

**NATURAL HERITAGE
IMPACT ASSESSMENT
(EIS)**

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Prepared for

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ECOLOGICAL SERVICES

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2. Summary and Recommendations

Preface: This impact assessment will focus on Natural Heritage features that are prescribed in the PPS and the OP. The management and assessment of septic and stormwater management are not covered in any detail in this report, and instead will be provided by Jewell Engineering, and it is assumed that this will be dealt with to the satisfaction of the relevant agencies.

Summary: This EIS has identified several significant natural heritages of relevance, including Species at Risk, Significant Wildlife Habitat, Significant Wetland, and Significant Woodland. Details and recommendations are provided below, but in our opinion, all potential negative impacts can be ameliorated through mitigation, best management practices, and/or compensation.

Species at Risk (SAR): Five SAR have some association with the development property:

1. Bobolink. Confirmed breeding resident within the property.
2. Blanding's Turtle. Single juvenile crossing the access road near the property entrance, but no evidence of nesting.
3. Little Brown Myotis. Monitoring evidence suggests a transient feeding flight, although the woodlands do provide appropriate habitat.
4. Tri-Colored Bat. Monitoring evidence suggests a transient feeding flight, although the woodlands do provide appropriate habitat.
5. Pugnose Shiner. Known to West Lake, although the habitat immediately offshore is not ideal habitat.

In our opinion, all potential conflicts with SAR can be resolved via mitigation, best management practices, and/or compensation. Consultation with Fisheries and Oceans Canada (DFO) may also be warranted for the Pugnose Shiner, especially if in-water work is proposed that includes large dock structures.

Specific SAR recommendations:

Bobolink

- It is recommended that Bobolink surveys continue on the property to get a better understanding of Bobolink use here. It is our understanding that the fields will continue to be farmed until such time that there is a need for conversion to camp use.
- Prior to any proposed site alteration within 300 m of the observed Bobolink nest area that was observed in 2022, it is recommended that the MECP be made aware of potential development plans through the IGF process. Related details can be found with Ontario Regulation 830/21.

Blanding's Turtle

- It is recommended that an IGF form process be undertaken with the MECP as it relates to potential Blanding's Turtle risks associated with the road and the removal of the dug farm pond. A possible outcome of that process will be the requirement to build turtle exclusion fencing along the edge of the road, the possible creation of turtle nesting structures with access to the adjacent wetland, and the possible construction of a new dug pond to replace the existing dug pond.

SAR Bats

- If there is a need to remove trees greater than 25 cm DBH (measurement assigned by MECP 2022) during the nest/roost season of April 1 to Sept. 30, then the removal of the tree is only recommended if it can be shown that it not be an active roost tree as determined by an exit survey. Otherwise, there should be no tree clearing of trees greater than 25 cm DBH during the nest/roost season of April 1 to Sept. 30.
- In our opinion, the initiation of the IGF process with MECP for SAR bats will not be necessary due to the low number of SAR bats picked up during acoustic monitoring, bats tolerance of nearby human activity, the relative lack of good bat snag trees within the woodland, and the large number of >50 cm DBH trees that will remain intact.

Pugnose Shiner

- We defer to Jewell Engineering to provide the appropriate documentation to reassure the relevant agencies that sediment and nutrient loading from the functioning camp will be within acceptable limits. We also recommend that appropriate stormwater controls be put in place next to the lake during the construction phase of the project following similar guidance as provided by TRCA (2019).
- At this time, we are not aware of the any proposed in-water work, but note that there are potential restrictions for in-water development in fish habitat, aquatic SAR habitat, and PSW at both the federal, provincial and municipal level. Further consultation for any planned docks will likely be required.

Significant Wetland (PSW): The provincially significant West Lake wetland (PSW) abuts the development property on three sides. There is a proposal to build structures within 30 m of the PSW. These will be replacing mowed lawn, farm field, a roadway, and a dug farm pond. Given the nature of the existing habitat, and the robustness of the adjacent PSW habitat, we have no concerns about a negative impact. However, given that these structures will be located closer than 30 m to the PSW, we defer to QCA and Jewell Engineering to discuss this proximity with respect to the natural hazard aspects of this proximity.

At this time, we are not aware of the any proposed in-water work, but note that there are potential restrictions for in-water development in fish habitat, aquatic SAR habitat, and PSW at both the federal, provincial and municipal level. In this regard, further consultation for any planned docks are recommended.

Fish Habitat: There are structures proposed to be within 30 m of fish habitat. This land is primarily occupied by mowed lawn (to the waters edge), several older structures, and two septic fields. The existing structures and the septic fields will be removed. The removal of these older septic systems (both within 30 m of the lake, and one which is not working properly (see Gruescu 2022)) is seen as a positive benefit. They will be replaced by a communal waste management system set back more than 300 m from the lake.

The current 30 m area does not contribute to fish habitat and has no natural heritage significance. It is recommended that all existing trees within 5 m of the lake be maintained, and that this area also be naturalized with native tree and shrub plantings. We defer to Jewell Engineering to discuss with QCA, the natural hazard aspects of this less than 30 m proximity of the proposed structures.

If there is a need to drain the swimming pool, there are potential impacts to the adjacent fish habitat that will need to be considered such as with chlorine, bromine, copper, pH, and temperature. We defer to Jewell Engineering to develop a proper protocol (e.g., draining water away from the lake) to ensure no negative impacts to the fish habitat associated with pool management. We also defer to Jewell Engineering to design stormwater management controls for all buildings (e.g., rooftop drainage) on the south half of the field (i.e., the half that drains to the lake) to prevent sedimentation impacts to the lake.

At this time, we are not aware of the any proposed in-water work, but note that there are potential restrictions for in-water development in fish habitat, aquatic SAR habitat, and PSW at both the federal, provincial and municipal level. In this regard, further consultation for any planned docks are recommended.

Development construction erosion mitigation is recommended for the lake edge (e.g., vehicle exclusion zones, silt fencing) and in this regard we recommend development construction engineering/planners defer to guidelines provided by TRCA (2019).

Area of Natural and Scientific Interest (ANSI): The process of removing upland areas from an ANSI intended for wetland significance was completed with the MNRF, such that the wetland boundary is now the ANSI boundary. As such, the same restrictions for significant wetland (e.g., 30 m setback) apply for the ANSI.

Significant Woodland: Two significant woodland features were identified: Proximity and Uncommon Characteristics. In our opinion, development can occur in the woodland if these features are maintained. Development planned for the woodlands includes:

Proximity Feature Woodland (i.e, 30 m from wetland)

Tree House: It is recommended that the tree house be located at least 30 m from the PSW edge to accommodate the Proximity Feature. The tree house is considered a benign impact, especially as it will be built on stilts above the ground. However, given its potential proximity to the PSW and fish habitat, it is recommended that erosion construction mitigation measures be employed (e.g., silt screens) during the construction phase. Guidelines on this subject can be obtained via TRCA (2019). The treehouse will be located on a slope, but its positioning on stilts can mitigate slope stability concerns as long as roof top drainage is dealt with appropriately. Due to the steepness of the slope, it is also recommended that no trees greater than 25 cm DBH be removed to accommodate the treehouse.

Flex Building: The precise location of the building has yet to be determined, but it will need to be at least 30 m from the PSW, and roof drainage will need to be directed away from the

PSW, and there should be an attempt to minimize the removal of trees greater than 50 cm DBH.

Archery Range: An archery range is proposed to be within the western most woodlot. We understand that this is a conceptual idea, but for EIS purposes, we cannot support this location as it will require significant tree clearing within 15 of the PSW. We have no issues of the archery range been within 15 m of the PSW if it is located in the adjacent field.

Boardwalk: It is recommended that no tree greater than 25 cm DBH be removed to accommodate the boardwalk, and that erosion construction mitigation measures be employed (e.g., silt screens) during the construction phase. Guidelines on this subject can be obtained via TRCA (2019).

Uncommon Characteristic Recommendations

Camping Pads/Off-Grid Cabin: It is recommended that the existing access trail within the woodlot be used as the main thoroughfare to these structures, and that no trees greater than 25 cm DBH be removed to accommodate the pads or the cabin. It is further recommended that surface coverings (e.g., bark chips, gravel, boardwalks over low areas) be used to prevent trail braiding or muddy spots.

Trails: There are various woodlot walking trails proposed. Where possible, it is recommended that existing bush roads within the woodlot be used for walking trail use. Surface coverings (e.g., bark chips, gravel, boardwalks over low areas) are recommended to prevent trail braiding or muddy spots that can occur in forest trails during heavy precipitation periods.

Camper Residences: It is recommended that any building placement within the woodland avoid the removal of trees greater than 50 cm DBH, and be out of the drip line of these trees.

Note: For safety reasons, there may be a desire to remove any dead tree within the woodlot. We have no issues with that, but recommend the any felled trunks/stems greater than 15 cm DBH be left to rot on the forest floor in order to enhance biodiversity. Smaller tree portions, including branches, can be chipped for possible trail use purposes, or used to created huge piles in out of the way places within the woodlot for cover use by various species.

Significant Wildlife Habitat:

Turtle Wintering Areas: It is recommended that a MNRF fish handling permit and a MNRF wildlife handling permit be obtained in order to salvage any fish and wildlife in the dug farm pond prior to filling. A permit may also be required from Quinte Conservation. A permit may be also required by the MECP, but we defer to Jewell Engineering to determine if that is a necessity. We recommend that a biologist be on hand to supervise draining, filling and fish and wildlife salvage, and that this occur from mid-August to the end of September. In our opinion a habitat compensation pond is not required for the dug pond, but if so

required, we recommend that the replacement pond be placed in closer proximity to north edge wetland, as this will put the pond in closer proximity to better quality turtle habitat within the wetland, as compared to the current pond. It is also recommended that any new pond include turtle exclusion fencing to prevent turtles from moving beyond the pond area towards the development lands.

Turtle Nesting Areas: It is recommended that the roadway and parking lots areas include turtle exclusion fencing to avoid turtle access to the road/parking area. It is also recommended that a turtle nesting sites be created to compensate for the lost artificial sites (i.e., road verge and sand pile).

Rare (i.e, S1, S2, S3 or Special Concern) Species

Bridle Shiner: See Recommendations for Pugnose Shiner (Section 7.0).

Grass Pickerel: As it relates to all fish habitat, construction erosion mitigation is recommended for the lake edge (e.g., vehicle exclusion zones, silt fencing) and in this regard we recommend development construction engineering/planners defer to guidelines provided by TRCA (2019).

Snapping Turtle: See Turtle Nesting Areas and Turtle Wintering Areas above.

Eastern Wood-Pewee: As a standard precaution for all developments that involve migratory birds (including Eastern Wood-Pewee), we recommend that tree clearing take place outside of the migratory birds breeding season (April 1 to August 15) to avoid contravening the Migratory Birds Act.

Barn Swallow: It is recommended that a Barn Swallow nesting structure be built along the southeast corner of the property, within 3 m of the lake. The structure should be 5 meters long by 3 m wide on 6 stilts. The rafters should contain evenly spaced nest cones. The production of the nest cones could be a camper activity. The base of the roof should be 3 m above ground and the stilts wrapped with predator cones. The 1/2 meter of the walls should be covered to reduce wind effects.

3. Policy Framework

Provincial Policy Statement (PPS) 2020

Issued under the *Planning Act*, the 2020 version of the PPS requires that municipalities consider natural heritage features in assessing development proposals. Guidance on the extent of adjacent lands is provided in a Natural Heritage Reference Manual (MNR 2010). The adjacent land width for significant natural heritage features is 120 m. Relevant sections from the PPS that might apply to the license update application include:

2.1.4 Development and site alteration shall not be permitted in:

a) significant wetlands in Ecoregions 6E

2.1.5 Development and site alteration shall not be permitted in:

b) significant woodlands in Ecoregions 6E;

c) significant valleylands in Ecoregions 6E;

d) significant wildlife habitat;

e) significant areas of natural and scientific interest;

... unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

2.1.6 Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

2.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

Note: Adjacent lands do not necessarily apply to species at risk habitat. Impact assessment is based on a species basis in accordance with provincial requirements.

2.1.8 Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

Prince Edward County Official Plan (OP) 2021

Impact assessments determine whether an activity is going to have a negative impact on a significant natural heritage feature. Field work for this project was completed under the guidance of the PPS and the Official Plan (OP) of Prince Edward County. For convenience, we are providing the following wording of the 2021 OP below:

5.1.9 Environmental Impact Study (EIS)

1) An Environmental Impact Study (EIS) shall be required as part of an application for all development and site alteration applications within the identified Natural Heritage System, including all of its component natural heritage features and functions and/or on adjacent lands.

- 3) *The EIS shall demonstrate that the proposed use will have no negative impact on significant natural heritage features and areas and their associated ecological functions (i.e. hydrological, hydrogeological, etc.).*
- 4) *Where an EIS indicates that development would have a negative impact on the Natural Heritage System and/or the natural heritage feature or area, function, attributes or linkages for which the lands were identified, the application shall not be supported or approved by the Municipality.*
- 5) *The EIS shall be prepared by a qualified professional(s) and shall be subject to the approval of the Municipality and Quinte Conservation, in consultation with any other authority having jurisdiction.*

Environmental Impact Study (EIS) Appendix B of the Adopted OP

Prince Edward County provides a guiding document for completing EIS's that is available on the County website. <https://www.thecounty.ca/residents/services/planning/official-plan/>
This is not an exhaustive field manual, but is intended to insure that natural heritage features described in the PPS and the OP merit investigation for negative impacts.

Notable EIS related Legislation

- Fisheries Act (1985)
- Conservation Authorities Act (1990)
- Migratory Birds Convention Act (1994)
- Endangered Species Act (2007)

4. Methods

Screening for significant natural heritage features was based on the Ministry of Natural Resources and Forestry (MNRF, 2018) and the MECP (2019) screening protocol.

Habitat community assessments were based on the Ecological Land Classification (ELC) manual for Southern Ontario (Lee *et al.*, 1998). Plant species were used to characterize ELC community types, and some representative plants were posted to iNaturalist.

Significant natural heritage feature assessments were based on the Natural Heritage Reference Manual (MNR 2010), Significant Wildlife Habitat Ecoregion Criteria Schedules (MNRF 2015) and Significant Wildlife Habitat Technical Guide (MNR 2000).

Breeding bird surveys were based on the Ontario Breeding Bird Atlas Guide for Participants (Cadman and Kopysh, 2001) and the Canadian Wildlife Service Forest Bird Monitoring Program. Surveying included both dawn and evening site visits.

Species specific surveys were based on published protocols where needed, including but not limited to MNRF (2016; snakes), MNR (2011), MNRF (2014, 2015; bats), MNR (2011/2012; Bobolink/Meadowlark), MNR (2013b) (Whip-poor-will).

Table 1. Site visit summary.			
Date of Survey (2022)	Starting Time	Contributors	Main Purpose of Visit
April 14	2250	Kurt Hennige	Herpetofauna
May 15	2250	Kaitlyn Closs	Herpetofauna and Night birds
May 24	1120	Kaitlyn Closs	Herpetofauna
May 30		Kurt Hennige	BBS
May 30	1125	Kaitlyn Closs	Herpetofauna
June 2	1345	Kaitlyn Closs	Herpetofauna
June 2	2120	Rob Snetsinger	Bats, Herpetofauna
June 8	2015	Kaitlyn Closs	Herpetofauna
June 13	2155	Kaitlyn Closs	Herpetofauna
June 13	1430	Rob Snetsinger	All taxa, bat monitor placement
June 14	1110	Kaitlyn Closs	Herpetofauna
June 15	1845	Kaitlyn Closs	Herpetofauna
June 19	600	Rob Snetsinger Dale Kristensen	ELC and all taxa
June 20	530	Kurt Hennige	BBS, including SAR birds
June 21	1910	Kaitlyn Closs	Herpetofauna
June 23	1900	Kaitlyn Closs	Herpetofauna
June 23	930	Rob Snetsinger	All taxa, bat monitor pickup
July 6	9:00	Rob Snetsinger Dale Kristensen Kurt Hennige	BBS, wetland and woodland assessment, bat monitor placement
July 17	1600	Rob Snetsinger	All taxa, bat monitor pickup

5. Ecological Site History

Like much of Prince Edward County, the subject property has an agricultural history. The adjacent historical map from Belden (1878) in shows the property to be part of the Township of Hallowell and under the ownership of H.B. McDonald, a farmer, who was working the land as early as 1825. The good quality soils of the property would have provided a good crop, that among other things, would likely have helped service the extensive dairy operations that once dominated agriculture in the County, which included 26 operating cheese factories.



The property has been under the ownership of the Knight family since 1952 and the footprint of the land has seen few changes since that time, as seen in this 1954 image. As noted above, it is currently in hay production, but it various times it has been used for tomatoes, peas, soybeans, and corn. The woodlands have been in existence since that time and have also been tapped for maple sugar in the past. A few notable changes from this 1954 image are moving the dug farm pond that is seen on the right side of the image to its current location (red circle). Another notable change is the much more open nature of the wetland. This was a common feature of many coastal wetlands in Lake Ontario in the 1950's, that have suffered from a loss of biodiversity due to the invasive spread of the non-native narrow leaved cattail. Coastal wetland restoration projects over the last 20 years in Prince Edward County have aimed at reducing the impact of this cattail.



In summary, the subject lands have an almost 200 years of significant cultural disturbance, which has influenced its current ecological features and functions.

6. Existing Site Condition

6.0 Land Use, Soils, Topography, and Drainage

Land Use: The subject property is within the Picton Ecodistrict 6E-15, with over half in some sort of agricultural use. About 1% is devoted to settlement and about 0.5% is devoted to pits and quarries. The subject lands are bordered to the south by West Lake and the Bloomfield Creek wetland; to the east by farmland; to the west by the Bloomfield Creek wetland, and to the north by more of the wetland and agricultural lands beyond that.

Soils: The northern part of the subject property contains soils from Pontypool series with a good natural drainage, typically found on rolling/hilly lands (Richards and Morwick 1948). The adjacent farms to the north and west are from the Elmsbrook and Waupoos series, which have a heavier clay component and therefore of lower quality from a farming perspective.

Topography/Drainage: The property is bisected with a high point that is about 9 meters higher than West Lake. This high point runs east to west, such that lands on the north side of this high point would drain north, and lands to the south of this high point would drain to the south.

Geology: Prince Edward County as a whole is underlain by the Gull River Formation of the Simcoe Group. It consists of limestones, dolomitic limestone, and dolostone, with upper layers consisting of shale, typically overlain by shallow soils. The subject property is recognized as a lacustrine delta with a relatively low aggregate quality indicator due to limited thickness and clay and/or silt fines (Jagger 1999). This feature was formed when glacial meltwater flowed into Lake Ontario and deposited suspended sediment.

6.2 Ecological Land Classification

Ecological land classification and mapping (Figure 2) was based on Lee et al. (1998), where habitat fragments of less than 0.5 ha. are lumped in with the larger overall ELC type. There are updated mapping terms available, but since these have not been officially adopted, we continue to use the original mapping terms provided in Lee et al. (1998).

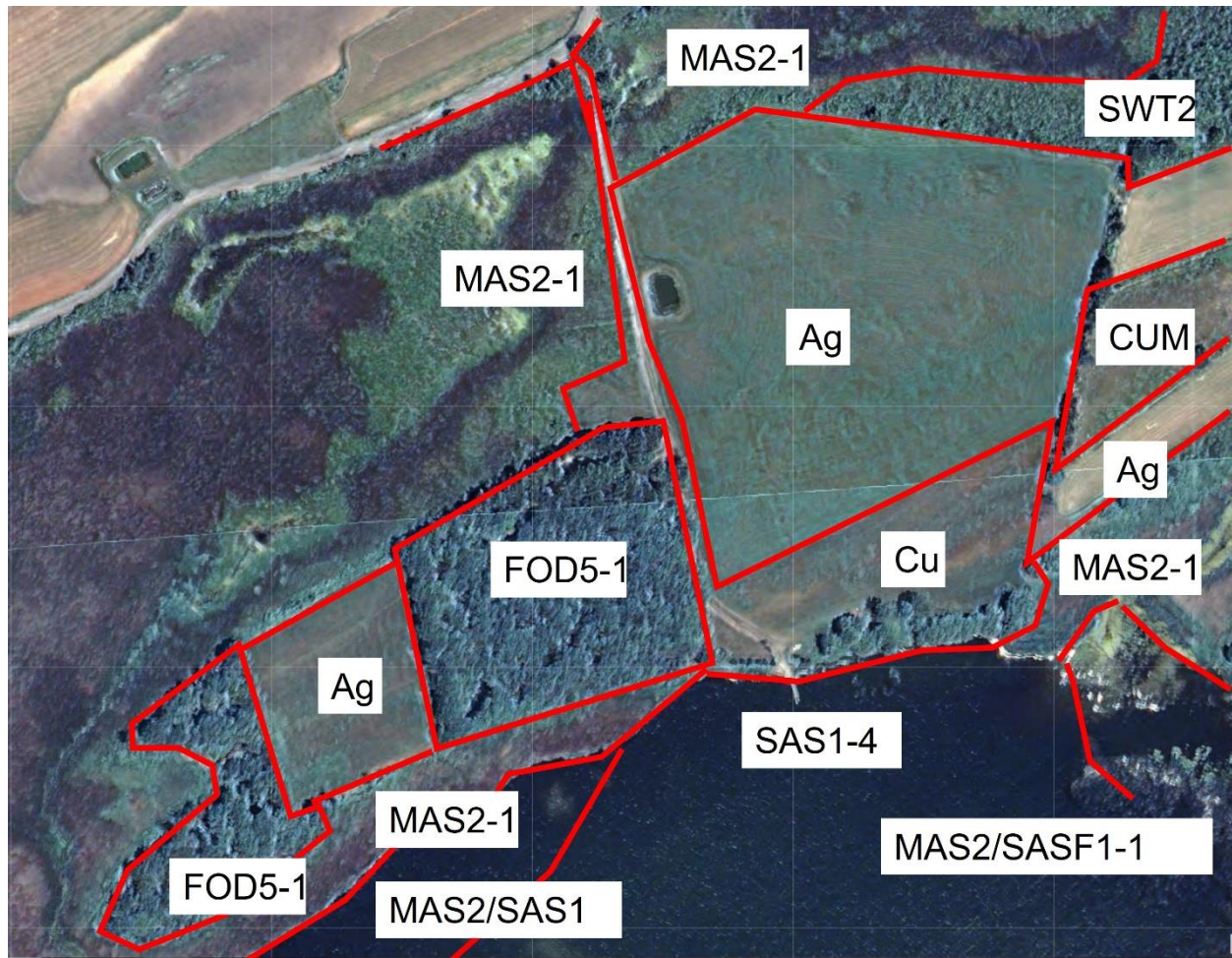


Figure 2. ELC boundaries are shown with red lines, with ELC terms in white boxes.

ELC Site Descriptions

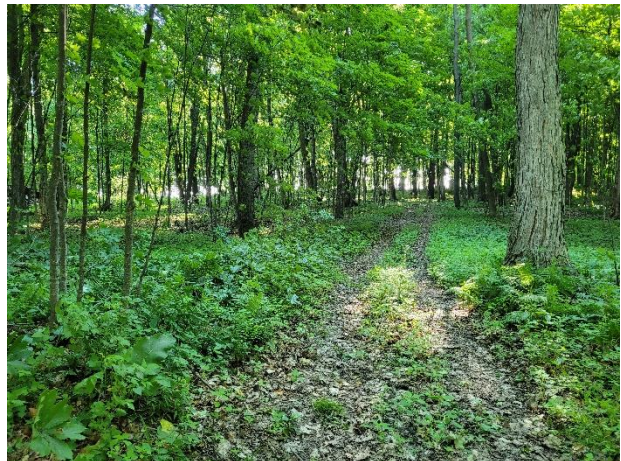
Agricultural (Ag): Refers to the two fields associated with the site. The larger Ag field is approximately 10 ha., and the smaller Ag field near the west edge of the property is approximately 2.1 ha. Some fields to the east are also managed for farm use. In 2022, all Ag fields were managed for hay and harvesting took place for the two development fields in June of 2022. The larger field has a dug farm pond, and a broken culvert prevents its connection to the wetland (i.e., MAS2-1) to the west. The pond was observed to be mostly dry on one of the site visits.

Cultural Meadow (CUM): An apparently abandoned field is located to the east of the property. It is dominated by grasses, but also contains typical meadow forbs found in the region, and red cedars are starting to invade the field. CUM sites typically have limited ecological potential and low ecological sensitivity.

Cultural (Cu): A cultural site (Cu) is one that is influenced more by cultural activities than those that define the cultural eco-types (i.e., CUW, CUT, and CUM) listed in the ELC manual. An approximate 4.5 ha portion on the waterfront has been kept mowed to near the waters edge for recreational use. It also contains several structures, presumably for recreational use. There are some trees maintained along the shoreline, which are mostly the non-native invasive Crack Willow. A narrow band (~ 1 m) of shoreline ground cover is also present and it is mostly composed of non-native species. There is also a separate mowed area (~ 0.3 ha) off the main access road. Cultural sites are considered to have low ecological sensitivity and ecological potential.



Dry Fresh Sugar Maple Deciduous Forest Type (FOD 5-1): Refers to the two woodlands on site, the larger one is about 4.5 ha. in size, the smaller one at the west end of the property is about 2.2 ha. in size. The larger woodland is bisected by two bush roads and has been used to store a variety of materials such as trailers and construction material. One of the bush roads has been graveled and is maintained in good condition. As the name implies, both sites are clearly dominated by sugar maple in the top canopy. There are about 101 large trees (i.e., > 50 cm DBH), with a few trees possibly over 200 years old, but the bulk of the stems are less than 30 years old, which is characteristics of a managed forest. Other trees present in lower numbers include basswood, bitternut hickory, black cherry, white ash, and beech. The sub-canopy and shrub layers are also dominated by younger sugar maple trees, but not in great densities. The ground cover is relatively uniform throughout, and the main representative species include sugar maple seedlings, mayapple, Virginia waterleaf, and yellow violet. The forest has a history of management activities including maple tapping, tree harvesting, recreation, and materials storage. The open nature and presence of cultural materials within the woodland gives it the appearance of an urban woodland. The smaller woodland further west is similar in structure, except it includes a notable amount of the non-native invasive European buckthorn, and it is bisected by only one road.



Mineral Thicket Swamp (SWT2): Observed shrub species include red-osier dogwood, silky dogwood, nannyberry, meadowsweet, slender willow, and European buckthorn, with no clear dominant noted. The more open patches are dominated by narrow leaved emergents such as *Carex lacustris*, *Carex aquatilis*, Canary reed grass, and *Calamagrostis canadensis*. Various ferns and herbs are also present including marsh pea, touch-me-not, and sensitive fern.



Cattail Mineral Shallow Marsh Type (MAS2-1): The bulk of the wetland adjacent to the subject lands is composed of this cattail type that is dominated by *Typha angustifolia*, a non-native invasive species that has done much to reduce coastal wetland biodiversity in Lake Ontario. Other than the above SWT2 site, most locations adjacent to the uplands of the development property uplands have a an intervening SWT2 layer ranging in width from ~7 to ~ 10 m, with the first 3 to 5 m in from the upland being upland habitat, grading into thicket swamp. Therefore, wetland boundary mapping should begin at least 3 m beyond any Ag and FOD5-1 zones.

Water Milfoil Submerged Shallow Aquatic Type (SAS1-4). Except for about a 5 m section of largely unvegetated lake bottom along the shoreline, the waters offshore contain submerged vegetation, which is also common throughout the shallow waters (i.e., < 2 m deep) of West Lake. Other common associates observed include *Vallisneria americana*, *Potamogeton crispus*, and *Elodea canadensis*. All are aggressive colonizers with impressive evolutionary strategies for establishing and maintaining their presence, which is why they are the dominant submergent species in Lake Ontario coastal wetlands. Each species has been the focus of an article in the Nuisance Plant Series presented by the Canadian Journal of Plant Sciences. Catling and Dobson (1985) covered the non-native and invasive *Potamogeton crispus*, Catling et al. (1994) covered the native and invasive *Vallisneria americana*, Spicer and Catling (1988) covered the native and invasive *Elodea canadensis*, and Aiken et al. (1979) covered non-native and invasive *Myriophyllum spicatum*. Their nuisance categorization, and indeed black listing in some countries, does not discount the fact that they have ecological value, but it does highlight their robust nature and ability to withstand impacts.

Mineral Shallow Marsh Ecosite (MAS2)/Submerged Shallow Aquatic Ecosite (SAS1): It was not possible to tease out separate communities at this site. The MAS2 type contained emergent species such *Scirpus pungens* and *Schoenoplectus tabernaemontani*, and the SAS1 community was like the previously discussed SAS1-4 community, except it contained a greater diversity of submergent species, including several Potamogetons. This site has good fish habitat features.

Mineral Shallow Marsh Ecosite (MAS2)/Water Lily Bullhead Lily Floating Leaved Shallow Aquatic Type (SAF1-1): It was not possible to tease out separate communities at this site. The MAS2 type contained emergent species such *Scirpus pungens* and *Schoenoplectus tabernaemontani*. The SAF1-1 wetland contained both water lily species, and similar to the previously discussed mixed community it contained a greater diversity of submergent species than the nearby SAS1-4 community, including several Potamogeton sp. This site has good fish habitat features.

7. Assessment of Natural Features

7.0 Threatened or Endangered Species

The following Species at Risk (SAR) were considered during the field work because of their potential to be on or near the site. The listing below was based on site screening undertaken using the MNRF (2018) and MECP (2019) screening protocols. Species discussed are provided in alphabetical order.

American Ginseng (Endangered): An inhabitant of mature woodlands, normally found on south facing slopes in association with maidenhair fern and butternuts. These features are not present on the subject lands and were not observed in the adjacent woodlands. They are included in this list as they are noted as present by Henson and Brodbribb (2005) for Site District 6E-13. However, the screening efforts could find no evidence of them being within 5 km of the subject lands.

Bat SAR (Endangered): Four Ontario bat species were added to the Ontario SAR Act because of the impact of White Nose Syndrome and not from habitat loss, as these species were not habitat limited prior to the fungus appearing in the province. Within several years this fungus has been able to decimate population numbers because it attacks bats when they hibernate, and since SAR Bats congregate in large numbers in a limited number of hibernation sites, the fungus has the potential to spread through these congregations and wipe out whole populations. There are no SAR bat hibernation sites on the property.

The bat survey methodology was based on MECP (2022), which notes that quality bat habitat that would require acoustic monitoring would contain 10 or more snag trees per hectare, and for the larger woodland on site, this would be up to 45 snags. We measured 3 good quality snags, and several cavity trees, which is well below the 45 snag threshold recommended for acoustic monitoring. It should be noted that the woodland has a history of management use, and older dying trees have been removed, and therefore not given the opportunity to develop into snags.

Despite the low snag presence, we took a cautionary approach and undertook acoustic monitoring in the form of exit surveys using the Wildlife Acoustics Echo Meter Touch 2 Pro on June 2, focusing on the 3 snags (see Table 4, Section 9). In our experience, numerous bat passes are picked up by the monitor at dusk if a snag is an active roost site. The snags did not elicit evidence of roost use for bats, SAR or otherwise. We also set up an acoustic monitor for 10 nights (Wildlife Acoustics SM4Bat FS Ultrasonic Recorder) in June and ten nights in July. A single pass by one Little Brown Myotis and one Tri-colored Bat was recorded well after dusk. This timing is important, as passes picked up at dusk can suggest roost use, and in our experience, roost use per night should result in up to 50 passes per night. The single pass over 20 nights of monitoring suggests a transient foraging flight. Bats will fly up to 3 km from a roost area on foraging flights (see Environment and Climate Change Canada (2018)). Furthermore, the 3:48 AM recording of the Little Brown pass and the 0:31 pass of the Tri-colored pass suggests a bat flying in from a distance, as roosting pass bat activity normally commences around 9:30 PM. Consequently, it is our opinion that SAR bats were not roosting in the woodland in 2022 and the lack of snags does not suggest high quality bat potential. Although there was no evidence of SAR bat roost use of the woodlands on site, there is always the possibility that the woodlands might be exploited for summer maternity roost use in the future, as bats will change roost sites within and between seasons, and will also use multiple roost sites

within a season. However, if this does happen, it is our opinion that camp activity would not hinder bat use of the woodland, or be a violation of the ESA for the following reasons:

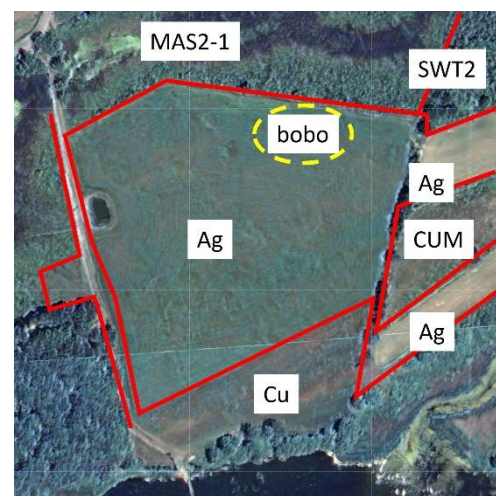
1. SAR bat species are not habitat limited.
2. SAR bats are flexible in roost use, changing roosting areas between seasons and within seasons.
3. All bat species are tolerant of nearby human activity as they will roost in buildings, and we consistently get high bat number recordings in urban areas.
4. Bats are only active at night, when most human activity has ended, and therefore the risks of negative bat/human interactions are low.
5. Most of the forest will remain intact and there is an intention to maintain all large old trees within the woodland.

Recommendation

- If there is a need to remove trees greater than 25 cm DBH (measurement assigned by MECP 2022) during the nest/roost season of April 1 to Sept. 30, then the removal of the tree is only recommended if it can be shown that it not be an active roost tree as determined by an exit survey. Otherwise, there should be no tree clearing of trees greater than 25 cm DBH during the nest/roost season of April 1 to Sept. 30.
- In our opinion, the initiation of the IGF process with MECP for SAR bats will not be necessary due to the low number of SAR bats picked up during acoustic monitoring, bats tolerance of nearby human activity, the relative lack of snag trees within the woodland, and the large number of >50 cm DBH trees that will remain intact. However, if the construction of the any structure requires the removal of trees with greater than 25 cm DBH that exhibit Decay Classes 1 to 3, or contain visible cavities, then the IGF process is recommended.

Bobolink (Threatened): The smaller isolated field on the west side of the property is too small to constitute good Bobolink habitat (see MNR 2019) and none were observed here during surveys. The larger field on the east side of the property were found to have up to 4 active Bobolink nests near the north end of the field. To avoid disturbing the nests, we are unable to say how many nests were present or their exact location, but all nesting behavior occurred in the yellow dashed circled area of the adjacent image.

Field use has varied for different agricultural outcomes including cash crops, but they were in hay in 2022. In 2022, there was an approximate 2-week delay in the hay harvest due to issues that are not related to this property and at least some of the young had fledged by the time harvesting took place. There may have been some nest mortality as a result of the harvest, but farming activity is given an exemption from the Endangered Species Act in



regard to Bobolink, even though hay harvesting can cause mortality as it normally occurs before the young have left the nest. Specifically from Regulation 242/08:

Subsection 10 (1) of the Act does not apply to a person who damages or destroys the habitat of a bobolink or an eastern meadowlark while carrying out an agricultural operation if the area of habitat damaged or destroyed remains suitable for an agricultural operation. O. Reg. 197/11, s. 2 (1) ; O. Reg. 65/12, s. 2 (3).

Regulation 242/08 can apply to the camp if farming activity here ceases, but it is our understanding that farm use of this field will continue until such time the field is converted to another use.

There is a proposal for a possible garden, greenhouse, and a therapeutic animal feature in the heart of the Bobolink habitat observed in 2022. If and when these plans are intended to proceed, the area will need to be assessed for Bobolink use.



There is a proposal for a stormwater pond (precise location to be determined) and various roads, parking, and camp buildings (i.e., sports, staff residence) that will be in proximity to the Bobolink nest concentration area. The MNR General Habitat Description for Bobolink describes three protection zones around the nest area as follows regarding development activities:

- Category 1. Nest and the area within 10 m of the nest. The stormwater pond, roads, parking, and camp buildings (i.e., sports, staff residence) will not be in Category 1 habitat. The garden feature, greenhouse, and animal therapeutic structure will be in Category 1 habitat.
- Category 2. The area between 10 m and 60 m of the nest or centre of approximated defended territory. The stormwater pond, roads, parking, and camp buildings (i.e., sports, staff residence) will not be in Category 2 habitat. The garden feature, greenhouse, and animal therapeutic structure will be in Category 2 habitat.
- Category 3. The area of continuous suitable habitat between 60 m and 300 m of the nest or approximated centre of defended territory. The garden feature, greenhouse, and animal therapeutic structure will be in Category 3 habitat. The stormwater pond, roads, parking, and camp buildings (i.e., sports, staff residence) will be in Category 3 habitat, with the closest distance being about 160 m for the parking area.

The approximate north and south parts of the property are separated by a high point of land. The adjacent image is taken from near the lake, facing north towards the middle high point of land. This means that Bobolink activity in 2022 would be out of site of the summer recreational activities that took place on the south side of the property. This topographic feature helps minimize impacts to Bobolink, and it is our understanding that the sports structure and staff residences will be built on the south facing slopes towards the lake and out of site of the Bobolink core area. The access road appears to be on the peak of the hill, and some parking occurs on the north side of the property.



Recommendation

- It is recommended that Bobolink surveys continue on the property to get a better understanding of Bobolink use here. The fields will continue to be farmed until such time that there is a need for conversion to camp use.
- Prior to any proposed site alteration within 300 m of the observed Bobolink nest area that was observed in 2022, it is recommended that the MECP be made aware of potential development plans through the IGF process. Related details can be found with Ontario Regulation 830/21.

Blanding's Turtle (Threatened): We applied the MNRF (2015b) survey protocol to the subject lands. One juvenile Blanding's Turtle was observed on the road near the road entrance bridge in late August. This wouldn't be a nesting turtle as it is outside of the nesting season and it was a juvenile aged turtle (see image below) and therefore too young to be nesting. We can't discount that Blanding's nesting never occurs on the side of the access road as it does for Snapping Turtles, but no nests were confirmed on the road via depredated nest eggs, nor was active nesting observed after completing more than the required number of survey visits as per MNRF (2015c).

Snapping Turtles were observed near the road entrance. Snapping Turtle depredated nests observed on edge of the access road near the entrance, on the edge of the access road near the dug farm pond, and in a pile of deposited sand on the edge of West Lake.

By their observed presence, we must consider four key life cycle features of the Blanding's Turtle as follows:

1. Hibernation: Hibernation areas must have water that is deep enough to not freeze to the bottom in winter, and ideally would have some ice-free areas or currents to enhance oxygenation. The water body northeast of the development property (see adjacent photo) might support overwintering and West Lake would support overwintering. If there is no direct intrusion into these areas by development activities in winter, then there should be no concerns for hibernation impacts. It is not known whether the dug farm pond is used for hibernation purposes, but please see discussions regarding the pond in Section 7.6



2. Feeding: Similar arguments for hibernation apply for feeding locations and lack of a feeding impact concern (i.e., no intrusion). It is not known whether the dug farm pond is used for hibernation purposes, but please see details regarding the pond in Section 7.6.
3. Basking: Blanding's Turtles prefer to bask near their feeding areas, and basking features (e.g., floating logs) are lacking in nearby areas of West Lake and the watercourse in the above image. We saw no evidence of basking in proximity to the roads or along the lake edge and have no concerns in this regard.
4. Nesting: In Prince Edward County, mortality through nest predation (e.g., by raccoons) and by vehicle impacts when turtles travel to nest and feeding sites is likely the biggest threat to this species. We observed a small (i.e., too young to be nesting) Blanding's Turtle traveling on the access road near the road entrance but could not confirm nesting by Blanding's Turtles on the property.



The MNR General Habitat Description for Blanding's Turtles describes three protection zones regarding development activities:

1. Category 1: Nest and the area within 30 m, or overwintering sites and the area within 30 m.
2. Category 2: The wetland complex (i.e. all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies
3. Category 3: Area between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence

It is our opinion that the proposed development will be similar in potential impact to the status quo, in that it will not involve a direct intrusion into core habitat (i.e., the wetland). The main concern is a greater risk of vehicle strikes on the main access road, due to an anticipated greater traffic use on the access road.

It is recommended that an IGF form process be instituted with the MECP as it relates to potential Blanding's Turtle risks associated with the road and the removal of the dug farm pond. A possible outcome of that process will be the requirement to build turtle exclusion fencing along the edge of the road, the possible creation of turtle nesting structures that have access to the wetland, and the possible construction of a new dug pond to replace the existing dug pond.

Butternut (Endangered): None observed.

Eastern Meadowlark (Threatened): Eastern Meadowlark are known to exist in hayfields and meadows within Prince Edward County, but none were observed on the subject lands.

Eastern Pond Mussel (Endangered): At one time, this was one of the most common mussel species in Ontario. Its significant decline has been caused by Zebra Mussels, and not development pressure. According to the provincial Species at Risk data base there are only two known populations in the province, one in Lake St. Clair and the one in Lyn Creek, a St. Lawrence River tributary. None were observed in the waters offshore.

Eastern Sand Darter (Endangered): The provincial status sheet information only has it as being found in water bodies associated with Lake Erie. It is also not listed as being here by the Department of Fisheries and Oceans. This fish is typically found in lakes, streams, and rivers with clean sandy bottoms, which if present, would primarily be associated with the Sandbanks Provincial Park shoreline. The northeast side of Garratt Island facing Wellington is a wave washed rock rubble shoreline and does not provide appropriate Eastern Sand Darter habitat features. The southwest side of the island facing Wesley Acres is first bordered by cattails, which would also not provide habitat for this species. Beyond the cattails is narrow leaved emergent, submergent, and floating leaved wetland vegetation types, over a sand bottom. This is not typical ideal habitat due to the density of the wetland vegetation, and if it was found in West Lake, the ideal location would be on the north shore of Sandbanks Provincial Park. and lacks appropriate habitat. However, from the various government sources, this fish is no longer present in West Lake, and due to a lack of appropriate habitat around Garratt Island, it is our opinion that this fish would not be at risk from any Camp Trillium upgrade.

Eastern Whip-poor-will (Threatened): None observed during evening surveys (see Table 6, Section 9 of this report).

Least Bittern (Threatened): This is a wetland obligate species and was reported for the West Lake and the West Lake PSW in eBird in 2014, 2016, 2017, 2018, and 2022. Consequently, we put a concerted effort in searching for them in the wetland areas associated with the subject lands and none were seen or heard calling in all wetlands that are in proximity to the property. Most of the directly abutting wetlands to the north and west have low Least Bittern habitat quality due to the density of the wetland vegetation and lack of open water expanses. Potential areas would be the emergent wetland plant edges that face West Lake and the open water area about 50 m east of the property road entrance.

We have no concerns with impacts to Least Bittern as there will be no intrusion into their habitat, the separation distances, the intervening vegetated buffers, and eBird evidence that they are an urban tolerant species.

Loggerhead Shrike (Endangered): A bird of open alvar like habitat, which is not present on or adjacent to the subject lands. None were observed on site.

Pugnose Shiner (Threatened): DFO has identified West Lake as critical Pugnose Shiner habitat as based on 2009 and 2010 DFO targeted electrofishing study in the bay. The full black squares in the adjacent image represent areas where Pugnose Shiner were caught. The black outlined squares in the adjacent image represent sampling locations where Pugnose Shiner were not caught, and this includes offshore of the proposed camp development area. This is not surprising due to the nature of the shoreline, the type of aquatic vegetation growing here, and the observed turbidity, as Pugnose Shiner are averse to turbid water (see McCusker et al. (2014), Gray et al. (2014 and 2016), Holm and Mandrak (2002), and COSEWIC (2013)).



Areas where Pugnose Shiner were caught were ~450 m and ~630 m from the potential development shorelines. Similar to these two areas, most of the locations where Pugnose Shiner were caught in West Lake share similar habitat features in that they have emergent (eg., burreed), submergent (e.g., milfoil, wild celery, and pondweeds, and waterweed) and floating leaved vegetation (white/yellow water lily), and these Pugnose Shiner plant associations are also noted in DFO (2012). The closest locations with these habitat features are about 140 m from development shorelines, and it is conceivable that Pugnose Shiner could be inhabiting these areas within 140 m of the proposed camp shoreline, which is well outside any direct impact area in our opinion, especially with the significant intervening buffering provided by shoreline cattails.

We would not anticipate Pugnose Shiners using the open waters directly offshore of the proposed development area (currently used for recreational purposes). The water was often observed to be turbid during the site visits, and sediment coatings were noted on the submergent macrophytes. DFO (2012) discusses the aversion to turbid waters by the Pugnose Shiner, and how they have benefited from the improvement in water clarity caused by zebra mussels. Indeed, it is interesting to note that the increased catches of Pugnose Shiners in this region by DFO coincides with noted improvements in water clarity caused by *Dreissena* sp. (eg., zebra mussel). However, this is not a permanent alteration as populations of *Dreissena* can decline after an initial peak due to density dependent factors and the effects of predation (Karatayev et al. 2015). Mute Swans, which were observed to regularly use the waters directly offshore of the camp also consume zebra mussels (Włodarczyk and Janiszewski 2014), but this non-native waterfowl is also harmful to Pugnose Shiners in other ways. Their feeding behavior damages macrophyte beds (Gauet et al. 2011) that Pugnose Shiners might otherwise use, and their feeding style decrease sediment stability and alter microbial processes by mobilizing sediments that results in decreased turbidity (Travis and Kiviat 2017).

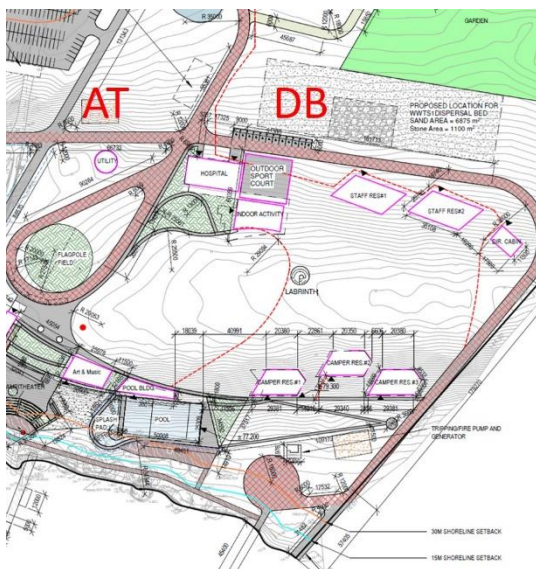
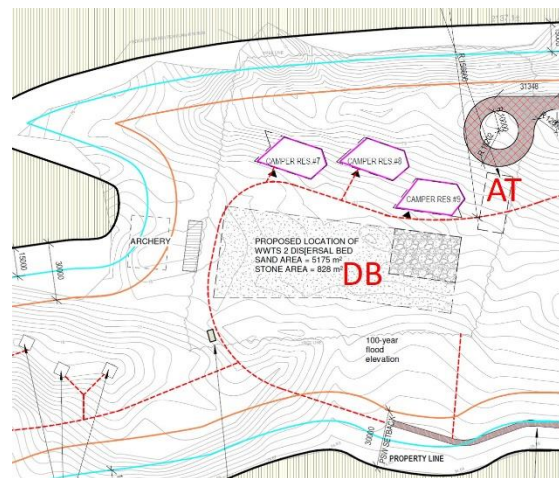
We would also not anticipate Pugnose Shiners using the open water area offshore due to the impact of waves that result from the long fetch that ends at this shoreline. Pugnose Shiners are not strong swimmers and will avoid areas impacted by waves.

We would also not anticipate Pugnose Shiners using the open water area offshore as the density of submergent vegetation is negligible at the shoreline, but increasing with distance from shore. In contrast, Pugnose Shiners inhabit areas with greater aquatic plant diversity and density as a means of predator avoidance.

The highest risks to Pugnose Shiner in the province were listed by DFO (2012) as sediment and nutrient loading, with in-water modifications such as aquatic vegetation removal as medium threats.

The two older existing septic systems located within 30 m of the lake will be removed and this is seen as a positive benefit. It is our understanding that two locations for a communal septic system for the entire camp are being considered.

One will service all buildings west of the main fields, which includes 6 residences and a Flex building. It will be located in the smaller west field and will include an advanced treatment (AT) system that will be about 115 m to the lake and a dispersal bed (DB) that will be about 75 m to the lake.



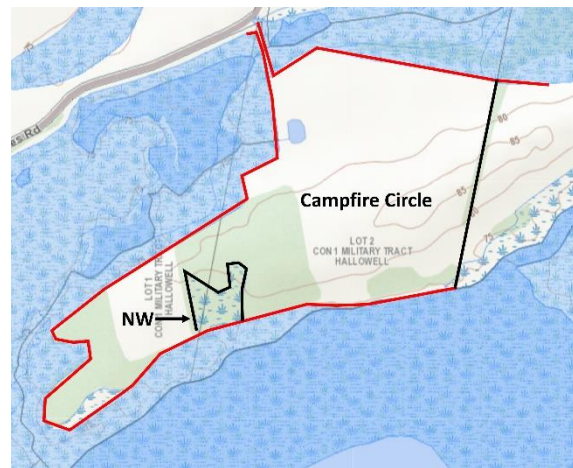
The DB and AT for the eastern part of the development will be about 305 m to the lake. Its location on the backslope should push drainage from this system to the north, and away from the lake.

We defer to Jewell Engineering to provide the appropriate documentation to reassure the relevant agencies that sediment and nutrient loading from the functioning camp will be within acceptable limits. We also recommend that appropriate stormwater controls be put in place next to the lake during the construction phase of the project following similar guidance as provided by TRCA (2019).

At this time, we are not aware of the any proposed in-water work, but note that there are potential restrictions for in-water development in fish habitat, aquatic SAR habitat, and PSW at both the federal, provincial and municipal level. Further consultation for any planned docks will likely be required.

7.1 Provincially Significant Wetland (PSW)

The Campfire Circle property is surrounded on three sides by the West Lake PSW, as marked out by the red line in the adjacent NHIC make-a-map detail. The NHIC mapping also suggests possible unevaluated wetland within one of the Campfire Circle woodlands (see NW in adjacent image). It was determined during the field work that the NW area is not wetland, and this was discussed with MNR during the new boundary delineation for the ANSI.



The West Lake PSW was evaluated by Beaudette and Mohr (1984), who calculated its size at 706 ha. They evaluated the wetland using the 2nd edition of the wetland manual and the wetland earned significance largely on the strength of its large size and its Special Features. A large wetland generates more points for the biological component and the maximum score of the Special Features component was due to the presence of several provincial significant species. However, since that time, most of the significant species mentioned in the evaluation such as Black Tern, Marsh Wren, Northern Harrier, and Arrow Arum are no longer considered of any significance for rare species scoring purposes, and on this basis, the wetland would score fewer points. However, under the current 4th ed. of the manual (MNR 2022), the wetland would garner 75 points for being a coastal wetland, which would partially make up for the lost points.

We note that it has been 38 years since the wetland was evaluated and it does need an upgrade to match with the evaluation standards of the 4th edition of the manual. Updated mapping is also warranted, and especially the vegetation community mapping.

Beaudette and Mohr (1984) determined that the wetland abutting the north, west, and south portions of the subject property was a cattail dominated marsh and that is still the case today. One notable change from the 1984 wetland community mapping, is that the cattail zones (i.e., *Typha angustifolia*) have expanded into the open water areas that were north of the subject property. There is a well documented history of *Typha angustifolia* invasion into the St. Lawrence (e.g., Farrell et al., (2010), Rippke et al. (2010)) and Lake Ontario (Vaccaro et al. 2009), where all authors consider it an invasive species. This is also the view in numerous other research papers. (e.g., Hood (2013), Hager (2003), Jarchow and Bradley (2009), Houlahan and Findlay (2004), Grace and Harrison (1986), and Shih and Finkelstein (2008)). *Typha angustifolia* was covered in the nuisance plant series published by the Canadian Journal of Plant Sciences in Grace and Harrison (1986) who report the extensive spread of *T. angustifolia* across southern Canada within the last 70 years and a similar increase in the *T. latifolia/angustifolia* hybrid known as *T. glauca*, which was also observed in the abutting marsh.

It is the view of Stuckey and Salamon (1987) that *T. angustifolia* was introduced from Europe in the early 19th century, and pollen and herbarium records show that it has had a significant spread across eastern North America since the mid to late 20th century, which would coincide with major disruptions to wetland systems at that time. The adjacent 1954 image shows a much greater expanse of open-water wetland and more valuable wetland interspersions, compared to what exists today, especially to the northwest of the subject lands. In 1954, the wetland structure of this northwest area would have provided greater biodiversity. Since that time it has become heavily infested with *T. angustifolia*. One reason for the spread of this species is its tolerance to poor water quality, such as caused by the many years of farm and road runoff that this wetland has experienced. A notable result of the *T. angustifolia* invasion has been a significant reduction in the biodiversity of coastal marshes, including the West Lake PSW. There have been numerous wetland restoration projects undertaken in Prince Edward County coastal wetlands in the last 20 years, with the most recent occurring in Hay Bay Marsh in 2021. A focus of these restoration projects is to enhance wetland biodiversity by dredging out areas of dense *T. angustifolia* growth, a process known as interspersions dredging (Schummer et al. 2012).



The open water areas of the wetland south of the property were determined by Beaudette and Mohr (1984) to be dominated by *Myriophyllum spicatum*, *Elodea canadensis*, *Potamogeton crispus*, and *Vallisneria americana*, and all these species were observed here in 2022. All are aggressive colonizers with impressive evolutionary strategies for establishing and maintaining their presence, which is why they are the dominant submergent species in Lake Ontario coastal wetlands. Each species has been the focus of an article in the Nuisance Plant Series presented by the Canadian Journal of Plant Sciences. Catling and Dobson (1985) covered the non-native and invasive *Potamogeton crispus*, Catling et al. (1994) covered the native and invasive *Vallisneria americana*, Spicer and Catling (1988) covered the native and invasive *Elodea canadensis*, and Aiken et al. (1979) covered non-native and invasive *Myriophyllum spicatum*. Their nuisance categorization, and indeed black listing in some countries, does not discount the fact that they have ecological value, but it does highlight their robust nature and ability to withstand impacts.

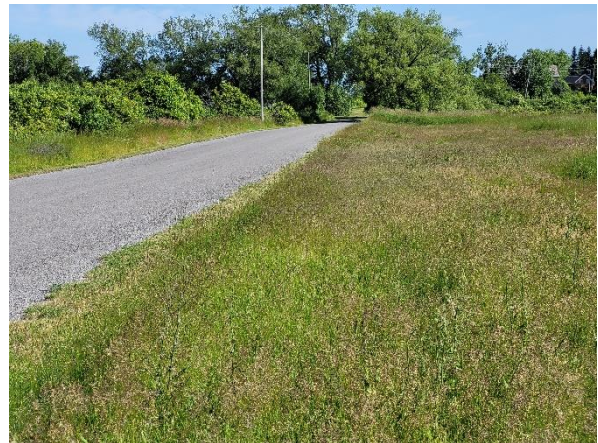
The submergent plants described above do provide habitat features/functions for a variety of species. However, our reason for discussing their invasiveness, is to highlight their robust nature, lack of ecological sensitivity, and relative impermeability to adjacent development impacts. From an ecological perspective, the dominant wetland species that are adjacent to the subject property can thrive with less than 30 m setbacks.

We note that the proposed parking lot is proposed to be located closer than 30 m to the PSW. We defer to QCA and Jewell Engineering to discuss this proximity with respect to the natural hazard regulations of this proximity.

From a natural heritage perspective, we note that the parking lot is proposed to replace the existing access roadway (red line in adjacent image), farm field, mowed lawn, and a dug farm pond.

The removal of the dug farm pond, which is not considered part of the PSW, is discussed in more detail in Section 7.6.

We have no concerns with negative impacts to the PSW for that portion of the proposed parking area that will replace the existing roadway/farm field as long as this portion of the parking area does not extend further west than the current road footprint, and natural hazard issues with QCA can be resolved.



From a habitat perspective, the mowed lawn area (see adjacent image) has limited natural heritage value and is therefore a reasonable location for a future parking lot. The mowed lawn area is not part of a wetland riparian area and there would be minimal ecological species interaction between the lawn area and the wetland. The lawn is separated from the wetland by a dense band of upland species (primarily shrubs), averaging about 10 m in width. This grades into a narrow band of wetland shrubs and then into the emergent marsh vegetation. The closest open water area will be about 65 m to the parking lot. As long as the parking area does not intrude beyond the mowed lawn area, and as long as natural hazard issues with QCA can be resolved, we have no concerns about a negative impact to the PSW from the parking area being located within the mowed lawn.



Potential parking lot features that may stem from those natural hazard conversations with QCA will likely be those associated with stormwater issues. We defer to Jewell Engineering in this regard, but would assume parking lot features such as its porosity and the use of berms, would be under consideration.

7.2 Area of Natural and Scientific Interest (ANSI)

We developed and produced the ANSI recommendation document (see Ecological Services 2001) that was used (along with other reports) by the MNR (MNRF title in 2001) to subsequently map and recognize ANSIs in Site District 6E-15 that includes Prince Edward County and a narrow strip of land from the County to Kingston along Lake Ontario. The historical planning context for this work is somewhat relevant. Prior to that time, the MNR had a larger role in resource planning, and the work by Ecological Services (2001) was “*primarily for this Ministry’s planning purposes*” in support the MNR District Land Use Guidelines. Although the inclusion of ANSI’s for planning purposes in the County occurred after 2001, a shift in planning responsibilities from the province to municipalities was signaled with the nascent 1997 PPS. However, it was not until the 2005 PPS, and the accompanying 2005 Natural Heritage Reference Manual, that municipal planning responsibility started to become well established.

From Ecological Services (2001) it was recommended that the Bloomfield Creek Wetland ANSI be considered for regional ANSI status. From that point, it was up to the MNR, and later the MNRF to officially recognize the Bloomfield Creek Wetland ANSI. It is our understanding that official recognition occurred many years after 2001. We contacted the MNRF, as well as Todd Norris (MNRF retired biologist, who initiated the 2001 work) to try to determine a precise date but were unable to find it. However, from a July 7, 2022 email from Catherine Warren (MNRF Planner, Peterborough) we were informed that the province did recognize it as a regional ANSI.

The methodology section for ANSI designation within Ecological Services (2001) is provided in Section 10 along with the ANSI justification analysis for the Bloomfield Creek Wetland ANSI and site photos of the woodlands that we are recommending for removal from the ANSI mapping. The efforts by Ecological Services (2001) were built on the work of many field biologists who had been undertaking studies in the County since the late 1960’s, with the work by Macdonald (1987) being of particular importance. Limited field work was conducted for Ecological Services (2001), and our task was largely intended to validate the work by Macdonald (1987). The conclusion from Macdonald (1987) for the Bloomfield Creek **Wetland** (our emphasis on wetland) is as follows:

The site’s significance lies in its excellent and very diverse portrayal of representative coastal wetland natural features, which includes marsh, thicket, and aquatic complexes, and riparian features. As well it includes several regionally and provincially significant plant and animal species. It is classified as a Class 2 Wetland by the Ontario Wetland Evaluation for the district. It is recommended for designation as a Regionally Significant ANSI.

As previously stated, our work (Ecological Services 2001) was built on the work by Macdonald (1987) and our main summary points for this ANSI were similar, and are as follows:

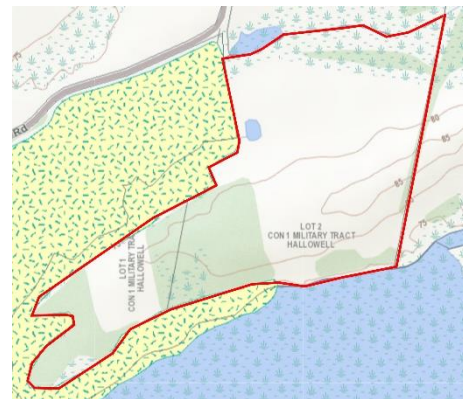
1. The site’s significance lies in its large size, importance as fish habitat, and portrayal of representative coastal wetland natural features, which include aquatic, marsh, thicket, and riparian features. However, these features are shared with the numerous coastal wetlands in the site district, and so this site should not necessarily be singled out for ANSI designation. However, it is probably the best example of a wetland on an inland coastal lake (West Lake), and so it is recommended for designation as a Regionally Significant ANSI.

Note: The key point here is the emphasis on aquatic and wetland features (i.e., **not upland**), but also on associated riparian features. At the proposed camp site, this riparian area is confined to the 3 to 5 m ecotone adjacent to the cattail zones.

2. *The wetland evaluation for the site is dated (1984) and was based on a minimal amount of field work. It is recommended that a 3rd wetland evaluation be conducted in order to update the wetland file and species lists.*

Note: This recommendation was made because the limited field work meant wetland boundaries could be in error. This is particularly important, and it is our understanding that further wetland boundary efforts have not been undertaken.

ANSI Boundary Change: In 2022, we initiated the PAM 2.08 process with the MNRF for ANSI boundary changes in order to remove the two FOD5-1 woodlands from the ANSI mapping as they do not contain wetland habitat. These changes were accepted by the MNRF, and subsequent re-mapping by the NHIC now shows the two woodlots on the property to be no longer part of the ANSI, which is marked in yellow with blue stipules. The Circle property is outlined in red.



From the perspective of adjacent impacts as they pertain to the ANSI we noted that ANSI significance stems from 5 criteria, and these were applied to the ANSI in Ecological Services (2001) and provided in Section 10 of this report. These 5 criteria are discussed below in regard to impact potential:

1. **Representation:** The Bloomfield Creek Wetland ANSI was recognized as the best example of a wetland on an inland coastal lake. It was also recognized for its many wetland features and small mesic drumlins. Any impact that would reduce the wetlands consideration as the “best example” or remove wetland features could be a negative impact. As previously discussed, the immediately adjacent areas of wetland are comprised of robust wetland species, many of them invasive, that would be tolerant of the kind of impacts inherent in the camp operation. In our opinion, the camp will not alter the Representation aspect of the ANSI designation.

2. **Condition:** A habitat in good condition, with little in the way of impacts, enhances its potential as an ANSI. In this regard, the ANSI was not well received in the 2001 assessment, primarily due to farming related activity that has pushed nutrients into the wetland and helped the spread of the invasive species that dominate the wetland. The reduction in farmland resulting from the development, and the regulated sewage systems, along with stormwater best management practices, should help reduce nutrient impacts to the wetland.

3. **Diversity:** The overall wetland biodiversity was recognized in 2001 primarily because it contains many different marsh and swamp vegetation communities. However, biodiversity in the ANSI has continued to be in decline since 2001 due to the spread of invasive wetland species

and the portions of ANSI wetland adjacent to the development are dominated by invasive species. As such, a reduction in biodiversity is not expected as it is already low.

4. Ecological Considerations: Similar to biodiversity, the ANSI is recognized for this feature primarily because it is so large (i.e., 980 ha.) and the proposed camp will not cause a reduction in the size of the ANSI.

5. Special Features: This refers to known significant features, such as the associated West Lake PSW. It also refers to S1, S2, S3, and Special Concern species, as well as SAR species. It is noteworthy that several of the Special Features recounted in Ecological Services (2001) are no longer considered as such by the province. Wetland SAR species are discussed in Section 7.0, and if recommendations are followed, there should be Special Features impacts.

7.3 Fish Habitat

West Lake has a surface area of approximately 1534 hectares, with a maximum depth of 7.6 m, and an average depth of 2.7 m. It is a warm water system, and this is reflected in its fish assemblages, which also reflect its connection to Lake Ontario via a channel near the town of Wellington. Common species known to have occurred in West Lake include Black Crappie, Bluegill, Bowfin, Brown Bullhead, Cisco, Common Carp, Freshwater Drum, Largemouth Bass, Northern Pike, Pumpkinseed, Rainbow Smelt, Rock Bass, Smallmouth Bass, Walleye, White Bass, White Crappie, White Perch, White Sucker, and Yellow Perch

As the waters offshore are part of West Lake, they contain fish habitat. The lakeside development features of the concept plan are provided in Figure 3.

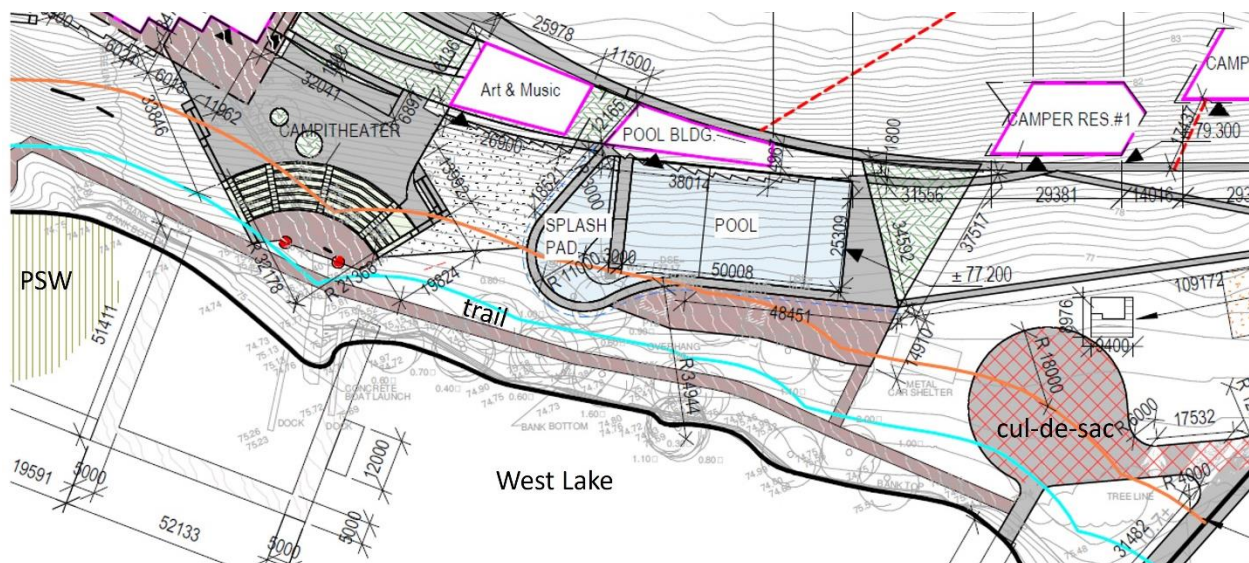


Figure 3. The campitheater, splash pad/pool deck, cul-de-sac, and waterfront trail in the context of West Lake. The light blue line represents the 15 m setback line, and the orange line represents the 30 m setback line. Image details taken from drawing A011 provided by Campfire Circle.

As can be seen in Figure 3, there are four structures proposed to be within 30 m of the lake. These are:

- **Campitheater.** Proposed to be within 30 m to the lake, but more than 15 m from the lake, and be built into an existing slope in order to create the ampitheatre. The proposed location is currently occupied by mowed lawn and a gravel roadway. At this point in time, we do not have details on the design and specific materials that will be used in its construction, and note that this can be relevant with respect to possible impacts to adjacent fish habitat. The status quo does not have significance as wildlife habitat, nor does it contribute to fish habitat. As such, the concern raised from its < 30 m proximity would be related to stormwater related impacts. We are aware that there are different possible amphitheatre designs in use, with some having a potentially greater risk of stormwater impact than others. However, as this is a natural hazards issue, we defer to Jewell Engineering provide the necessary reassurance that the Campitheater will not cause stormwater impacts to the adjacent fish habitat in West Lake.



- **Swimming Pool.** A splash pad and pool deck will be within 30 m to the lake, but more than 15 m from the lake. The proposed location is currently occupied by mowed lawn, and several permanent and temporary structures all within 30 m of the lake (see adjacent). These structures will be removed as well as the two associated septic systems, one of which is not working properly (see Gruescu 2022), and this is seen as a positive outcome. As per similar arguments for the campitheater, the area in around the proposed swimming pool does not contribute to fish habitat and has no associated natural heritage significance. Design parameters may have natural hazard implications and we defer to Jewell Engineering accordingly. If there is a need to drain the swimming pool, there are potential impacts to the adjacent fish habitat that will need to be considered such as with chlorine, bromine, copper, pH, and temperature. We defer to Jewell Engineering to develop a proper protocol (e.g., draining water away from the lake) to ensure no negative impacts to the fish habitat associated with pool management.



- Cul-de-Sac. This feature is intended to provide vehicle access to the lake for canoe trip and potential dock access. It is currently occupied by mowed lawn (see adjacent). It is our understanding that it will be closer than 15 m from the lake edge, and will be composed of a material like turfstone, and therefore will eventually appear similarly vegetated as the status quo. As per similar arguments for the campitheater and swimming pool, this area does not contribute to fish habitat and has no natural heritage significance. We defer to Jewell Engineering on the viability of turfstone as being sufficient to minimize concerns for natural hazard issues.



- Boardwalk. It is our understanding that a wheelchair accessible pathway and/or boardwalk will be within 15 m of the lake. As with the previous three features, the area of this feature is currently occupied by mowed lawn, with some near shoreline trees. It does not contribute to fish habitat and has no natural heritage significance. Design parameters may have natural hazard implications and we defer to Jewell Engineering accordingly.



We defer to Jewell Engineering to design stormwater management controls for all buildings (e.g., rooftop drainage) on the south half of the field (i.e., the half that drains to the lake) to prevent natural hazard related impacts to the lake.

At this time, we are not aware of the any proposed in-water work, but note that there are potential restrictions for in-water development in fish habitat, aquatic SAR habitat, and PSW at both the federal, provincial and municipal level. Further consultation for any planned docks are recommended.

We do recommend that all trees 5 m of the lake be maintained and that this area no longer be mowed, but be converted to a naturalized shoreline via native tree and shrub plantings.

Development construction erosion mitigation is recommended for the lake edge (e.g., vehicle exclusion zones, silt fencing) and in this regard we recommend development construction engineering/planners defer to guidelines provided by TRCA (2019).

7.4 Valleyland

There are no valleylands on the subject lands or within the 120 m adjacent lands and we therefore refer to the following excerpt from Section 4.4 of the Natural Heritage Reference Manual (MNR 2010).

The need to evaluate the ecological function of adjacent lands (i.e., undertake an EIS or equivalent study) would be removed if proponents choose to avoid having development and site alteration occur within the extent of adjacent lands.

Accordingly, it is our opinion that no further analysis is warranted for valleylands.

7.5 Woodlands

There are two woodlots on the property. The smaller ~2.2 ha. woodlot is located in the extreme west of the property, separated from the larger ~4.5 ha. woodlot by a farm field. We applied the significant woodland ranking criteria of MNR (2010) to the two woodlots on the property, and the results are presented in Table 2. Significance was determined for both woodlots for the Proximity Feature, and significance for the Uncommon Characteristics Feature was determined for the larger woodlot. Development is allowed in significant woodlands, if it can be shown that the development will not cause a negative impact to those features that impart significance. This analysis is presented further down.

Criteria	Significant Threshold	Is Significance Met?
Size (based on 15-30% PE Co. forest coverage)	20 ha. (where woodland cover is between 15 and 30%)	At 2.2 and 4.5 ha., both woodlands are less than 20 ha.
Core Habitat	2 ha	There is no area of the woodlots that have more than the 200 m of treed length and/or width that would begin the measurements for core habitat
Proximity (within 30 m)	Adjacent to PSW	Yes
Linkages	Connecting two significant features	No, the woodland is a non-compatible type for linkage relevance purposes.
Water Protection	Open water within 30 m	No, intervening wetland vegetation
Woodland Diversity	- native forest species that have declined significantly south and east of the Canadian Shield - high native diversity through a combination of composition and terrain	No: The subject woodlands contain a common forest type for the region.
Uncommon Characteristics	- unique species composition or a vegetation community with a provincial ranking of S1, S2 or S3 - habitat of a rare, uncommon or restricted woodland plants	- no - no

	<ul style="list-style-type: none"> - vascular plant species for which the NHIC’s Southern Ontario Coefficient of Conservatism is 8, 9 or 10 - tree species of restricted distribution - 10 or more trees/ha at least 50 cm in diameter 	<ul style="list-style-type: none"> - no (average CC score for the woodland is 2.6) - no <p>YES - main woodland has at least 160 trees > 50 cm DBH, in good to excellent condition, which is 115 more than the significant threshold number</p>
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Proximity: Both woodlots are significant for meeting the Proximity Feature, as it relates to the adjacent PSW, which consists mostly of dense *Typha angustifolia*, a robust non-native invasive wetland species that has a high tolerance to adjacent development. There is no fish habitat in this adjacent area, except for the extreme southeast corner. The nominal setback for Proximity for significant woodland purposes is 30 m.

The three proposed woodland camper residences will be setback approximately 120 m from the south edged PSW, and about 60 m from the north edge PSW. All intervening distances are woodland, except for an intervening (i.e., existing) road on the north side. The buildings will be outside of the 30 m key Proximity distance, which will negate the possibility of a negative impact for the Proximity Feature. Given the setback distances and the existing road, it is our opinion that no construction mitigation is required for the three residences as it relates to the Proximity Feature.

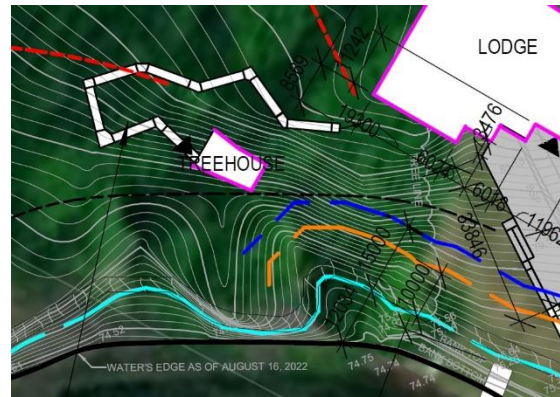


A flex residence, for temporary visitors, is proposed on the north side of the woodland access road at the location of a service road. As can be seen in the adjacent image, this location has an existing level of disturbance (i.e., road and lawn), and is on relatively flat ground. The precise location of the building has yet to be determined, but it will need to be at least 30 m from the PSW, and roof drainage will need to be directed away from the PSW, and there should be an attempt to minimize the removal of trees greater than 50 cm DBH. It is our understanding that plumbing for the Flex building will be

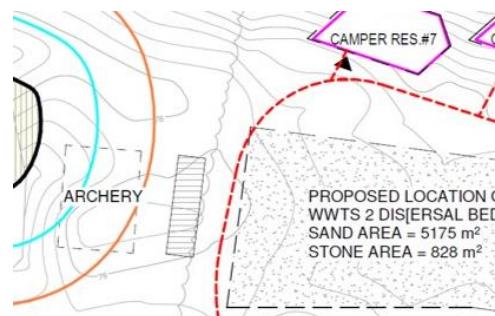


handled by a system in the field to the west and that the sewer line will follow the existing roadway.

A tree house is proposed for the southeast corner of the woodland. This will consist of a playhouse on stilts (i.e., not a house in a tree). It will not have plumbing, but will have power. It is recommended that the tree house be located at least 30 m from the PSW edge to accommodate the Proximity Feature (see black dashed line in adjacent image). The tree house is considered a benign impact, especially as it will be built on stilts above the ground. However, given its proximity to the PSW and fish habitat, it is recommended that erosion construction mitigation measures be employed (e.g., silt screens) during the construction phase. Guidelines on this subject can be obtained via TRCA (2019). The treehouse will be located on a slope, but its positioning on stilts can mitigate slope stability concerns as long as roof top drainage is dealt with appropriately. Due to the steepness of the slope, it is also recommended that no trees greater than 25 cm DBH be removed to accommodate the treehouse.

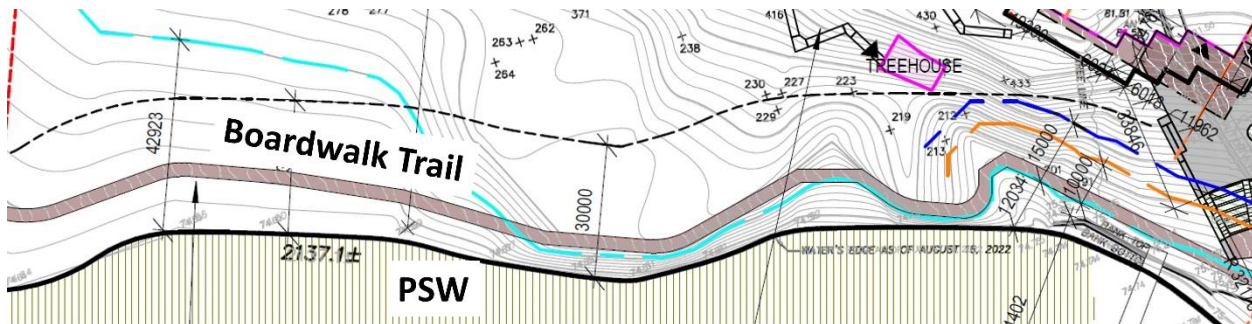


There is an archery range proposed for within the western most woodlot. We cannot support this location as it will require significant tree clearing within the 15 m (blue line) and 30 m (orange line) PSW zone. We have no issues of the archery range been within these distances, if it is moved to the adjacent field.



There is a wheelchair appropriate boardwalk proposed to be within 30 m of the PSW and the lake. It will be perched above the ground, and by necessity will need to be constructed to avoid steep grades within the boardwalk itself. Due to the density of the edge vegetation next to the PSW, and the nature of the dense cattails within the PSW, we have no concerns about sight and sound impacts. It is recommended that no tree greater than 25 cm DBH be removed to accommodate the boardwalk, and that erosion construction mitigation measures be employed (e.g., silt screens) during the construction phase. Guidelines on this subject can be obtained via TRCA (2019). Any portion of the boardwalk within 30 m of the lake without intervening cattails, will be built on existing grass lawn, and as such, we have no concerns with the boardwalk.

We are not qualified to discuss the human safety requirements of the boardwalk and defer to the project engineers in this regard.

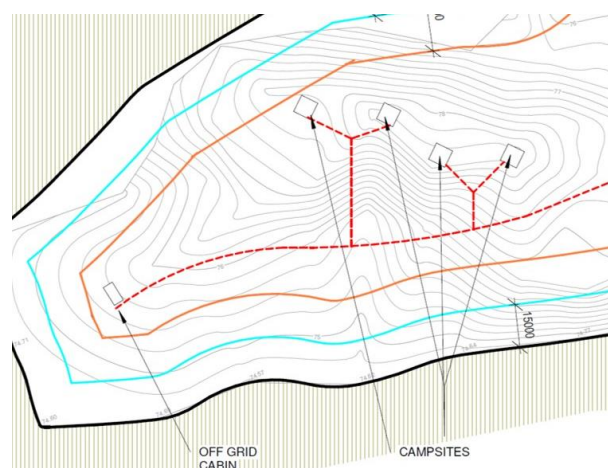


Uncommon Characteristics Criteria: It was determined that the larger of the two woodlots has significance for the large tree size feature (i.e., > 10 trees/ha > 50 cm DBH) of the MNR (2010). County Arborists Inc. measured at least 160 trees > 50 cm DBH in good to excellent condition in this 4.5 ha. woodlot, where a threshold of at least 45 such trees would impart significance. As such, the uncommon characteristics significance threshold is met.

We don't advocate the removal of >50 cm DBH trees (unless they die or pose a health risk), but significance can be maintained (as well as consistency with the OP) if removal keeps at least 45 (> 50 cm DBH) of the 160 large trees. However, with one or two possible exceptions, it should be possible to retain all trees >50 cm DBH trees. For example, the area where the three camp residences are proposed is shown in the adjacent image, and it can be seen that it is mostly composed of younger aged trees.

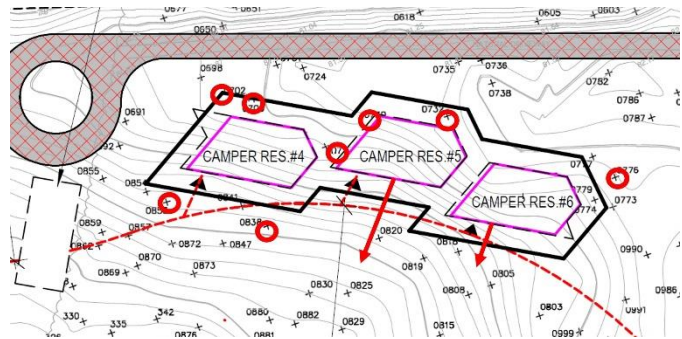


There are four camping tent pads and an off-grid cabin proposed for the smaller woodland at the west end of the property. It is intended that they be located more than 30 m from the PSW (orange line in adjacent image). It is recommended that the existing access trail within the woodlot be used as the main thoroughfare, and that no trees greater than 25 cm DBH be removed to accommodate the pads or the cabin. It is further recommended that surface coverings (e.g., bark chips, gravel, boardwalks over low areas) be used to prevent trail braiding or muddy spots.



There are various woodlot walking trails proposed. Where possible, it is recommended that existing bush roads within the woodlot be used for walking trail use. Surface coverings (e.g., bark chips, gravel, boardwalks over low areas) are recommended to prevent trail braiding or muddy spots that can occur in forest trails during heavy precipitation periods. We defer to the proponents to pick a material that will accomplish this goal as they also need to consider the limitations of some camp users, such as with wheelchairs. It is further recommended that no tree greater than 25 cm DBH be removed to accommodate the trails.

The building locations for the three woodland camper residences provided in the concept plan are approximate (i.e., conceptual). In the adjacent detail from the concept plan, the three residence buildings (purple outline) are shown in the context of good/excellent condition > 50 cm DBH trees (red circles). It can be seen that no >50 cm DBH trees need to be removed, but the middle building will be in close proximity to three of these trees and therefore constitute possible health conflicts to the trees. Changing building locations is possible. For example, moving (red arrows) two of the buildings in this concept image will place them in areas with no > 50 cm DBH tree conflicts.



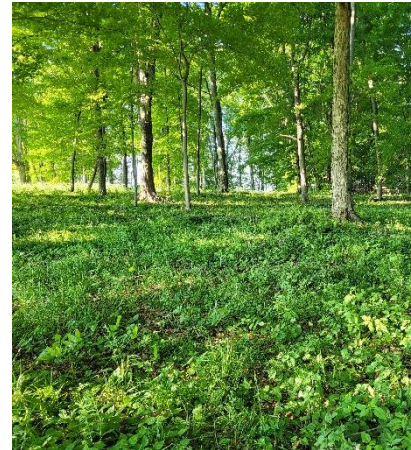
From the County Arborists Inc. tree inventory, there are several live trees >50 cm DBH trees within proximity to the proposed flex building location, but as previously noted for this building, there should be room to place it in an existing disturbed area in order to minimize the loss of large trees.

From the County Arborists Inc. tree inventory, no live trees >50 cm DBH trees appear to be in conflict with the proposed lodge that skirts the eastern edge of the woodland.

It is recommended that any building placement within the woodland avoid the removal of trees greater than 50 cm DBH, and be out of the drip line of these trees.

It is noted in the 2024 tree inventory by County Arborists Inc. that all of the mature ash trees on site are dead. As is the case throughout the region, the emerald ash borer is the likely culprit. For safety reasons, there may be a desire to remove any dead tree within the woodlot. We have no issues with that, but recommend the trunks/stems greater than 15 cm DBH be left to rot within the forest in order to enhance biodiversity. Other tree portions, including branches, can be chipped for possible trail use purposes, or used to create huge piles in out of the way places within the woodlot for cover use of various species.

A lodge is proposed to slightly intrude into eastern edge of the larger woodland, and will be about 40 m from the lake edge. The woodland at this location has been managed like an urban parkland, with a cleared understory, thinly spaced trees, and as recently as 2023 contained a seasonally used trailer. Part of the lodge intrusion area used to be occupied by the housing trailer. Given the open park like nature of this edge woodland, we have no concerns with the partial intrusion by the lodge and in our opinion no woodland mitigation is necessary as it relates to West Lake.



7.6 Wildlife Habitat

The Significant Wildlife Habitat (SWH) Criteria for Ecodistrict 6E (MNR 2015) describes habitat and wildlife requirements and habitat thresholds needed to reach significance. The potential for candidate SWH is first assessed in Table 3. Development is allowed in significant wildlife habitat, if it can be shown that the development will not cause a negative impact to those features that impart significance. Analysis for SWH determined from Table 3 is presented further down.

Table 3: Candidate SWH analysis.

SWH Type	Candidate Habitat < 120 m	Criteria analysis	Species Thresholds Met
Waterfowl Stopover and Staging Area (Terrestrial)	No	No sheet water fields	No
Waterfowl Stopover and Staging Area (Aquatic)	Yes	Open aquatic habitat < 120 m	No
Shorebird Migratory Stopover Area	No	No appropriate shorelines < 120 m	No
Raptor Wintering Area	No	No rodent productive fields	No
Bat Hibernacula	No	No caves	No
Bat Maternity Colonies	Yes	Mature deciduous stands with > 10ha 25 cm DBH trees	No, see Section 9, Field Data Tables
Turtle Wintering Areas	Yes	Open aquatic habitat < 120 m	Yes , discussed below
Reptile Hibernacula	No	Lacks physical features that would support overwintering	No
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	No	No exposed banks or cliffs	No
Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs)	No	No treed aquatic habitat < 120 m	No
Colonially-Nesting Bird Breeding Habitat (Ground)	No	No appropriate shorelines < 120 m	No
Migratory Butterfly Stopover Area	No	No wildflower meadows	No
Landbird Migratory Stopover Area	No	No woodland > 10 ha	No
Deer Yarding Area	No	Known SWH yarding is many km. to the northwest	No
Deer Winter Congregation Area	No	Requires 100 ha. woodlots	No

Rare Vegetation Communities (Alvar, Cliff, Sand Barren, Old Growth Forest, Savannah, Tallgrass Prairie)	No	Site and adjacent natural areas are common habitat types in the region	No
Waterfowl Nesting	Yes	Upland habitat >120 m next to wetland	No
Bald Eagle/Osprey Nesting, Foraging, and Perching	Yes	Lake or river < 120 m	No
Woodland Raptor Nesting	No	No 10 ha of interior woodland habitat < 120 m	No
Turtle Nesting	Yes	Sand and gravel nest to wetlands	Yes , discussed below
Seeps and Springs	No	Not a headwater area	No
Amphibian Breeding Habitat (Woodland)	No	No ephemeral woodland pools > 500 m ²	No
Amphibian Breeding Habitat (Wetlands)	Yes	Wetlands > 500 m ²	No
Woodland Area-Sensitive Bird Breeding Habitat	No	No woodlot > 30 ha. within 120m	No
Marsh Bird Breeding Habitat	Yes	All wetlands are considered	No
Open Country Bird Breeding Habitat	No	30 ha. grassland not within 120m	No
Shrub/Early Successional Bird Breeding Habitat	No	10 ha. thickets not within 120m	No
Terrestrial Crayfish	No	N/A to Eastern Ontario	No
Special Concern and Rare Wildlife Species	Yes	S1, S2, S3, and Special Concern Species	Yes , discussed below.
Amphibian Movement Corridors	No	Movement between breeding and summer habitat	No
Deer Movement Corridors	No	No SWH deer wintering	No

Turtle Wintering Areas: Hibernation areas must have water that is deep enough to not freeze in winter, and ideally would have some ice-free areas or currents to enhance oxygenation. The water body northeast of the development property might support overwintering, and West Lake would support overwintering. If there is no direct intrusion into these areas by development activities in winter, then there should be concerns for impact.

It is not known if the dug farm pond next to the access road is deep enough for this purpose, but for MNR (2015) notes that overwintering sites need to be permanent to be considered for this purpose, and it is our understanding that the pond does get dry in some years suggesting it is unreliable as a turtle wintering area. MNR (2015) also notes that man made ponds cannot be considered for SWH consideration.

There are plans to drain and fill the pond to accommodate a future parking area. In our opinion, the dug pond does not qualify as SWH, but draining and filling the pond will require permitting. As such, it is recommended that a MNRF fish handling permit and a MNRF wildlife handling permit be obtained in order to salvage any fish and wildlife in the pond prior to filling. A permit may also be required from Quinte Conservation. A permit may be also required by the MECP, but we defer to Jewell Engineering to determine if that is a necessity. We recommend that a biologist be on hand to supervise draining, filling and fish and wildlife salvage, and that this occur sometime from mid-August to the end of September. Filling should occur at the same time as fish and wildlife salvage to prevent species from returning to the pond area. As a standard clause in the MNRF permitting, all non-native species captured should be euthanized. In our opinion a habitat compensation pond is not required for the dug pond, but if so required, we recommend that it be placed in closer proximity to north edge wetland, as this will put the pond in closer proximity to better quality turtle habitat within the wetland, as compared to the current pond. It is also recommended that any new pond include turtle exclusion fencing to prevent turtles from moving beyond the pond area towards the development lands.



Turtle Nesting Areas: Snapping turtle nesting occurs on the gravel shoulder of the access road, but per MNRF (2015), nesting that occurs on the edge of a road cannot be considered SWH. Future nesting on the gravel verge could result in vehicle strikes due to the anticipated increase in traffic on the access road.

Although it is not required for SWH purposes, it is recommended that the roadway and parking lots areas include turtle exclusion fencing (see red lines in the adjacent image) to avoid turtle access to the road/parking area. Sample plans for the fencing are provided in MNR (2013a). It is also recommended that a turtle nesting site be created in the area outlined by the dashed red line and that this also include turtle exclusion fencing. Turtle nesting sites can be built by spreading out 7 yards of a sand/gravel mix to a 4 m x 10 m area. The west, south, and east edges of the pile can be contained by 4 x 4 cedar lumber to help maintain nest site integrity. The south side should be free of containment to allow turtles access.



Snapping turtle nesting also occurs on the sand beach, near the docks, about two meters from the high-water mark on the shoreline (see red oval on following photo). Whether or not this is SWH is debatable as the sand was brought to this site for recreational purposes, and it is also used as a vehicle access site for putting boats in the water. This oval will not be within any

planned building footprint, but it will be in a high traffic foot area and it is recommended that it be moved 30 m further west, and about 3 m from the high water point of the lake. It should be created with similar building guidelines as noted above and be protected from foot traffic by turtle exclusion fencing on its non-lake sides with the intention of keeping out people. If properly managed, it can provide a teaching tool for children.



Rare Species: Refers to provincially rare (S1 to S3 and SC) species. Screening provided the names of five Special Concern species (discussed below). It should be noted that these species are not afforded protections under the Endangered Species Act, but development associated with these species needs to be consistent with the OP.

Black Tern: A wetland bird of open waters with a fringe of emergent vegetation. None observed here during the BBS work, and the shoreline area does not represent Black Tern nesting habitat. No mitigation actions are warranted in our opinion.

Arrow arum (S2): Perhaps a historical record based on work by Beaudette and Mohr (1984) as there are no recent records of this species in the West Lake watershed. It is more likely to be found in open swamp and bog habitats, and no such habitats were observed within 120 m of the subject lands. No mitigation actions are warranted in our opinion.

Bridle Shiner (Special Concern): The provincial rare species data base notes that Bridle Shiners prefer clear, unpolluted streams, rivers and lakes which have an abundance of aquatic vegetation to provide spawning and foraging habitat and refugia from predators. Similar arguments for the Pugnose Shiner (Section 7.0) apply to the Bridle Shiner.

Grass Pickerel (Special Concern): Although this species is primarily associated with river systems (COSEWIC 2014 and Colm et al. 2019), it could potentially be found throughout West Lake. Colm et al. (2019) relates favored habitat vegetation as *Ceratophyllum demersum*, *Nymphaea odorata*, *Polygonum coccineum*, and *Pontederia cordata*, and *Potamogeton* sp. In contrast, the water offshore of the proposed development area is primarily populated by dense patches (100% coverage) of *Myriophyllum spicatum* and *Valisneria canadensis*, except for the first 5 to 10 m, which are only thinly vegetated with these two species. Both COSWEWIC (2014) and Colm et al. (2019) also note an avoidance of turbid areas. As previously noted, the waters offshore were always observed to be turbid, perhaps because of wave wash, or perhaps because of fines brought in by the adjoining creek to the east.

The density of the submergent vegetation can also be relevant. Valley et al., (2004) notes how conditions for game fish deteriorate when the percentage of submerged aquatics is less than 10% or exceeds 60%. Casselman and Lewis (1996) note that ideal coverage for pike

(like grass pickerel in habitat preferences) is from 35 to 70%. As such, the submergent zone offshore reaches 100% density about 8 m from shore.

An area of West Lake that does have favorable grass pickerel features, in terms of species representation, water clarity, and vegetation percent coverage is along the south side of Garrett Island.

The waters offshore do not represent good spawning habitat for grass pickerel. They spawn in similar habitat as Northern Pike, swimming upstream in creeks shortly after ice out in search of flooded stream margins with plentiful vegetation. The closest such feature to the subject lands would be over 1 km to the northeast.

In summary, the waters directly offshore of the development area do not have ideal grass pickerel features. Nevertheless, as it relates to all fish habitat, construction erosion mitigation is recommended for the lake edge (e.g., vehicle exclusion zones, silt fencing) and in this regard we recommend development construction engineering/planners defer to guidelines provided by TRCA (2019).

Snapping Turtle (Special Concern): We applied the MNR (2015b) survey protocol to the subject lands. Several snapping turtles were observed along with 3 snapping turtle nest concentration areas. The observed presence of these turtles requires the consideration of four key life cycle features as follows:

1. Hibernation: Hibernation areas must have water that is deep enough to not freeze to the bottom in winter, and ideally would have some ice-free areas or current to enhance oxygenation. The water body northeast of the development property (see photo) might support overwintering, and West Lake would support overwintering. If there is no direct intrusion into these areas by development activities in winter, then there should be no concerns for impact. In regard to the dug farm pond, please see the previous discussion on Turtle Wintering Areas SWH.



2. Feeding: The open water areas of the wetland to the north and northwest of the property, as well as West Lake, would support turtle feeding. Since there will be no direct construction intrusion into these areas by the development, then there should be no negative impact to this life cycle feature. Feeding may be occurring in the dug farm pond, but as this is a man-made feature, its potential for SWH status is questionable. For possible pond compensation consideration, please see details above under the Turtle Wintering Areas analysis.

3. Basking: Snapping Turtles prefer to bask near their feeding areas, and basking features are lacking near these feeding areas. Basking areas are either well off site, or were out of view.

4. Nesting: Three Snapping Turtle nesting areas were observed on the property, as shown with the red circles in the adjacent image. Two were associated with the access road and one was in a pile of sand that was dumped near the lake. Vehicle impacts to gravid females traveling to these nest sites is a concern. In this regard, please see recommendations previously described for Turtle Nesting SWH.



Eastern Wood-Pewee

Larger Woodland: Two Eastern Wood-Pewee were heard calling on the first BBS visit on May 30 from the larger of the two woodlands within the property. They were not heard in the large woodland on any subsequent BBS visits, nor on any of the non-BBS visits. Due to the late spring of 2022, many species were arriving to the County later than normal and these two birds could have been migrants passing through. They could also have been early arriving males who were unsuccessful in attracting a nesting female. The lack of subsequent calls suggests they moved elsewhere.

Smaller Woodland: One Eastern Wood-Pewee was heard calling during the BBS visits on May 30 and June 20. None were heard calling from here during the non-BBS visits. These two calls are also inconclusive regarding nesting but do provide potential evidence of nesting.

The North American decline in population numbers of Eastern Wood Pewee is being experienced by many aerial insectivores (Spiller and Dettmers 2019). Suggested reasons for declines have included a deterioration in insect prey caused by pesticides, global climate changes, increased nest predation, nest parasitism, and declines in stopover-habitat quality, and Keller and Yahner (2006) make a strong argument for habitat changes in the South American wintering grounds as a significant cause of decline, and the proposed facilities at the site have no direct association with any of these. Furthermore, Kendrick et al. (2013) found that Wood-Pewees were not highly susceptible to forest-fragmentation effects.

The status of this species is being assessed in the latest round of the Ontario Bird Breeding Atlas as it continues to do well in the eastern part of the province, as is readily evident in eBird. The Eastern Wood-Pewee is not an interior forest specialist and can be observed in forest fragments and built environments (Archer et al. 2019). We have observed it in a broad range of habitats in Eastern Ontario, ranging from large mature woodlands to small urban woodlands. As well, the tolerance of Wood Pewee's to nearby human activity is also apparent with many sightings being recorded in or near developed areas in Eastern Ontario.

The Wesley Acres woodlands do not represent a critical habitat need for this species, and there are areas of suitable habitat going unused in the County, including other woodlands assessed in the County.

We have no concerns regarding impacts to the Eastern Wood-Pewee, given their tolerance to nearby human activity, the bulk of the woodland remaining intact, and the availability of nearby unused habitat. However, as a standard precaution for all developments that involve migratory birds, we recommend that tree clearing take place outside of the migratory birds breeding season (April 1 to August 15) to avoid contravening the Migratory Birds Act.

Barn Swallow (Special Concern): A population has exploited a fabric lined equipment shelter on site for nesting purposes. Barn Swallows are highly tolerant of nearby human activity, as can be seen in their nest sites in boat houses, barns, under highway overpasses, and even under docks. One memorable nesting site was in the rafters of a pistol range shelter at CFB Kingston, directly above the target shooters. As such, any development plans in and around the shelter are not seen in a negative light. Barn Swallows were downlisted from Threatened to Special Concern in 2023 and as yet, there are no guidelines on how to deal with them as a Special Concern species. In our opinion, the same mitigation that was required for them as a Threatened species should apply, except for the need for MECP involvement. As such, it is recommended that a Barn Swallow nesting structure be built along the southeast corner of the property, within 3 m of the lake.

The structure should be 5 meters long by 3 m wide on 6 stilts. The rafters should contain evenly spaced nest cones. The production of the nest cones could be a camper activity. The base of the roof should be 3 m above ground and the stilts wrapped with predator cones. The 1/2 meter of the walls should be covered to reduce wind effects.

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9. Field Data Summary Tables of Specific Taxa

Table 4. Bat Acoustic Monitoring – Wesley Acres				
Date and Time Range	~Big Brown Passes /Night	~Silver Haired Passes /Night	Total SAR passes	Results
June 13 – 23	30	21.5	1 Little Brown	Passes/Night can be used as an indicator of significant maternity roost use. Anything over 600 passes/night is a strong indicator of SWH nesting thresholds, and the recorded values for Wesley Acres are well below this.
July 6 to July 17	200	20.7	1 Tri-coloured	
June 2	Three snag trees were assessed, and all were dormant with no recorded exit bat activity.			

Table 5. Amphibian Marsh Monitoring – Wesley Acres. SWH threshold not met as it requires two of the candidate species to have Call Codes of 3. Only once species met this threshold.						
Date (2022)	Time	Weather	Wind Code	Noise Code	Surveyor	Species and Call Code Results
April 14	2015	7 C, partly cloudy	3	0	Kurt Hennige	Shoreline – No calls Dug Pond – Chorus Frog (CC1), not in pond, but from west side of the road at this location Entrance – Spring Peeper (CC1), Leopard Frog (CC1)
May 15	2250	16 C Clear	1	0	Kaitlyn Closs	Shoreline – No calls Dug Pond – No calls Entrance – Tree Frog (CC3), Green Frog (CC1)
June 13	2155	16 Clear	2	1	Kaitlyn Closs	Shoreline – Bull Frog (CC2), Green Frog (CC1) Dug Pond – No calls Entrance – Tree Frog (CC2), Green Frog (CC1)

Table 6. Eastern Whip-poor-will – Wesley Acres						
Date (2022)	Time	Weather	Wind Code	Noise Code	Surveyor	Results
May 15	2250	16 C Clear	1	0	Kaitlyn Closs	No calls
June 13	2155	16 C Clear	2	1	Kaitlyn Closs	No calls
June 15	2330	25 C partly clear	1	0	Kurt Hennige	No calls

Table 7: Woodland associated species provided with provincial S Ranks and Coefficient of Conservatism (CC).			
Latin Name	Common Name	S Rank	CC
<i>Acer saccharum var. saccharum</i>	Sugar Maple	S5	5
<i>Actaea rubra</i>	Red Baneberry	S5	7
<i>Alliaria petiolata</i>	Garlic Mustard	SNA	0
<i>Arctium minus</i>	Lesser Burdock	SNA	0
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	S5	5
<i>Asclepias incarnata</i>	Swamp Milkweed	S5	6
<i>Asclepias syriaca</i>	Kansas Milkweed	S5	1
<i>Athyrium filix-femina var. angustum</i>	Lady Fern	S5	4
<i>Betula papyrifera</i>	Paper Birch	S5	2
<i>Carex blanda</i>	Woodland Sedge	S5	1
<i>Carex cephalophora</i>	Oval-leaved Sedge	S5	3
<i>Carex granularis</i>	Meadow Sedge	S5	2
<i>Carex rosea</i>	Rosy Sedge	S5	2
<i>Carex sparganioides</i>	Bur-Reed Sedge	S5	5
<i>Carex spicata</i>	A Sedge	SNA	0
<i>Carex vulpinoidea</i>	Fox Sedge	S5	1
<i>Caulophyllum thalictroides</i>	Blue Cohosh	S5	5
<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade	S5	3
<i>Cirsium arvense</i>	Canada Thistle	SNA	0
<i>Dryopteris intermedia</i>	Evergreen Woodfern	S5	5
<i>Epipactis helleborine</i>	Eastern Helleborine	SNA	0
<i>Fraxinus americana</i>	White Ash	S4?	5
<i>Fraxinus pennsylvanica</i>	Green Ash	S5	2
<i>Geranium robertianum</i>	Herb-robert	SNA	0
<i>Glyceria striata</i>	Fowl Manna-grass	S5	4
<i>Hydrophyllum virginianum</i>	John's Cabbage	S5	4
<i>Juncus bufonius</i>	Toad Rush	S5	2
<i>Juncus dudleyi</i>	Dudley's Rush	S5	1
<i>Leonurus cardiaca</i>	Common Mother-wort	SNA	0
<i>Maianthemum canadense</i>	Wild-lily-of-the-valley	S5	4
<i>Maianthemum racemosum</i>	False Solomon's-seal	S5	5
<i>Medicago sativa</i>	Alfalfa	SNA	0
<i>Onoclea sensibilis</i>	Sensitive Fern	S5	2
<i>Oxalis stricta</i>	Upright Yellow Wood-sorrel	S5	0
<i>Persicaria maculosa</i>	Lady's Thumb	SNA	0
<i>Phalaris arundinacea</i>	Reed Canary Grass	S5	0
<i>Phleum pratense</i>	Meadow Timothy	SNA	0
<i>Poa pratensis ssp. pratensis</i>	Kentucky Bluegrass	S5	0
<i>Podophyllum peltatum</i>	May Apple	S5	3
<i>Populus grandidentata</i>	Large-tooth Aspen	S5	4
<i>Prunus serotina</i>	Wild Black Cherry	S5	2
<i>Prunus virginiana</i>	Choke Cherry	S5	2
<i>Rhamnus cathartica</i>	Buckthorn	SNA	0
<i>Ribes rubrum</i>	Northern Red Currant	SNA	0
<i>Rubus allegheniensis</i>	Allegheny Blackberry	S5	1
<i>Sanguinaria canadensis</i>	Bloodroot	S5	5
<i>Scrophularia lanceolata</i>	Hare Figwort	S4	5
<i>Silene latifolia</i>	A Catchfly	SNA	0
<i>Symphyotrichum cordifolium</i>	Heart-leaf Aster	S5	4
<i>Taraxacum officinale</i>	Brown-seed Dandelion	SNA	0
<i>Thalictrum dioicum</i>	Early Meadowrue	S5	6
<i>Tilia americana</i>	American Basswood	S5	5
<i>Trillium grandiflorum</i>	White Trillium	S5	5

<i>Typha angustifolia</i>	Narrow-leaved Cattail	SNA	0
<i>Typha latifolia</i>	Broad-leaf Cattail	S5	1
<i>Verbascum thapsus</i>	Great Mullein	SNA	0
<i>Viola pubescens var. pubescens</i>	Downy Yellow Violet	S5	4

Table 8: Species found that were associated with wetland including provincial S Ranks and Coefficient of Conservatism (CC).

Latin Name	Common Name	S Rank	CC
<i>Acer negundo</i>	Box Elder	S5	0
<i>Ambrosia artemisiifolia</i>	Annual Ragweed	S5	0
<i>Anemone canadensis</i>	Canada Anemone	S5	4
<i>Asclepias incarnata</i>	Swamp Milkweed	S5	6
<i>Asclepias syriaca</i>	Kansas Milkweed	S5	1
<i>Bromus inermis</i>	Awnless Brome	SNA	0
<i>Calamagrostis canadensis</i>	Canada Blue-joint	S5	3
<i>Carex lacustris</i>	Lake-bank Sedge	S5	6
<i>Cirsium vulgare</i>	Bull Thistle	SNA	0
<i>Convolvulus arvensis</i>	Field Bindweed	SNA	0
<i>Cornus amomum</i>	Silky Dogwood	S5	2
<i>Cornus sericea</i>	Red-osier Dogwood	S5	2
<i>Dactylis glomerata</i>	Orchard Grass	SNA	0
<i>Daucus carota</i>	Wild Carrot	SNA	0
<i>Elymus repens</i>	Creeping Wild-rye	SNA	0
<i>Equisetum arvense</i>	Field Horsetail	S5	0
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	S5	2
<i>Erigeron strigosus</i>	Daisy Fleabane	S5	4
<i>Festuca rubra ssp. rubra</i>	Red Fescue	SNA	0
<i>Hydrocharis morsus-ranae</i>	European Frogbit	SNA	0
<i>Impatiens capensis</i>	Spotted Jewel-weed	S5	2
<i>Juncus bufonius</i>	Toad Rush	S5	2
<i>Juncus dudleyi</i>	Dudley's Rush	S5	1
<i>Lathyrus palustris</i>	Marsh Pea	S4	7
<i>Lemna minor</i>	Lesser Duckweed	S5	5
<i>Lycopus americanus</i>	American Bugleweed	S5	2
<i>Medicago lupulina</i>	Black Medic	SNA	0
<i>Melilotus altissimus</i>	Tall Yellow Sweetclover	SNA	0
<i>Parthenocissus inserta</i>	Virginia Creeper	S5	4
<i>Phalaris arundinacea</i>	Reed Canary Grass	S5	0
<i>Poa pratensis ssp. pratensis</i>	Kentucky Bluegrass	S5	0
<i>Prunus virginiana</i>	Choke Cherry	S5	2
<i>Ranunculus acris</i>	Tall Butter-cup	SNA	0
<i>Rhamnus cathartica</i>	Buckthorn	SNA	0
<i>Rubus idaeus ssp. strigosus</i>	Wild Red Raspberry	S5	2
<i>Rumex crispus</i>	Curly Dock	SNA	0
<i>Salix x fragilis</i>	Crack Willow	SNA	0

<i>Solanum dulcamara</i>	Climbing Nightshade	SNA	0
<i>Solidago canadensis</i> var. <i>canadensis</i>	Canada Goldenrod	S5	1
<i>Sonchus palustris</i>	Marsh Sowthistle	SNA	0
<i>Stellaria media</i>	Common Starwort	SNA	0
<i>Taraxacum officinale</i>	Brown-seed Dandelion	SNA	0
<i>Thelypteris palustris</i>	Marsh Fern	S5	2
<i>Trifolium hybridum</i>	Alsike Clover	SNA	0
<i>Trifolium pratense</i>	Red Clover	SNA	0
<i>Typha angustifolia</i>	Narrow-leaved Cattail	SNA	0
<i>Typha latifolia</i>	Broad-leaf Cattail	S5	1
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging Nettle	S5	1
<i>Viburnum lentago</i>	Nannyberry	S5	4
<i>Vicia cracca</i>	Tufted Vetch	SNA	0
<i>Vitis riparia</i>	Riverbank Grape	S5	3

Table 9. Results of three breeding bird surveys.

	30-May	20-Jun	06-Jul	Location
American Bittern	1	1	1	Wetland
American Crow	1	4		Woodland and Wetland
American Goldfinch	7	2		Throughout
American Redstart	2	2		Woodland and Field
American Robin	3	9	4	Throughout
Baltimore Oriole	2	3		Woodland and Field
Barn Swallow	7	19	6	Field and Wetland
Black-and-white Warbler	1			Woodland
Black-capped Chickadee	3	1		Woodland and Field
Black-throated Green Warbler	1			Woodland
Blue Jay	3	2	2	Woodland and Field
Bobolink	8	8		Field
Canada Goose	13	8	4	Field and Wetland
Caspian Tern	2			Wetland
Cedar Waxwing	3			Field
Chipping Sparrow	1			Field
Common Gallinule	1			Wetland
Common Grackle	9	5	5	Throughout
Common Yellowthroat	2	3	3	Wetland and Field
Double-crested Cormorant	2	2		Wetland
Downy Woodpecker	1	1	1	Woodland
Eastern Kingbird	3	5	2	Throughout
Eastern Wood-Pewee	3	1		Woodland
European Starling	16	14	8	Throughout
Great Blue Heron	4	3		Wetland
Great Crested Flycatcher	3	2		Woodland and Field
House Wren	1		1	Woodland and Field
Killdeer	3	2		Wetland and Field

Least Flycatcher	1			Woodland
Mallard	3	1		Wetland
Marsh Wren	2			Wetland
Mourning Dove	6	3	2	Throughout
Mute Swan	19	2	4	Wetland
Northern Cardinal	2	1	1	Woodland and Field
Northern Flicker	1	2	3	Woodland and Field
Osprey	2		1	Flyby
Ovenbird	1			Field
Red-bellied Woodpecker	4	2		Woodland and Field
Red-eyed Vireo	3	5	3	Woodland and Field
Red-winged Blackbird	33	27	12	Throughout
Ring-billed Gull	1	1	1	Field and Wetland
Rose-breasted Grosbeak	1	2		Woodland and Field
Savannah Sparrow	6	4	5	Woodland and Field
Song Sparrow	6	11	3	Throughout
Sora	1			Wetland
Swamp Sparrow	4	5	1	Wetland
Tree Swallow	1	28		Wetland and Field
Turkey Vulture	4			Wetland
Virginia Rail	1			Wetland
Warbling Vireo	5	1		Throughout
White-breasted Nuthatch	1	2		Woodland and Field
Wilson's Snipe	1			Wetland
Wood Thrush	1			Woodland
Yellow Warbler	1		2	Field