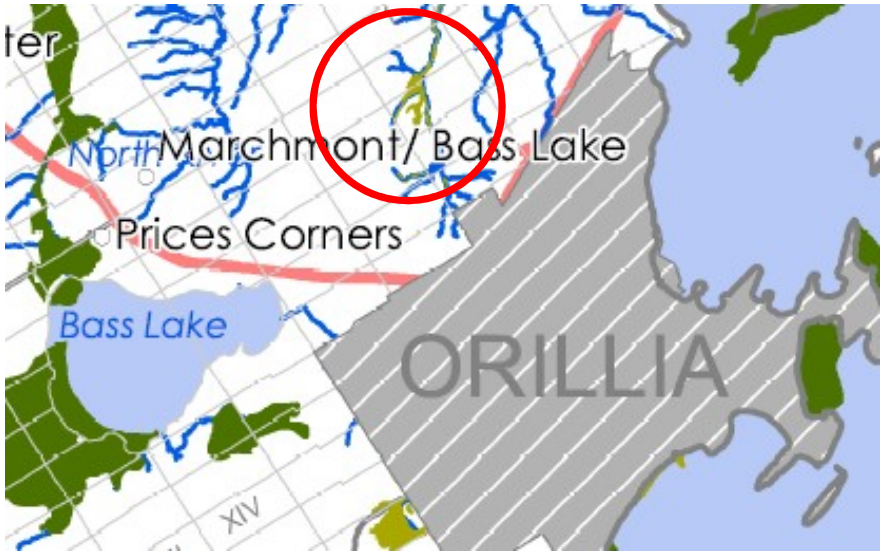
COUNTY OF SIMCOE
For the Greater Good

SCHEDULE 5.2.2

To the County of Simcoe Official Plan

STREAMS AND EVALUATED WETLANDS

- Provincially Significant Wetland
- Locally Significant Wetland
- Watercourse
- Lands not subject to this plan



This schedule must be referred to in conjunction with the text of the County of Simcoe Official Plan - November 25, 2008

Source: Midhurst District MNR

Approved by OMB on May 9, 2016

Printed: 2016/05/19

COUNTY OF SIMCOE
For the Greater Good

SCHEDULE 5.2.3

To the County of Simcoe Official Plan

AREAS OF NATURAL AND SCIENTIFIC INTEREST

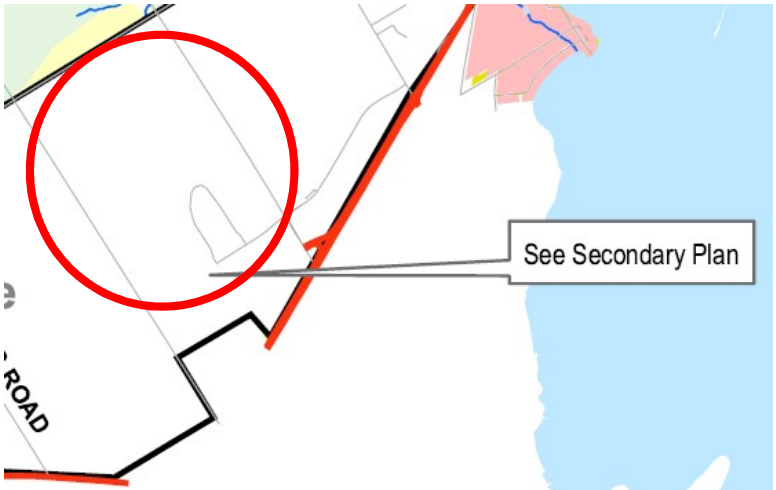
- Oak Ridges Moraine ANSI
- ANSI - Provincial
- ANSI - Regional
- Lands not subject to this plan

This schedule must be referred to in conjunction with the text of the County of Simcoe Official Plan - November 25, 2008
Source: Ministry of Natural Resources

Approved by the OMB on April 19, 2013

Printed: 5/17/2013

Township of Severn Schedule A South Land Use



- PROVINCIAL HIGHWAY
- COUNTY ROAD
- LOCAL ROAD
- PRIVATE ROAD
- Railway
- Trans Canada Pipeline
- Lakes
- Settlement Boundary
- Country Residential
- Settlement Employment Area
- Highway Employment
- Settlement Living Area
- Major Recreation Area
- Resort Commercial
- Rural
- Shoreline Residential
- Settlement Employment SP Area
- Settlement Living SP Area
- Licensed Pit or Quarry
- Environmental Protection Area
- Greenland
- Linkages
- Aggriculture Land
- Municipal Border

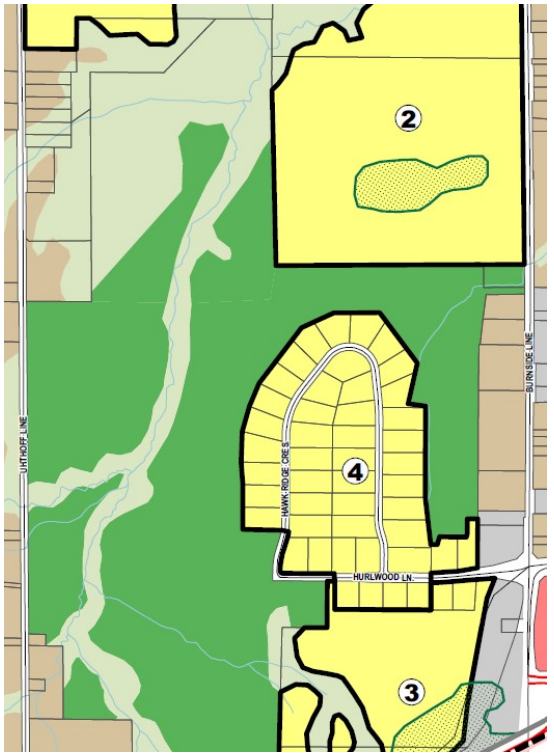
*** SP = Special Policy**

— Township of —
SEVERN

TOWNSHIP OF SEVERN
OFFICIAL PLAN | SCHEDULE D
SOUTH OF DIVISION ROAD
SECONDARY PLAN AREA

LEGEND

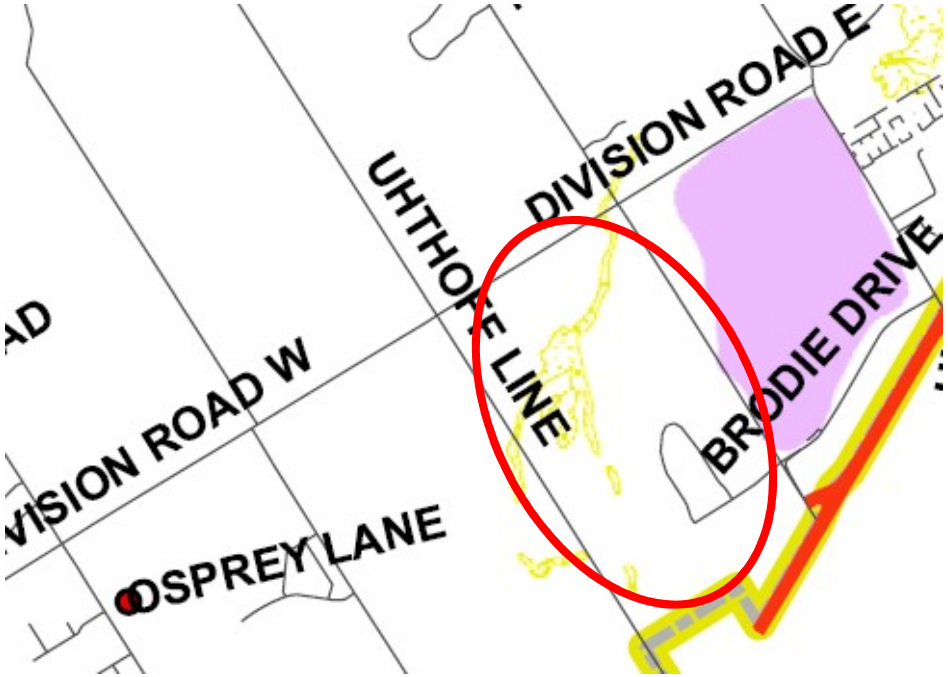
Highway	Municipal Boundary	Mobile Home Residential
County Road	Settlement Boundary	Rural
Local Road	Parcel Fabric	Open Space
Private Road	Woodlot Policy Area	Environmental Protection Area
Railway	Shore Cliff	Highway Commercial
Watercourse	Residential Area	Industrial
Waterbody	Countryside Residential	Extractive Industrial



Township of Severn
Schedule F
Environmentally Sensitve Areas

Legend

- PROVINCIAL HIGHWAY
- COUNTY ROAD
- LOCAL ROAD
- PRIVATE ROAD
- Municipal Border
- ANSI Provincial Life Science
- ANSI Provincial Earth Science
- ANSI Regional Life Science
- ANSI Regional Earth Science
- Provincial Wildlife Management Area
- Waterfowl Staging Area
- Waterfowl Nursery Area
- Deer Wintering Area
- Local Wetlands
- Provincial Wetlands



County of Simcoe - Web Map

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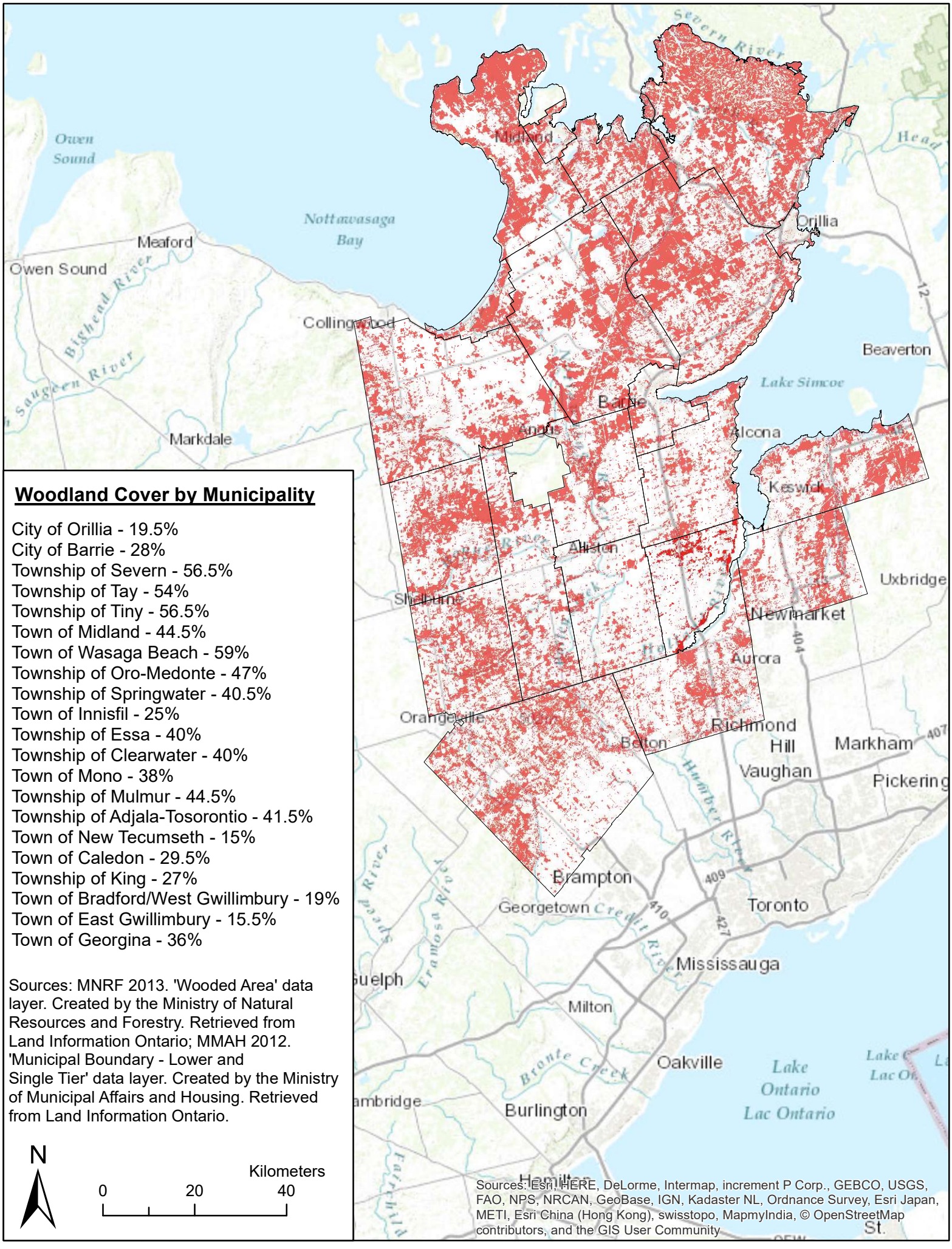
Dec. 1, 2023



Woodland Cover by Municipality

City of Orillia - 19.5%
City of Barrie - 28%
Township of Severn - 56.5%
Township of Tay - 54%
Township of Tiny - 56.5%
Town of Midland - 44.5%
Town of Wasaga Beach - 59%
Township of Oro-Medonte - 47%
Township of Springwater - 40.5%
Town of Innisfil - 25%
Township of Essa - 40%
Township of Clearwater - 40%
Town of Mono - 38%
Township of Mulmur - 44.5%
Township of Adjala-Tosorontio - 41.5%
Town of New Tecumseth - 15%
Town of Caledon - 29.5%
Township of King - 27%
Town of Bradford/West Gwillimbury - 19%
Town of East Gwillimbury - 15.5%
Town of Georgina - 36%

Sources: MNRF 2013. 'Wooded Area' data layer. Created by the Ministry of Natural Resources and Forestry. Retrieved from Land Information Ontario; MMAH 2012. 'Municipal Boundary - Lower and Single Tier' data layer. Created by the Ministry of Municipal Affairs and Housing. Retrieved from Land Information Ontario.

N

0 20 40 Kilometers

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Scott Tarof

From: Bev Wicks <bev@rsenviro.ca>
Sent: August 22, 2024 11:43 AM
To: Scott Tarof
Cc: Roger Holmes; Benjamin Jones; Rachelle Larocque; Andrea Woodrow; 224-162 Hawk Ridge Peer Review Severn
Subject: RE: 21-128 Hawk Ridge EIS Terms of Reference - for RiverStone Review

Hi Scott,

My apologies, I though that I had sent a response. Please see comments below.

- Conduct the following four-season (winter, spring, summer, fall) 2023 field program (**completed**):
    - Attend the property in winter during leaf-off conditions (January 25) to complete a high level visual screening for the presence of potential bat snag trees on the property; Please include acoustic monitoring if snag densities warrant this effort for 2025
    - Screen structures on the property possibly planned for demolition for possible use by SAR bats (January 25);
    - Map vegetation community types based on Ecological Land Classification methods for Southern Ontario and complete three (3) vascular plant inventories (spring, summer, fall – June 9, July 27, September 21), including screening for Butternut and Black Ash (Endangered). A detailed inventory for Black Ash and Black Ash Health Assessment (protocol released June 20, 2024 by MECP) have not been completed;
    - Delineate boundaries of wetland features using a hand-held GPS unit (June 9, July 27, September 21); use OWES is a wetland evaluation warranted here?
    - Conduct three (3) evening calling amphibian surveys in early-, mid- and late-spring using the Marsh Monitoring Program 2008 protocol for amphibians (April 14 & 16, May 29, June 28);
    - Complete two (2) dawn breeding bird surveys based on the OBBA protocol (10 minute point counts), plus two (2) Red-headed Woodpecker playback surveys based generally on the Wisconsin Department of Natural Resources' protocol (2017) provided to Azimuth by the MECP. The first Red-headed Woodpecker playback survey was completed after the first dawn breeding bird survey at each point count station. The second Red-headed Woodpecker playback survey was stand-alone. Since there were no Species at Risk records in NHIC for Red-headed Woodpecker, still current data as of June 25, 2024, the two Red-headed Woodpecker playback surveys were completed as due diligence (June 6 – dawn birds and Red-headed Woodpecker, June 22- Red-headed Woodpecker only, June 29 – dawn birds only);
    - Complete three (3) nocturnal breeding bird surveys (late May-early July) coincident with full moon cycles (May 29, June 9, June 28);
    - Complete a spring fisheries survey to confirm presence of direct/indirect fish habitat during period of elevated flow. Ponds within the study area were also reviewed to determine if they were online or offline features (May 23);
    - Completed fish sampling to verify fish species present within watercourses and online ponds (with key objective to verify if Brook Trout are present in Silver Creek and/or any tributaries) (May 30); Please add fall spawning surveys and full habitat assessment for spawning areas for brook trout. Look for indications of groundwater upwelling in the watercourse. Hydrogeological work may be required to review gradients within the watercourse and predict impacts to brook

trout habitat and thermal properties. Also should have a full season of temperature monitoring in several locations in the watercourse.

- Completed a summer survey to confirm presence of direct/indirect fish habitat during period of low/base flow (June 30);
- Complete five (5) SAR basking turtle surveys from spring ice-off to June 15 in accordance with the provincial protocol for Blanding's Turtles for open water wetlands (May 12, 15, 16, 25 June 5); were snake surveys completed?
- Record incidental wildlife observations during the outlined property visits;
- Complete a SAR assessment based on provincial protocol;
- Complete a Significant Wildlife Habitat assessment based on provincial criteria;
- Complete a Significant Woodland assessment based on municipal or NHRM criteria;
- Assess potential direct and indirect impacts of the proposed development on NHFFs in the study area and prepare one (1) EIS Report. The report will describe the study approach and existing conditions for the entire property, provide a planning context, comment on policy compliance, permitting and present natural heritage features and functions on high quality Figures/imagery. The study approach will include information pertaining to survey timing, conditions and surveyor. The CVs of the ecologists involved in completing the field program will be appended to the report. The impact assessment component will focus on the new "residential areas" development proposed. Consideration of other golf course lands outside of the proposed new "residential" footprints can be subject to an EIS Addendum that assesses potential impact prior to site alteration of other golf course lands.

Bev Wicks Ph.D.
Senior Ecologist / Principal
RiverStone Environmental Solutions Inc.
47 Quebec Street, Bracebridge Ontario, P1L 2A5
Office 705.645.9887 ext. 101 | Cell 705.641.1037 | Fax 888.857.4979
Southern Ontario Office 1-866-776-7160
www.rsenviro.ca

From: Scott Tarof <starof@azimuthenvironmental.com>
Sent: Thursday, June 27, 2024 1:49 PM
To: Bev Wicks <bev@rsenviro.ca>
Cc: Roger Holmes <rholmes@azimuthenvironmental.com>; Benjamin Jones <bjones@livhere.ca>; Rachelle Larocque <RLarocque@thebiglierigroup.com>
Subject: 21-128 Hawk Ridge EIS Terms of Reference - for RiverStone Review

Dear Bev:

Azimuth was retained as the environmental consulting firm to complete an Environmental Impact Study (EIS) for a proposed residential subdivision development on part of the Hawk Ridge Golf Course lands at 1151 Hurlwood Lane, Township of Severn (see attached Figure 1 for property location).

As follow-up to the pre-consultation meeting at Hawk Ridge with agencies on Monday June 10, 2024, Azimuth is providing an EIS Term of Reference below. It is noted that the field program below has been completed (DRAFT Figures of existing conditions attached).

- Acquire background data from the Ministry of Natural Resources and Forestry's (MNRF) NHIC database, Ministry of the Environment, Conservation and Parks (MECP) and other sources [iNaturalist, Ontario Breeding Bird Atlas (OBBA), Ontario Reptile and Amphibian Atlas (ORAA), Fisheries and Oceans Canada (DFO) Aquatic Species at Risk (SAR) mapping] to obtain background information related to mapped natural heritage features and SAR records for the area;
- Confirm a Terms of Reference with the Township's peer reviewer(s);
- Conduct the following four-season (winter, spring, summer, fall) 2023 field program (**completed**):
    - Attend the property in winter during leaf-off conditions (January 25) to complete a high level visual screening for the presence of potential bat snag trees on the property;
    - Screen structures on the property possibly planned for demolition for possible use by SAR bats (January 25);
    - Map vegetation community types based on Ecological Land Classification methods for Southern Ontario and complete three (3) vascular plant inventories (spring, summer, fall – June 9, July 27, September 21), including screening for Butternut and Black Ash (Endangered). A detailed inventory for Black Ash and Black Ash Health Assessment (protocol released June 20, 2024 by MECP) have not been completed;
    - Delineate boundaries of wetland features using a hand-held GPS unit (June 9, July 27, September 21);
    - Conduct three (3) evening calling amphibian surveys in early-, mid- and late-spring using the Marsh Monitoring Program 2008 protocol for amphibians (April 14 & 16, May 29, June 28);
    - Complete two (2) dawn breeding bird surveys based on the OBBA protocol (10 minute point counts), plus two (2) Red-headed Woodpecker playback surveys based generally on the Wisconsin Department of Natural Resources' protocol (2017) provided to Azimuth by the MECP. The first Red-headed Woodpecker playback survey was completed after the first dawn breeding bird survey at each point count station. The second Red-headed Woodpecker playback survey was stand-alone. Since there were no Species at Risk records in NHIC for Red-headed Woodpecker, still current data as of June 25, 2024, the two Red-headed Woodpecker playback surveys were completed as due diligence (June 6 – dawn birds and Red-headed Woodpecker, June 22- Red-headed Woodpecker only, June 29 – dawn birds only);
    - Complete three (3) nocturnal breeding bird surveys (late May-early July) coincident with full moon cycles (May 29, June 9, June 28);
    - Complete a spring fisheries survey to confirm presence of direct/indirect fish habitat during period of elevated flow. Ponds within the study area were also reviewed to determine if they were online or offline features (May 23);
    - Completed fish sampling to verify fish species present within watercourses and online ponds (with key objective to verify if Brook Trout are present in Silver Creek and/or any tributaries) (May 30);
    - Completed a summer survey to confirm presence of direct/indirect fish habitat during period of low/base flow (June 30);
    - Complete five (5) SAR basking turtle surveys from spring ice-off to June 15 in accordance with the provincial protocol for Blanding's Turtles for open water wetlands (May 12, 15, 16, 25 June 5);
    - Record incidental wildlife observations during the outlined property visits;

- Complete a SAR assessment based on provincial protocol;
- Complete a Significant Wildlife Habitat assessment based on provincial criteria;
- Complete a Significant Woodland assessment based on municipal or NHRM criteria;
- Assess potential direct and indirect impacts of the proposed development on NHFFs in the study area and prepare one (1) EIS Report. The report will describe the study approach and existing conditions for the entire property, provide a planning context, comment on policy compliance, permitting and present natural heritage features and functions on high quality Figures/imagery. The study approach will include information pertaining to survey timing, conditions and surveyor. The CVs of the ecologists involved in completing the field program will be appended to the report. The impact assessment component will focus on the new "residential areas" development proposed. Consideration of other golf course lands outside of the proposed new "residential" footprints can be subject to an EIS Addendum that assesses potential impact prior to site alteration of other golf course lands.

Please review these Terms of Reference and provide comment. Thank you.

Regards,

Dr. Scott Tarof (Ph.D. Biology)
Senior Terrestrial Ecologist
Azimuth Environmental Consulting, Inc.

642 Welham Road Barrie, ON L4N 9A1
Office: 705-721-8451 x230
Cell: 705-715-7105
www.azimuthenvironmental.com

Providing services in hydrogeology, terrestrial and aquatic ecology, environmental engineering, and arborist assessments.

APPENDIX B

Provincial and Federal Background

Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

21-128 Hawk Ridge Golf EIS

Map created:11/25/2022

Notes:

Azimuth Environmental Consulting, Inc.

Legend

- NHIC 1 Km Grid
- ANSI
- Earth Science Provincially Significant/sciences de la terre d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Conservation Reserve
- Provincial Park
- Natural Heritage System

1.3 0 0.65 1.3 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

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

To work further with this data select the content and copy it into your own word or excel documents.

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
1024867	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area	Colonial Waterbird Nesting Area	SNR			17PK2343	
1024867	SPECIES	Snapping Turtle	Chelydra serpentina	S4	SC	SC	17PK2343	
1024856	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area	Colonial Waterbird Nesting Area	SNR			17PK2242	
1024856	SPECIES	Snapping Turtle	Chelydra serpentina	S4	SC	SC	17PK2242	
1024857	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area	Colonial Waterbird Nesting Area	SNR			17PK2243	
1024857	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	17PK2243	
1024857	SPECIES	Snapping Turtle	Chelydra serpentina	S4	SC	SC	17PK2243	
1024866	WILDLIFE CONCENTRATION AREA	Colonial Waterbird Nesting Area	Colonial Waterbird Nesting Area	SNR			17PK2342	
1024866	SPECIES	American Coot	Fulica americana	S3B,S4N	NAR	NAR	17PK2342	
1024866	SPECIES	Blue-winged Teal	Spatula discors	S3B,S4M			17PK2342	

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
1024866	SPECIES	Snapping Turtle	Chelydra serpentina	S4	SC	SC	17PK2342	

Species list in taxonomic order for square 17PK24

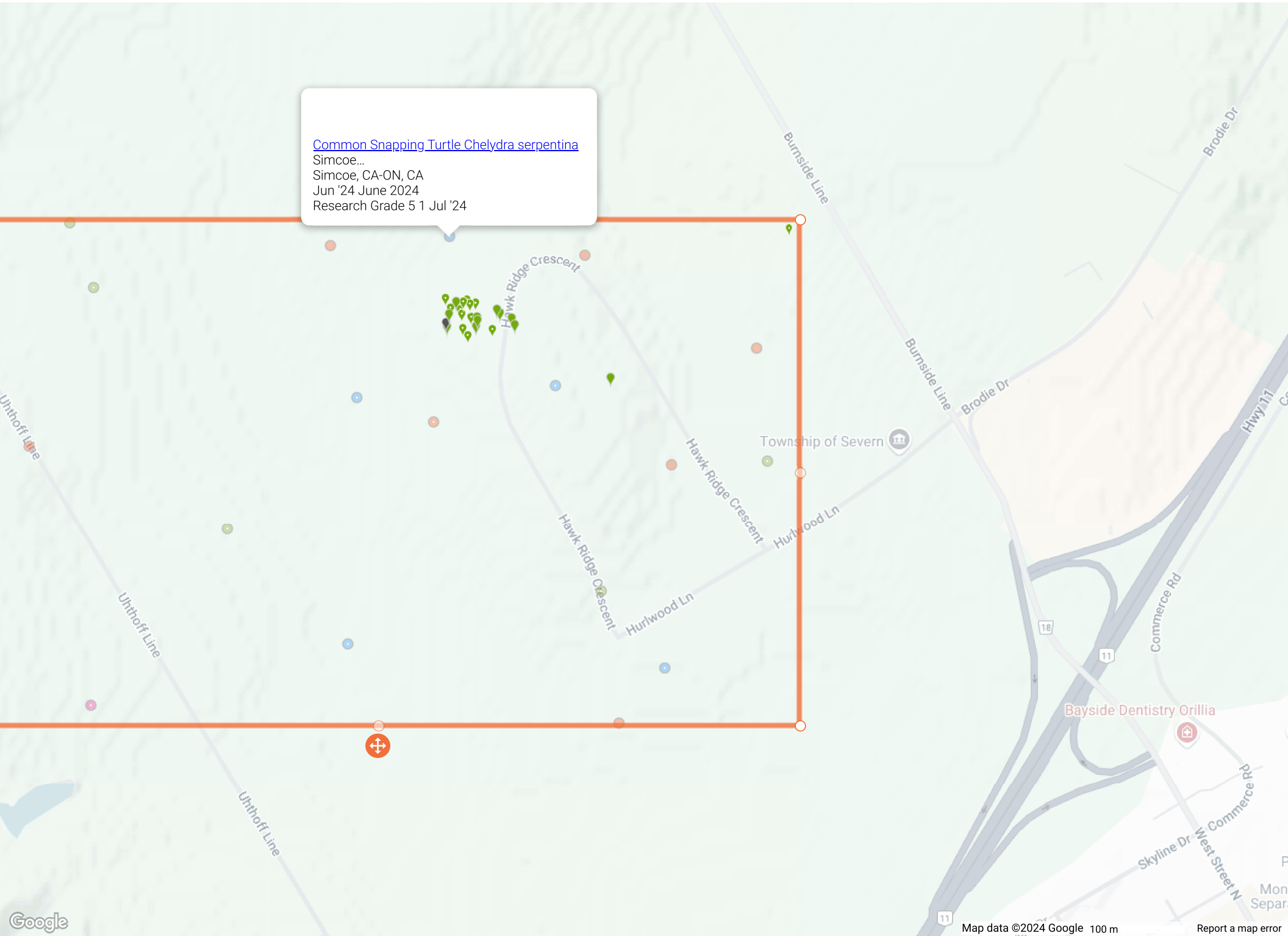
All species

Number of rows of data displayed below: 21.

Species #	Common Name	# of Records	Earliest Yr	Latest Yr
1	Blanding's Turtle	5	2013	2018
3	Midland Painted Turtle	107	1989	2019
4	Northern Map Turtle	1	2018	2018
6	Snapping Turtle	69	1987	2019
12	Eastern Gartersnake	22	1938	2019
15	Eastern Milksnake	5	1938	2011
18	Northern Ribbonsnake	1	2018	2018
19	Northern Ring-necked Snake	1	2018	2018
20	Northern Watersnake	1	2015	2015
22	Red-bellied Snake	2	1989	1989
25	American Bullfrog	36	1989	2018
28	Gray Treefrog	35	1989	2019
29	Green Frog	20	1985	2019

31	Northern Leopard Frog	13	1990	2018
33	Spring Peeper	23	1986	2019
34	Western Chorus Frog	1	2018	2018
35	Wood Frog	13	1987	2019
36	American Toad	28	1985	2019
40	Blue-spotted Salamander	10	2017	2019
44	Eastern Red-backed Salamander	29	2012	2018
51	Red-spotted Newt	2	1989	1989

TEA home page | Main atlas page


Common Snapping Turtle Chelydra serpentina
Simcoe...
Simcoe, CA-ON, CA
Jun '24 June 2024
Research Grade 5 1 Jul '24
Burnside Line
Brodie Dr
Hawk Ridge Crescent
Township of Severn
Uhthoff Line
Hurlwood Ln
Commerce Rd
Hwy 11
Bayside Dentistry Orillia
Skyline Dr
West Street N
Google
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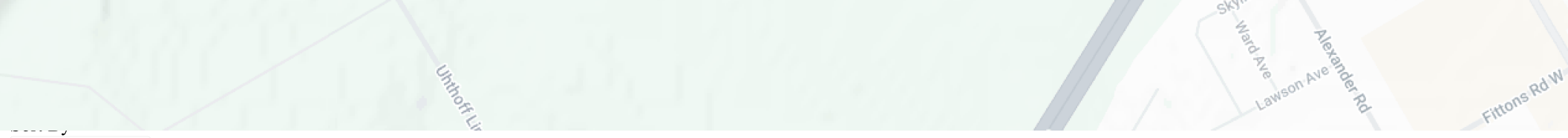
100 m
Report a map error



Date Added
Desc
Date Observed
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More Filters
Person
Username or User ID
Project
Name or URL slug, e.g. my
Place
Place
Photo Licensing All
Reviewed
Any Yes No
Date Added
Any Exact Date YYYY-MM-DD Range Start End
Update Search Reset Search Filters
Identify Atom Download
Species
1151 Hurlwood Lane, Severn Go
Custom Boundary
70
observations
51
species
39
Identifiers
6
Observers
Map Grid List

- Map
- Satellite
- OpenStreetMap
-
- Labels
- Terrain

Places of Interest

Standard

Community Curated

Redo search in map Reset

Map Legend

Genus Scoparia
Simcoe…
Simcoe, CA-ON, CA
Aug '24 August 2024
Needs ID 1 Aug '24

Caddisflies Order Trichoptera
Simcoe…
Simcoe, CA-ON, CA
Jun '24 June 2024
Needs ID 2 Aug '24

Common Snapping Turtle Chelydra serpentina
Simcoe…
Simcoe, CA-ON, CA
Jun '24 June 2024
Research Grade 5 1 Jul '24

Eastern Hemlock Tsuga canadensis
Ontari…
Ontario, CA
Apr '24 April 2024
Research Grade 3 Jun '24

Rhizomatous Knotweeds Genus Reynoutria
Hawk R…
Hawk Ridge Cres, S…
Jun 11, 2024 Jun 11, 2024
Needs ID 1 3mo

Partridgeberry Mitchella repens
Simcoe…
Simcoe, CA-ON, CA
Jun '24 June 2024
Research Grade 3 Jun '24

Red-berried Elder Sambucus racemosa
Simcoe…
Simcoe, CA-ON, CA
Apr '24 April 2024
Research Grade 3 Apr '24

Goldenrod Elliptical-Gall Moth Gnorimoschema gallaesolidaginis
Simcoe…
Simcoe, CA-ON, CA
Apr '24 April 2024
Needs ID 1 Apr '24

Winter Firefly Ellychnia corrusca
Simcoe…
Simcoe, CA-ON, CA
Apr '24 April 2024
Needs ID 1 Apr '24

Pincushion Moss Leucobryum glaucum
Simcoe…

Simcoe, CA-ON, CA
Nov '21 November 2021
Research Grade 2 Mar '24
Red Tree Brain Fungus Peniophora rufa
Ontari…
Ontario, CA
Jan '24 January 2024
Research Grade 2 Feb '24
European Reed Phragmites australis australis
Simcoe…
Simcoe, Ontario, C…
Nov 3, 2023 Nov 3, 2023
Research Grade 2 7mo
Genus Trichaptum
Ontari…
Ontario, CA
Dec '23 December 2023
Needs ID 1 Dec '23
Balsam Fir Abies balsamea
Simcoe…
Simcoe, CA-ON, CA
Nov '23 November 2023
Research Grade 2 Nov '23
North American Porcupine Erethizon dorsatum
Simcoe…
Simcoe, CA-ON, CA
Feb '21 February 2021
Research Grade 3 Nov '23
Braconid Wasps Family Braconidae
Simcoe…
Simcoe, CA-ON, CA
Oct '23 October 2023
Needs ID 1 Oct '23
Hemlock Angle Macaria fissinotata
Simcoe…
Simcoe, CA-ON, CA
Aug '23 August 2023
Needs ID 1 Aug '23
Gray Spruce Looper Moth Caripeta divisata
Simcoe…
Simcoe, CA-ON, CA
Aug '23 August 2023
Research Grade 2 Aug '23
Midland Painted Turtle Chrysemys picta marginata
Simcoe…
Simcoe, CA-ON, CA
Jun '23 June 2023
Research Grade 3 Jun '23
Vascular Plants Phylum Tracheophyta
Hawk R…
Hawk Ridge Cres, S…
May 22, 2023 May 22, 2023
Needs ID 1 1y
Vascular Plants Phylum Tracheophyta

Hawk R…
Hawk Ridge Cres, S…
May 22, 2023 May 22, 2023
Needs ID 1 1y
Double-crested Cormorant Nannopterum auritum
Simcoe…
Simcoe, CA-ON, CA
Apr '23 April 2023
Research Grade 3 Apr '23
Japanese Tree Lilac Syringa reticulata
Hawk R…
Hawk Ridge Cres, S…
Jul 29, 2022 Jul 29, 2022
Needs ID 1 2y
Black Cherry Prunus serotina
Hawk R…
Hawk Ridge Cres, S…
Jul 29, 2022 Jul 29, 2022
Research Grade 2 2y
Ashes Genus Fraxinus
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Needs ID 1 2y
Tatarian Honeysuckle Lonicera tatarica
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Research Grade 2 2y
Summer Grape Vitis aestivalis
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Needs ID 3 2y
Common Jewelweed Impatiens capensis
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Research Grade 3 2y
Tall Thimbleweed Anemone virginiana
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Research Grade 2 2y
Red Baneberry Actaea rubra
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Research Grade 3 2y
Black Cherry Prunus serotina
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Research Grade 2 2y

Broadleaf Enchanter's Nightshade Circaea canadensis
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Research Grade 3 2y
Common Guelder-Rose Viburnum opulus opulus
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Research Grade 3 2y
Common Guelder-Rose Viburnum opulus opulus
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Research Grade 3 2y
Rowans and Mountain Ashes Genus Sorbus
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Needs ID 1 2y
American Black Currant Ribes americanum
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Needs ID 1 2y
Guelder-Rose Viburnum opulus
Hawk R…
Hawk Ridge Cres, S…
Jul 27, 2022 Jul 27, 2022
Research Grade 4 2y
Unknown
Hawk R…
Hawk Ridge Cres, S…
Jul 13, 2022 Jul 13, 2022
Needs ID 2y
White Ash Fraxinus americana
Hawk R…
Hawk Ridge Cres, S…
Jul 13, 2022 Jul 13, 2022
Needs ID 1 2y
Ground-Ivy Glechoma hederacea
Hawk R…
Hawk Ridge Cres, S…
Jul 13, 2022 Jul 13, 2022
Research Grade 3 2y
Common Buckthorn Rhamnus cathartica
Simcoe…
Simcoe, CA-ON, CA
Jul 11, 2022 Jul 11, 2022
Research Grade 2 2y
Dogbanes Genus Apocynum
Hawk R…
Hawk Ridge Cres, S…
Jul 11, 2022 Jul 11, 2022

Needs ID 1 2y
Bellflowers Genus Campanula
Hawk R…
Hawk Ridge Cres, S…
Jul 11, 2022 Jul 11, 2022
Needs ID 2 2y
Dicots Class Magnoliopsida
Hawk R…
Hawk Ridge Cres, S…
Jul 11, 2022 Jul 11, 2022
Needs ID 3 2y
Plants Kingdom Plantae
Hawk R…
Hawk Ridge Cres, S…
Jul 1, 2022 Jul 1, 2022
Needs ID 1 2y
Eastern Black Walnut Juglans nigra
Hawk R…
Hawk Ridge Cres, S…
Jun 19, 2022 Jun 19, 2022
Needs ID 1 2y
Kamchatka Stonecrop Phedimus kamtschaticus
Hawk R…
Hawk Ridge Cres, S…
Jun 20, 2022 Jun 20, 2022
Research Grade 2 1 2y
Roses Genus Rosa
Simcoe…
Simcoe, CA-ON, CA
Jun '22 June 2022
Needs ID 1 Jun '22
Common Snapping Turtle Chelydra serpentina
Simcoe…
Simcoe, CA-ON, CA
Jun '24 June 2024
Research Grade 5 1 Jul '24

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- Esperanto
- Euskara
- français
- Français (Canada)
- Galego
- Georgian
- Hrvatski
- Indonesia
- Italiano
- Latviešu
- Lietuvių
- Lëtzebuergesch
- magyar
- Nederlands
- Norsk Bokmål
- Occitan
- Polski
- Portuguese
- Português (Brasil)
- Santali
- Shqip
- Slovenský
- Slovenščina
- srpski
- suomi
- Svenska
- Te reo Māori
- Türkçe
- česky
- Ελληνικά
- Беларуская
- български
- македонски
- Русский
- Українська
- Қазақша
- עברית
- العربية
- मराठी
- ಕನ್ನಡ
- ภาษาไทย
- 日本語
- 简体中文
- 繁體中文
- 한국어
-
- Help Translate!

- All
- None
-

- ☐ January

- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

Atlas Data Summary

Select a type of data summary: Provincial Summaries | Regional Summaries | **Species Lists** | Participant Statistics

Select a province and/or a region, or enter a 7-digit square number to view a species list with the highest breeding code reported to date. Click on a column name to sort.

Ontario | All regions | 17TPK24 | Go

Sort Order	Species	Max. Br. evid.	Squares
187	Canada Goose	FY	1
217	Mute Swan	D	1
222	Trumpeter Swan	FY	1
288	Wood Duck	FY	1
343	Mallard	FY	1
363	American Black Duck	FY	1
538	Common Merganser	FY	1
788	Wild Turkey	D	1
791	Ruffed Grouse	D	1
1046	Pied-billed Grebe	FY	1
1071	Rock Pigeon (Feral Pigeon)	NB	1
1340	Mourning Dove	FY	1
1791	Yellow-billed Cuckoo	S	1
1796	Black-billed Cuckoo	P	1
2158	Chimney Swift	H	1
2644	Ruby-throated Hummingbird	T	1

3282	Killdeer	FY	1
3436	American Woodcock	NE	1
3737	Ring-billed Gull	NB	1
3890	Common Tern	D	1
3945	Common Loon	S	1
4336	Double-crested Cormorant	AE	1
4466	Green Heron	AE	1
4584	Turkey Vulture	H	1
4594	Osprey	AE	1
4981	Red-tailed Hawk	H	1
5235	Great Horned Owl	P	1
5378	Barred Owl	FY	1
5894	Belted Kingfisher	CF	1
6370	Yellow-bellied Sapsucker	N	1
6415	Red-bellied Woodpecker	T	1
6499	Downy Woodpecker	P	1
6511	Hairy Woodpecker	P	1
6658	Pileated Woodpecker	T	1
6716	Northern Flicker	T	1
6789	American Kestrel	T	1
6810	Merlin	H	1
9368	Eastern Wood-Pewee	T	1
9383	Alder Flycatcher	S	1
9390	Least Flycatcher	S	1

9583	Great Crested Flycatcher	FY	1
9646	Eastern Kingbird	A	1
10418	Warbling Vireo	CF	1
10423	Red-eyed Vireo	T	1
11401	Blue Jay	S	1
11524	American Crow	NB	1
11568	Common Raven	FY	1
11734	Black-capped Chickadee	CF	1
12547	Tree Swallow	CF	1
12560	Purple Martin	FY	1
12622	Barn Swallow	H	1
13848	White-breasted Nuthatch	T	1
13865	Red-breasted Nuthatch	NB	1
13894	Brown Creeper	T	1
13975	House Wren	NY	1
14008	Winter Wren	T	1
14025	Marsh Wren	T	1
14032	Carolina Wren	T	1
14236	European Starling	CF	1
14358	Gray Catbird	T	1
14372	Brown Thrasher	CF	1
14511	Veery	T	1
14520	Hermit Thrush	S	1
14525	Wood Thrush	S	1

15359	Cedar Waxwing	D	1
16133	House Sparrow	FY	1
16569	House Finch	T	1
16572	Purple Finch	T	1
16718	Pine Siskin	NE	1
16731	American Goldfinch	P	1
16895	Chipping Sparrow	CF	1
16899	Field Sparrow	S	1
16998	White-throated Sparrow	T	1
17027	Savannah Sparrow	T	1
17043	Song Sparrow	T	1
17057	Swamp Sparrow	T	1
17089	Eastern Towhee	T	1
17172	Bobolink	FY	1
17174	Eastern Meadowlark	T	1
17286	Baltimore Oriole	CF	1
17296	Red-winged Blackbird	CF	1
17314	Brown-headed Cowbird	FY	1
17324	Common Grackle	CF	1
17372	Ovenbird	T	1
17376	Northern Waterthrush	T	1
17386	Black-and-white Warbler	T	1
17400	Nashville Warbler	S	1
17418	Mourning Warbler	S	1

17455	American Redstart	FY	1
17481	Blackburnian Warbler	T	1
17484	Yellow Warbler	CF	1
17493	Chestnut-sided Warbler	T	1
17498	Black-throated Blue Warbler	S	1
17508	Pine Warbler	A	1
17510	Yellow-rumped Warbler	A	1
17550	Black-throated Green Warbler	S	1
17662	Scarlet Tanager	T	1
17699	Northern Cardinal	FY	1
17715	Rose-breasted Grosbeak	T	1
17749	Indigo Bunting	D	1

Total: 104 breeding species

Note: the statistics and species lists presented on this page are based on accepted records (including records pending review) with breeding evidence.

BIRDS CANADA
OISEAUX CANADA

Birds Canada
P.O. Box 160
115 Front Street
Port Rowan ON N0E 1M0
Phone: 519-586-3531
Toll-free: 1-888-448-2473
Email: hello@birdscanada.org

Birds Canada (Ontario Office)
P.O. Box 160
115 Front Street
Port Rowan ON N0E 1M0
Phone: 519-586-3531 ext. 123
Toll-free: 1-888-448-2473 ext. 123
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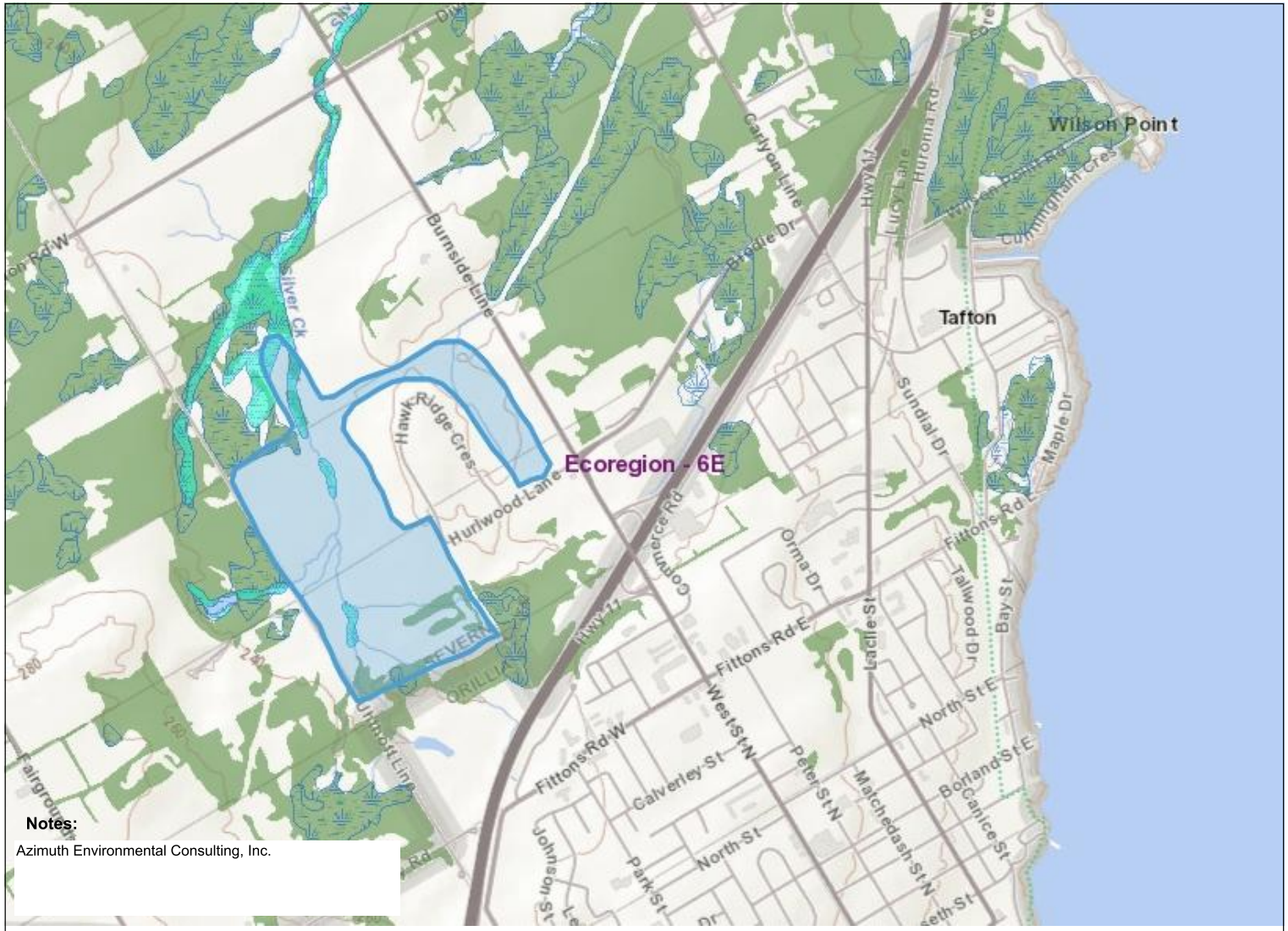
Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

21-128 Hawk Ridge Golf EIS

Map created:11/25/2022



Legend

- Ecoregion
- ANSI
- Earth Science Provincially Significant/sciences de la terre d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Evaluated Wetland
- Provincially Significant/considérée d'importance provinciale
- Non-Provincially Significant/non considérée d'importance provinciale
- Unevaluated Wetland
- Woodland
- Conservation Reserve
- Provincial Park

1.3 0 0.65 1.3 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

Enter map title

Map created:12/1/2023

Notes:

Enter map notes

Legend

- Assessment Parcel
- Ecoregion
- ANSI
- Earth Science Provincially Significant/sciences de la terre d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Evaluated Wetland
- Provincially Significant/considérée d'importance provinciale
- Non-Provincially Significant/non considérée d'importance provinciale
- Unevaluated Wetland
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System

0.7 0 0.33 0.7 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

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.

APPENDIX C

Photographic Record

Photograph 1: Golf fairway with northern Woodland Unit #1 in far background, facing northwest (July 27, 2023).

Photograph 2: MEMM3(e) meadow community near Pond #1, facing southeast (July 27, 2023).

Photograph 3: FODM7(a) community in northeast corner of property, facing north near Pond #1 (July 27, 2023).

Photograph 4: Pond #12, facing east with clubhouse in far right background (June 5, 2023).

Photograph 5: Snapping Turtle in Pond #7 (May 25, 2023).

Photograph 6: Perched culvert at upstream limits of property along main branch of Silver Creek (May 23, 2023).

Photograph 7: Typical channel section along main branch of Silver Creek with golf course riparian lands (May 23, 2023).

Photograph 4: Brook Trout captured in branch of Silver Creek (May 30, 2023).

Photograph 9: Upstream limits of Tributary A where piped drainage starts (May 23, 2023).

Photograph 10: Perched culvert at inlet to Pond #15 along Tributary A (May 23, 2023).

Photograph 11: Tributary B, narrow channel segment through wetland section (May 23, 2023).

Photograph 12: Tributary C, no defined channel banks along lowland area of feature (May 30, 2023).

Photograph 13: Tributary D, intermittent feature with no surface water during spring survey (May 23, 2023).

Photograph 14: Tributary E, narrow incised feature adjacent to golf course lands (May 23, 2023).

Photograph 15: Tributary E, juvenile Brook Trout captured (May 30, 2023).

Photograph 16: Tributary F, standing water in ditch feature (May 23, 2023).

Photograph 17: Tributary G, drainage channel connecting two online ponds (May 23, 2023).

Photograph 18: Tributary H, channel within forested lands (May 23, 2023).

Photograph 19: WC1, dense vegetation within feature (May 23, 2023).

Photograph 20: WC1, upstream limits of watercourse feature at storm drain outlets (May 23, 2023).

APPENDIX D

Proposed Development Concept

LEGEND

- SINGLE
- TOWNHOUSES
- GOLF VILLA
- PARKLAND AND OPEN SPACE
- SWM POND
- BUFFER
- NHS
- TREATMENT PLANT / UTILITIES
- FOREST
- WOODLAND
- MIXED MEADOW - MEMM3
- POND (BASKING TURTLE HABITAT/SURVEY)
- POND
- 30m BUFFER TO WATERCOURSE
- BLACK ASH LOCATION
- WATERCOURSE
- FLOODPLAIN LINE
- PROPOSED FLOODPLAIN ADJUSTMENT FOR NEW DEVELOPABLE AREA
- SITE BOUNDARY

Treatment Plant 0.97ha
SWM Pond 0.74ha
Park 0.56ha
SWM Pond 1.97 ha
Well Pump House 0.20ha
Golf Villas 0.74 ha
Golf Villas 1.66 ha
Entry Feature
Park 0.91 ha
Park 0.16 ha
Golf Villas 1.68 ha
Park 0.39 ha
Existing Golf Club
Entry Feature
Existing Golf Course/NHS
Water Tower 0.28ha

Schedule of Land Use

Description	Residential Units	Area (ha)
Single detached	290	11.95
Total Single Detached	**290**	**11.95**
Townhouses	310	6.65
Golf Villas (Stacked Townhouses)	250	4.05
Net Developable Total	**850**	**22.65**
Stormwater Management Pond		2.70
Parkland and Trails		2.17
Buffer		0.25
Natural Heritage System		3.92
Right of Way		9.29
Treatment Plant		0.97
Utility		0.20
Water Tower		0.28
Total Site Area		**42.43**

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CONCEPT DRAFT PLAN

ADDRESS: HAWKRIDGE GOLF COURSE

Project No: 23979

Scale: 1:2500

September 12, 2024

Designed By: MP

Urbantypology Jeff Mingay GOLF COURSE ARCHITECT

BIGLIERI GROUP