

Environmental Impact Study (Phase 1 Lands) and Environmental Constraints Analysis for Black Bear Ridge Resort

City of Belleville, Ontario

Palmer Project #

2200901

Prepared For

Alex Sharpe, Black Bear Ridge GP Inc.

August 14, 2024

August 14, 2024

Alex Sharpe
Black Bear Ridge GP Inc.
501 Harmony Road, Corbyville, ON
K0K 1V0

Dear Alex Sharpe:

**Re: Environmental Impact Study (Phase 1 Lands) and Environmental Constraints Analysis
for Black Bear Ridge Resort**
Palmer Project #: 2200901

Palmer is pleased to provide this Environmental Impact Study (EIS) and Environmental Constraints Analysis for the current Black Bear Ridge Resort lands (501 Harmony Road) and two additional adjacent lots (0 Homan Road and 449 Harmony Road) located in the City of Belleville (the Subject Property). This EIS has been completed as part of a Draft Plan of Subdivision application to be submitted for a portion of land designated as Phase 1 of development on the Subject Property. The goal of the Environmental Constraints Analysis is to define the existing environmental constraints on the remainder of the Subject Property and identify remaining lands that may be suitable for future proposed mixed-use development. This report contains the results of an assessment of a review of background information, an assessment of existing natural heritage features and environmental policies and provides an assessment of the amount of potentially developable land. The property occurs within the planning area for the Quinte Conservation (QC) and includes lands regulated by QC under Ontario Reg. 41/24. A policy conformity discussion has been provided and this section must be read and considered in recognition of the existing Municipal Zoning Order which has permitted and zoned uses through much of the Subject Property.

Yours truly,

PalmerTM | PART OF
SLR



Dirk Janas, B.Sc.
Technical Director – Terrestrial Ecology

Executive Summary

Palmer (now SLR) was retained by Black Bear Ridge GP Inc. to complete an Environmental Impact Study (EIS) as part of the Draft Plan of Subdivision submission for the proposed development at 501 Harmony Road and two additional adjacent lots (0 Homan Road and 449 Harmony Road) in the City of Belleville, Ontario (the “Subject Property”). The proposed development consists of multiple phases, with the primary focus of this EIS being on the southwest lands of the Subject Property, herein referred to as ‘Phase 1 Lands’. The remaining lands, herein referred to as ‘Area Outside of Phase 1 Lands’, are generally discussed within this report. Phase-specific EIS’ will be conducted on the remaining areas as development progresses.

This EIS includes a description and background review of the physical and ecological features on and adjacent to the Subject Property, as well as their functions, significance, and sensitivities. Various field surveys have been completed on the Subject Property and results have been reviewed to assess for the potential for Significant Wildlife Habitat (SWH) and Species at Risk (SAR) and their habitats. In addition to this, an assessment of potential impacts to and protection of natural heritage features (NHF) within and immediately adjacent to the Subject Property, and more specifically the Phase 1 Lands has been conducted. The policies and technical requirements of the City of Belleville Official Plan (OP), Quinte Conservation (QC), and federal and provincial legislation have been reviewed and incorporated into this report.

Ecological field surveys were conducted on the Subject Property over a total of 10 dates between 2022 and 2024. These surveys included in-field data collection for vegetation communities, flora, breeding birds, breeding amphibians, general wildlife, aquatic habitat and drainage features, SAR and SWH. A natural feature staking for wetlands and woodland was also conducted within the Phase 1 Lands. Following field investigations, the Subject Property was characterized as supporting mostly culturally influenced and/or fragmented vegetation communities, such as cultural meadows, hedgerows, treed plantations, constructed ponds, mowed lawn, and agricultural fields. Woodlands, wetlands, and watercourses are also present on the Subject Property. No provincially rare plants or wildlife have been observed within Phase 1 Lands by Palmer (now SLR). Three SAR bird species, Bobolink (*Dolichonyx oryzivorus*), Eastern Meadowlark (*Sturnella magna*), and Eastern Wood-Pewee (*Contopus virens*), were identified on the Subject Property, specifically within the Phase 1 Lands. Eastern Wood-Pewee and another SAR bird species, Wood Thrush (*Hylocichla mustelina*), and a SAR Butternut (*Juglans nigra*) sapling, were also identified on the Subject Property, within the Area Outside of Phase 1 Lands. SWH was confirmed to be present within the Subject Property, primarily within the Area Outside of Phase 1 Lands.

The proposed development within Phase 1 Lands will be primarily contained within cultural vegetation communities. Prescriptive buffers have been applied to relevant natural features within the Phase 1 Lands, including the existing Provincially Significant Wetland (the Corbyville Wetland Complex), Significant Woodlands (as determined through relevant field studies and this EIS), and a watercourse riparian corridor. Recommended mitigation measures for these natural heritage features include vegetation protection zones, erosion and sediment control, floral and faunal timing windows, wildlife fencing, and restoration works. Encroachment into two, small wetland inclusions in the Phase 1 Lands will be compensated for within other areas on the Subject Property. Compensation for habitat of Endangered and Threatened species will be

determined in later design stages. Appropriate enhancement areas on the Subject Property will be determined in future design stages.

The proposed development of the Area Outside of Phase 1 Lands is largely conceptual at this time and will be refined in future development phases. Based on the findings of Palmer's (now SLR) studies, it is our professional opinion that the proposed development within the Phase 1 Lands will result in no negative impacts to natural heritage features and functions, provided that all recommended mitigation measures are applied. Further studies will be required to address potential impacts of the proposed development on natural features present within the Area Outside of Phase 1 Lands.

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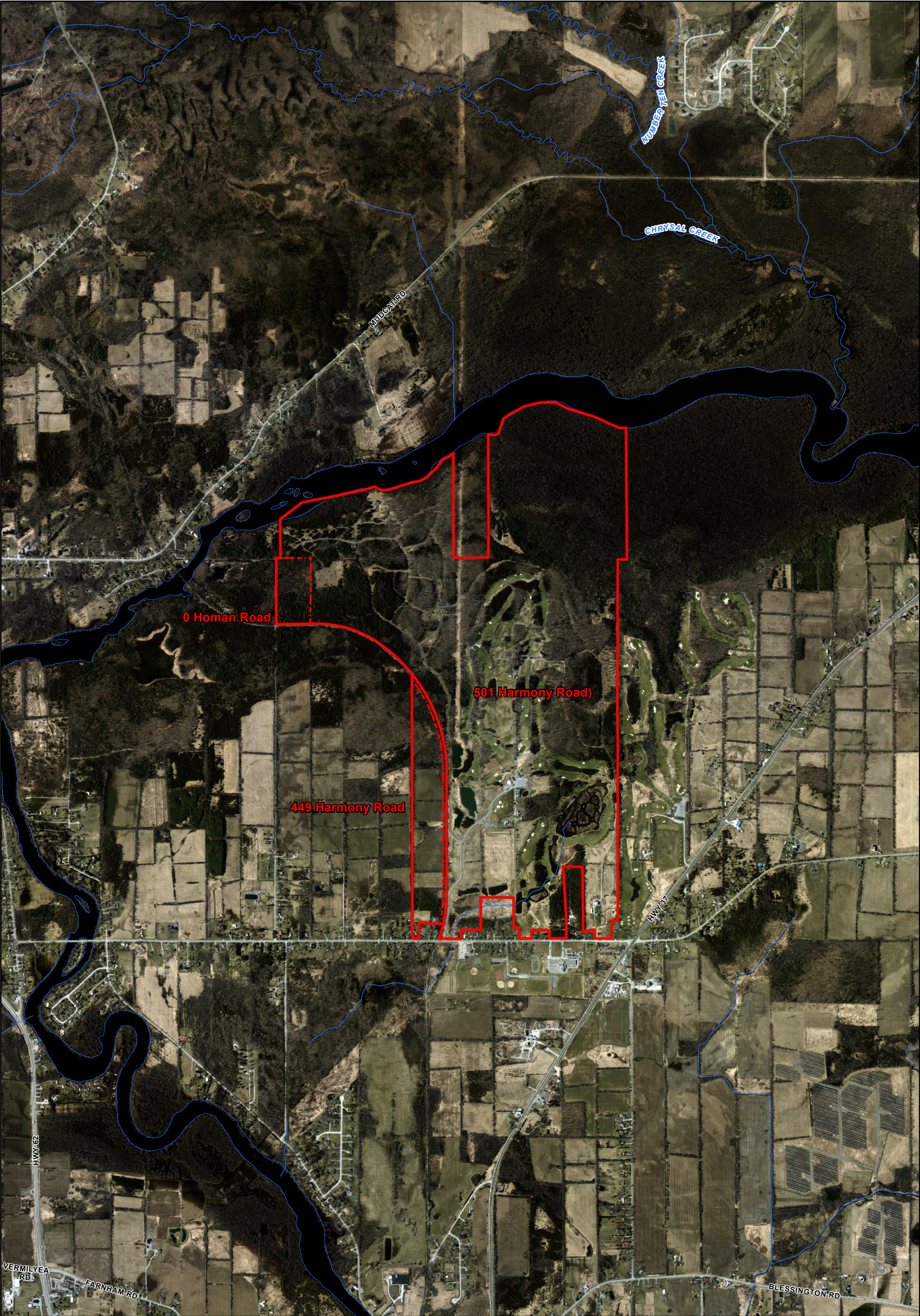
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1. Introduction

Palmer is pleased to submit an Environmental Impact Study for the Black Bear Ridge Resort (501 Harmony Road) in the City of Belleville. The following two adjacent properties were also included in the study: 0 Homan Road and 449 Harmony Road (herein referred to as “additional lands”). Collectively these lands comprise the study’s “Subject Property” and are shown on **Figure 1**. The focus of this Environmental Impact Study is the southwestern portion of the Subject Property (herein referred to as “Phase 1 Lands”, **Figure 2**) in which development is currently proposed as part of a Draft Plan of Subdivision. A thorough environmental constraints and opportunities analysis was conducted for lands that comprise the remainder of the Subject Property, herein referred to as “Area Outside Phase 1 Lands” (**Figure 2**).

The overall Subject Property comprises an area of approximately 368 hectares (ha), or 909 acres, and currently supports a variety of natural features including wetlands (the Foxboro Swamp and Corbyville Provincially Significant Wetland Complexes), woodlands and open field meadows as well as anthropogenic uses such as a recreational golf course and commercial and residential buildings. The Subject Property is also bordered by Moira River to the north. Large portions of the Subject Property are regulated by Quinte Conservation (QC).

The intent of this EIS is to delineate, inventory and evaluate the sensitivity and significance of the existing natural heritage features and ecological functions associated with the Subject Property, and more specifically the Phase 1 Lands, and assess the impacts of the proposed development. For the natural heritage features requiring protection, avoidance and mitigation measures are recommended where appropriate, to address potential impacts resulting from the proposed development.



Watercourse¹

Subject Property

Additional Lands

1 - Land Information Ontario (LIO)

Key Map

0100200300400500

Metres

North American Datum 1983

Universal Transverse Mercator Projection Zone 18

Scale: 1:20,000

Page Size: Tabloid (11 x 17 inches)

Drawn: SM

Checked: KT

Date: Aug 6, 2024

Source Notes: Base imagery (2019) provided by City of Belleville GIS REST services.

NORTH

CLIENT

Black Bear Ridge GP Inc

PROJECT

Black Bear Ridge Natural Heritage Review and Environmental Constraints Analysis

TITLE

Site Location

Palmer

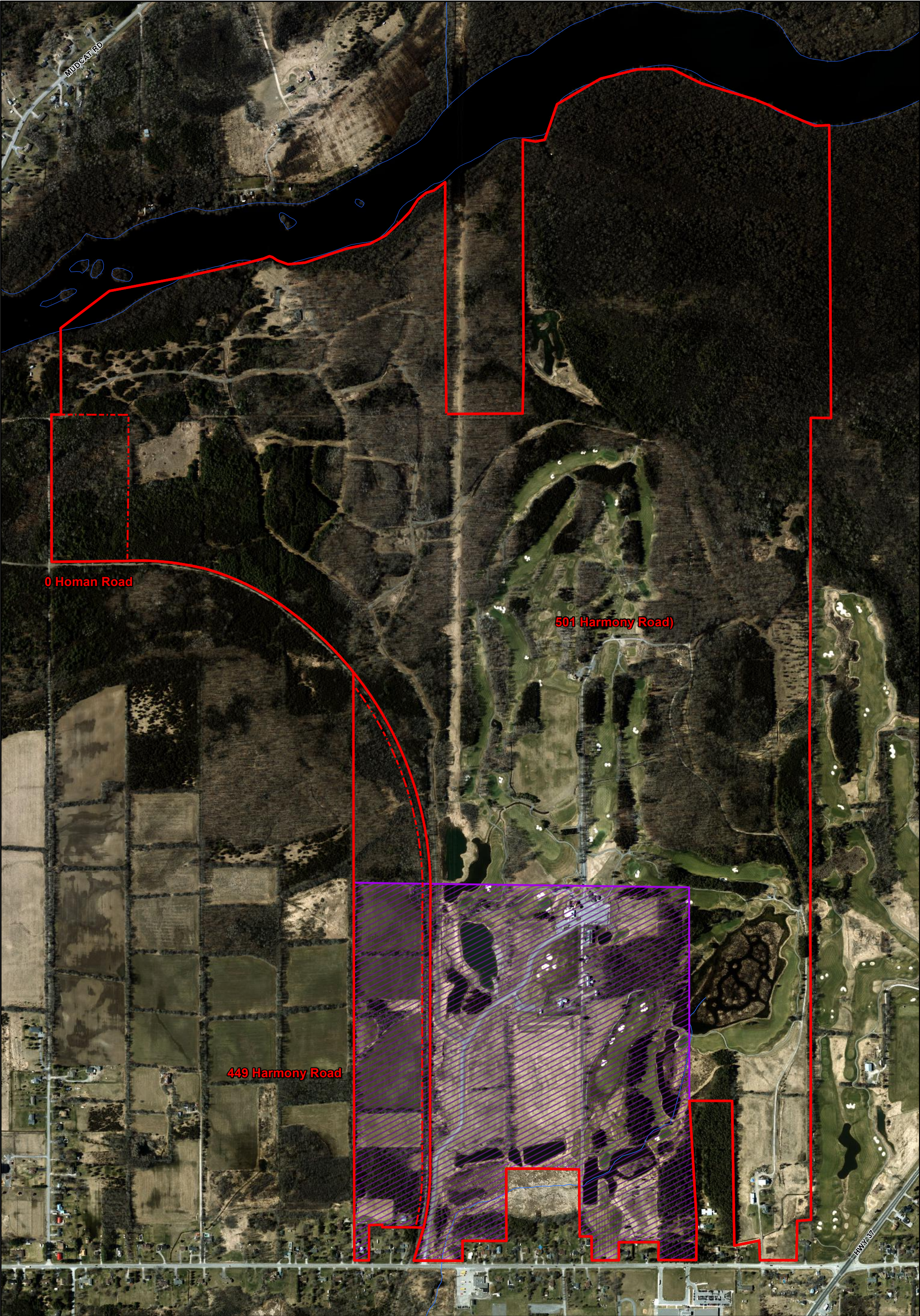
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REF. NO.

2200901-MR1-1

Figure 1

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LEGEND

- Watercourse ¹
- Subject Property
- Additional Lands
- Phase 1 Lands

1 - Land Information Ontario (LIO)

0 50 100 150 200 250

Metres

North American Datum 1983
Universal Transverse Mercator Projection Zone 18

Scale: 1:9,000
Page Size: Tabloid (11 x 17 inches)

Drawn: SM
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Date: Aug 6, 2024

Source Notes: Base imagery (2019) provided by City of Belleville GIS REST services.

NORTH

CLIENT	Black Bear Ridge GP Inc	
PROJECT	Black Bear Ridge Natural Heritage Review and Environmental Constraints Analysis	
TITLE	Phasing Boundaries	
REF. NO.	2200901-MR2-1	Figure 2
<div> PART OF SLR</div>		

2. Environmental Policy

Relevant planning policies, legislation, and regulatory requirements pertinent to this assessment are summarized in the following sections. The general relevance of these policies to the Subject Property is also noted. More detailed analysis of policy implications is provided in subsequent sections of this report where relevant.

2.1 Provincial Policy Statement

The Provincial Policy Statement (Ontario Ministry of Municipal Affairs and Housing, 2020) provides direction to regional and local municipalities regarding planning policies for the protection and management of natural heritage features and resources (Ontario Ministry of Municipal Affairs and Housing, 2020). Section 2.1 of the PPS defines ten natural heritage features (NHF) and adjacent lands and provides planning policies for each. Of these NHF, development is not permitted in:

- Significant Coastal Wetlands;
- Significant Wetlands in Ecoregions 5E, 6E and 7E;
- Fish Habitat, except in accordance with provincial and federal requirements; or
- Habitat of species designated as Endangered and Threatened, except in accordance with provincial and federal requirements.

Additionally, unless it can be demonstrated through an EIS that there will be no negative impacts on the natural features or their ecological functions, development and site alteration are also not permitted in:

- Significant Wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
- Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
- Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
- Significant Wildlife Habitat;
- Significant Areas of Natural and Scientific Interest;
- Other Coastal Wetlands in Ecoregions 5E, 6E and 7E; and
- Lands defined as *Adjacent Lands* to all the above natural heritage features.

Each of these NHF is afforded varying levels of protection subject to guidelines, and in some cases, regulations. The Subject Property is located in Ecoregion 6E (Crins, Gray, Uhlig, & Wester, 2009). As depicted on the Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) mapping (Ministry of Natural Resources and Forestry, 2024), there are two Provincially Significant Wetland (PSW) units on the Subject Property consisting of the Foxboro PSW (within the north end of the property) and Corbyville PSW (within the south end of the property), various areas of contiguous and fragmented woodland, a watercourse associated with the Corbyville PSW to the south, the Moira River to the north, and areas of unevaluated wetlands. The Corbyville PSW, unevaluated wetlands, woodlands, and an unnamed watercourse are located within Phase 1 Lands,



Map A: MNR NHIC Biodiversity Mapping depicts the Subject Property (red outline) consisting of woodlands (green polygon), PSW (blue polygons with hatching), unevaluated wetland (blue outline with hatching).

2.2 City of Belleville Official Plan and Zoning By-law 3014

The City of Belleville Official Plan was adopted by City Council on November 8, 2021 and was approved by the Ministry of Municipal Affairs and Housing on April 11, 2023 pursuant to Section 17(34) of the Planning Act, subject to modifications. The purpose of the City of Belleville Official Plan Draft (2021) is to provide orderly development of the City within the framework of the Vision Statement, which includes “*a balance of economic, social, cultural and natural environments for the development of a well-planned, financially sound community that values its natural and cultural heritage and offers opportunities for its residents to prosper*”.

As per the City OP’s Schedule A – Land Use Plan – Rural Area, the Subject Property currently comprises a variety of land use designations that include Recreation Commercial, Rural, Open Space (snowmobile trail), and Environmental Protection (EP) (**Map B, (a)**). The City of Belleville’s Zoning Map largely corresponds to the OP Schedule A – Land Use Plan with a few exceptions (**Map B, (b)**). For example, the floodplain of Moira River is identified as a *hazard zone*, with an adjacent *Environmentally Sensitive* area. As the intent of Palmer’s study is to define an update to the EP system on the Subject Property, relevant guidelines related to this designation are expanded on below. Although several non-environmental land use designations are currently identified on the Subject Property within the adopted OP and Zoning By-law (as listed above), it is Palmer’s understanding that the ultimate goal of the Municipal Zoning Order (MZO) application is to consolidate all individual zones (non-environmental) into a single, site-specific zone classification that would accommodate a variety of uses that are ultimately part of a future mixed use development plan.

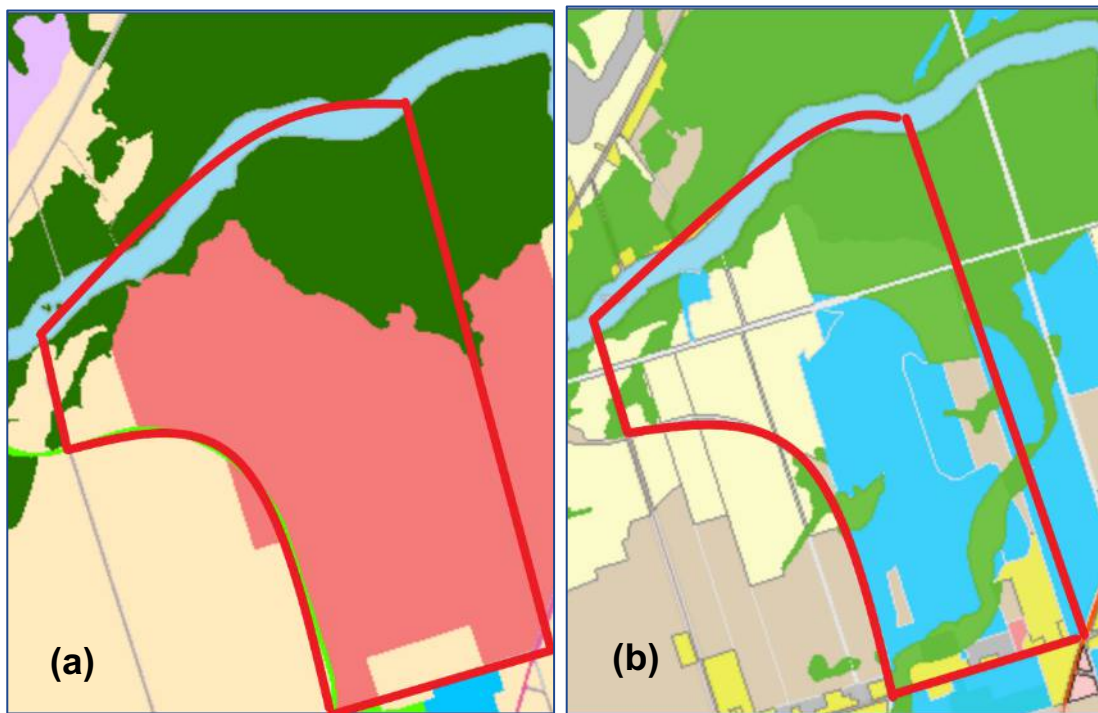
2.2.1 Environmental Protection

As per Section 3.5 of the OP, the Environmental Protection (EP) designation “*is intended to define those lands that require special care and regulation due to their inherent natural or physical characteristics*”. The EP designation may include such features as:

- *natural hazards, being lands or areas that are potentially hazardous to human use or development; examples include floodplains, steep slopes, unstable slopes or soils and/or unstable bedrock, lands having organic soils, poor drainage or a high water table, hazardous forest types for wildland fire, karst topography; and*
- *natural heritage features, being lands that are important for their environmental and social values and which provide important ecological functions; examples include significant wetlands, significant coastal wetlands, other coastal wetlands, significant habitat of endangered and threatened species, significant woodlands and valley-lands, significant wildlife habitat, fish habitat, and significant areas of natural and scientific interest. The natural heritage features also include natural corridors which link natural features and areas and are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems*

According to Section 3.5.3 of the OP, development can occur within adjacent lands (within 120 m) of PSW or in areas of endangered species habitat as long as it can be demonstrated through an EIS that there will be no harm to the system. Section 3.5.5 of the OP states that use of such areas or lands adjacent to these areas (within 50 metres for wildlife habitat, woodlands or valleylands and 30 metres for fish habitat) for other activities or land uses such as residential may be permitted provided that it can be demonstrated through an environmental impact study (EIS) carried out in accordance with Section 3.5.6 of this Plan that

no negative impact on the natural City of Belleville Official Plan 23 features or ecological functions for which the specific area has been identified would occur.



Map B. (a) Belleville OP Schedule A: The Subject Property is designated as Recreation Commercial Land Use (pink), Environmental Protection (green), Open Space (thick green line), and Rural Land Use (beige). (b) Belleville Zoning By-law 3014 Map: Subject Property is designated as Community Facility with Special Provisions (blue), Hazard Zone (dark green), Environmentally Sensitive (light green), Rural (light beige), Prime Agriculture (dark beige), and Estate Residential (yellow).

2.3 The Conservation Authorities Act

The Ontario Provincial Legislature created the *Conservation Authorities Act, 1990* to ensure the conservation, restoration and responsible management of water, land and natural habitat. The Act authorizes the formation of Conservation Authorities.

Although the Act has been amended many times since 1946, the following original key elements remain:

- A Conservation Authority (CA) must be a local initiative established at the request of a watershed's municipalities.
- Each CA operates independently in a co-operative, cost sharing partnership between member municipalities and the Province of Ontario.
- Each CA must have jurisdiction over one or more watersheds and the ability to enforce regulations in order to ensure a complete and rational approach to issues such as flood control and erosion.

Through the Conservation Authorities Act, CAs are able to regulate development and activities in or adjacent to river or stream valleys, Great Lakes and large inland lakes shorelines, watercourses, hazardous lands and wetlands. Conservation Authorities provide technical review as commenting agencies on development applications under the *Planning Act*.

The Conservation Authorities Act directs all Conservation Authorities to produce local regulations to streamline development approvals. It should be noted that the provincial Bill 23, *More Homes Built Faster Act* was passed in November 28, 2022 and subsequently, Ontario Regulation 41/24 took effect on April 1, 2024 (Government of Ontario, 2024). It is recommended that the relevant Conservation Authority (Quinte Conservation) be consulted regularly throughout the application process to ensure compliance.

2.3.1 Quinte Conservation Authority

Quinte Conservation (QC) regulations and policies include the following:

- *Ontario Regulation 41/24 – Prohibited Activities, Exemptions and Permits*. Through this regulation, the QC regulates activities in natural and hazardous areas (e.g., areas in and near rivers, streams, floodplains, wetlands, and slopes and shorelines) (Government of Ontario, 2024).
- *Watershed Regulation O.Reg. 41/24 Policy Manual* (Quinte Conservation, 2024). These documents present the QC's planning and permit review practices and technical guidelines. Relevant policies will be discussed in applicable sections of this report.
- Note that with the newly passed provincial O. Reg. 41/24, conservation authorities no longer have the ability to comment on certain natural heritage features.

As depicted on **Map C**, QC Regulated Area occurs throughout much of the Subject Property. Under Ontario Regulation 41/24, a permit is required from the QC prior to development within their Regulated Areas. QC regulates watercourses and wetlands, and generally requires that hazard lands be protected from adjacent development by a vegetative buffer. The *Watershed Regulation O.Reg. 41/24 Policy Manual* provides the following prescriptive buffers for natural hazards:

- b) Where new development activity is proposed along other watercourses and waterbodies and the elevation of the 1:100 year flood plain is known, all development activity must be located a minimum of 15 metres beyond the extent of the 1: 100 year flood plain;*
- c) Where the elevation of the 1:100 year flood plain is unknown, a minimum setback of 30 metres from the high water mark will be applied for new development activity. However, if a site assessment reveals that the extent of the flood plain can be established (e.g. high granite bank); a minimum 15 metre setback is applied from that point. In cases where there is a dispute over the extent of the flood plain it is the responsibility of the proponent to bring forward documentation such as an engineering analysis or professional survey of the flood plain in support of their position;*
- e) For evaluated wetlands and wetlands greater than 2 hectares in size, a minimum 30 metre setback is applied from the wetland boundary;*
- f) For other wetlands and wetlands less than 2 hectares, a minimum 15 metre setback is applied from the wetland boundary.*



Map C. Quinte Conservation Authority Regulation Map: Approximate Subject Property (outlined in red) has sections that are within Restricted Areas (yellow).

2.4 Endangered Species Act

Species designated as Endangered or Threatened by the Committee on the Status of Species at Risk in Ontario (COSSARO) are listed as Species at Risk (SAR) in Ontario (Government of Ontario, 2007). These SAR and their habitats (e.g., areas essential for breeding, rearing, feeding, hibernation, and migration) are afforded legal protection under the *Endangered Species Act, 2007* (ESA). This *Act* is administered by the Ministry of Environment, Conservation and Parks (MECP).

The protection provisions for species and their habitat within the ESA apply only to those species listed as Endangered or Threatened on the SARO list, being *Ontario Regulation 230/08* of the ESA. Species listed as Special Concern may be afforded protection through policy instruments respecting significant wildlife habitat (e.g., the PPS) as defined by the Province or other relevant authority, or other protections contained in Official Plans.

2.5 Federal Fisheries Act

The *Fisheries Act*, as administered by the Department of Fisheries and Oceans (DFO), was updated on August 28, 2019. The updated *Fisheries Act* aims to protect all fish and fish habitat through general protection provisions. Of these provisions, two core prohibitions provide legislative protection against the death of fish caused by means other than fishing (subsection 34.4(1)), and the “harmful alteration, disruption or destruction of fish habitat” (HADD) (subsection 35(1)) (Government of Canada, 1985).

Under subsection 2(1) of the federal *Fisheries Act*, fish habitat is defined to include all waters frequented by fish and any other areas upon which fish depend directly or indirectly to carry out their life processes. Specific examples of areas that can directly or indirectly support life processes of fish include, but are not limited to, spawning grounds and nursery, rearing, food supply and migration areas.

2.6 Migratory Birds Convention Act

The *Migratory Birds Convention Act, 1994* (MBCA) and Migratory Birds regulations, 2014 (MBR), together with the provincial *Fish and Wildlife Conservation Act* (Government of Ontario, 1997), protect most species of migratory birds and their nests and eggs anywhere they are found in Canada (Government of Canada, 1994). General prohibitions under the MBCA and MBR protect migratory birds, their nests and eggs and prohibit the deposit of harmful substances in waters / areas frequented by them. The MBR includes an additional prohibition against incidental take, which is the inadvertent harming or destruction of birds, nests, or eggs (Government of Canada, 1994).

Compliance with the MBCA and MBR is best achieved through a due diligence approach, which identifies potential risk, based on a site-specific analysis in consideration of the Avoidance Guidelines and Best Management Practices information on the Environment Canada website (Government of Canada, 2018).

3. Study Approach

3.1 Background Review

Palmer has reviewed relevant background material to provide a focus to field investigations and ensure compliance with applicable regulations and policy. Background information collection is guided by the *Natural Heritage Information Request Guide* (Ministry of Natural Resources and Forestry, 2018). Current direction from the Ministry of Natural Resources and Forestry (MNRF) and Ministry of Environment, Conservation and Parks (MECP) is to gather natural heritage information and species occurrence records from available sources; the Natural Heritage Information Centre (NHIC) Make-a-Map application being the main source of information and records from the Ministry itself (Ministry of Natural Resources and Forestry, 2024). Information gathered is recommended to be balanced and supplemented by professional ecological review of potential habitats and characteristics of a project site.

Background review included the collection and review of relevant mapping and reports, including regulations and policies, Official Plans, and zoning by-laws; and the NHIC Make-a-Map application for species occurrences and designated area mapping. In addition to these, the following data sources were reviewed for the project:

- **Land Information Ontario (LIO):** certain data types including aquatic resource area (ARA) information is available through these publicly available data layers (Government of Ontario, 2023).
- **Conservation Authorities:** the Quinte Conservation Authority (QC) collects and maintains natural heritage mapping and data, and publish reports, that all provide regional and often site-specific ecological context.
- **Fisheries and Oceans Canada (DFO):** The DFO maintains mapping of aquatic species at risk (SAR) habitats, including the critical habitat, occupied, and contributing habitat ranges of SAR and Special Concern species (Fisheries and Oceans Canada, 2024).
- **Michalski Nielsen Associates Limited (MNAL) Report (Black Bear Ridge Environmental Impact Study, January 2004):** Michalski Nielsen Associates Limited submitted an Environmental Impact Study report based on the current Subject Property in January of 2004 for a previous development application.
- **Site Investigation Services Limited Report (Summary of Hydrogeological Data Black Bear Ridge Residential and Recreational Development Lots 9, 10 & 11, Concessions 5 & 6 Township of Thurlow, November 1999):** Site Investigation Services Ltd submitted a Hydrogeological study report based on the current Subject Property in November of 1999 for a previous development application.
- **Hydrogeological Assessment Phase One Development (501 Harmony Road, Corbyville, Ontario):** Palmer submitted a hydrogeological assessment for the Subject Property (Palmer, 2024).
- **Aerial Photography, including historical photos:** Available on-line mapping sources were reviewed to identify current potential habitat types, biogeography, and terrain (Google Earth Pro).

Following the *Information Request Guide*, MECP advice and direction should be solicited once potential Species at Risk (SAR) requirements associated with the *Endangered Species Act* are identified via field investigation and analysis.

3.2 Agency Consultation

Terms of Reference

A Terms of Reference was submitted to Quinte Conservation on June 22, 2022 and to the City of Belleville on June 27, 2022 (**Appendix A**). Palmer received a response from the City of Belleville on July 6, 2022 and a response from Quinte Conservation on April 27, 2023 (**Appendix A**).

Public Consultation Meetings

An initial Public Consultation meeting was held on April 11, 2023 for interested stakeholders. A second Public Consultation Meeting was held on the evening of May 28, 2024.

Natural Feature Staking

A wetland and woodland staking exercise was conducted on May 28, 2024 for Phase 1 Lands on the Subject Property. Palmer ecologists and the peer reviewer on file (Dillon Consulting) that has been retained by the municipality, as well as Ontario Land Surveyors, were in attendance.

3.3 Ecological Surveys

Palmer ecologists conducted a total of 11 field investigations between 2022 and 2024. The surveys and the weather conditions of the site visits are included in **Table 1**.

Table 1. Field Investigations

Date	Investigations	Weather Conditions
February 10, 2022	Site Reconnaissance, Ecological Land Classification	2°C, cloudy, 18 km/h winds
June 3, 2022	Breeding Bird Survey	12-17°C, 90% cloud cover, light wind
June 8, 2022	Breeding Amphibian Survey, Flora Survey, Incidental Observations and Headwater Drainage Feature Mapping, Drainage Feature Assessment	16-26°C, mostly sunny, light breeze
June 23, 2022	Breeding Bird Survey	14°C, 5% cloud cover, light wind, low to moderate humidity
July 6, 2022	Breeding Bird Survey	18°C, 90% cloud cover, moderate winds
July 26, 2022	Ecological Land Classification, Flora Survey, Drainage Feature Assessment	20°C, 20% cloud cover, light to moderate winds
September 6, 2022	Ecological Land Classification, Flora Survey	15°C, 50% cloud cover, moderate to high winds
April 25, 2023	Breeding Amphibian Survey	6-7°C, 70% cloud cover, moderate winds (13 km/h)
May 18, 2023	Breeding Amphibian Survey	
May 21, 2024	Natural Feature pre-staking exercise, Ecological Land Classification, Flora Survey	30°C, 30% cloud cover, low winds
May 28, 2024	Natural feature staking exercise, Ecological Land Classification	19°C, partly cloudy, 19 km/h winds

Date	Investigations	Weather Conditions
All dates	Incidental Wildlife, Species at Risk Screening, Significant Wildlife Habitat Screening	-

The methodology associated with each of these surveys are summarized through subsections 3.3.1 to 3.3.7, as follows.

3.3.1 Vegetation and Flora

Vegetation communities were mapped and described following the Ecological Land Classification (ELC) System for Southern Ontario (Lee, et al., 1998). Vegetation community boundaries were delineated on field maps through the interpretation of recent aerial photographs and refined in the field. Information collected during ELC surveys includes dominant species cover, community structure, as well as level of disturbance, presence of indicator species, and other notable features.

Botanical surveys were completed by traversing the site and recording species observed in each vegetation community. Provincial plant status was based on the *Provincially Rare Flora of Ontario* (Oldham & Brinker, 2009) and the NHIC species lists (Ministry of Natural Resources and Forestry, 2023). Searches for Butternut (*Juglans cinerea*) and Black Ash (*Fraxinus nigra*), both *Endangered* trees, were completed during the ELC and botanical surveys.

The boundaries of existing wetland units adjacent to the proposed development of Phase 1 Lands were delineated in accordance with the Ontario Wetland Evaluation System (OWES) protocol (Government of Ontario, 2022) and confirmed with the peer review ecologist.

3.3.2 Aquatic Habitat

Prior to field investigations, aquatic habitats within and adjacent to the Subject Property were queried via the NHIC database as well as from the *Black Bear Ridge Environmental Impact Study* report (MNAL, 2004). During the field reconnaissance, habitat opportunities for aquatic species on and adjacent to the Subject Property were then assessed by comparing habitat preferences of species deemed to have potential to occur given the current site conditions and referencing the previous 2004 MNAL report.

3.3.3 Breeding Bird Surveys

Breeding bird surveys were conducted using a roving survey method over the majority of the Subject Property. Areas excluded from bird surveys were the majority of the Foxboro Swamp, the northern woodlands of the additional lands to the west (449 Harmony Road), and the area around the Migratory Bird Sanctuary (because it was known that these areas would be retained), and small parts of the golf course (because they were outside the Phase 1 area and were thought it unlikely to contain any species of interest). Thus, the site was walked such that the observer was within 50 m of all studied parts of the site. Palmer conducted two breeding bird surveys for most bird species in southern Ontario, at least one week apart within the peak breeding season. Surveys were conducted in the morning between 6 am and 11 am under suitable weather conditions (no to low wind, no precipitation, no extreme temperatures).

A third survey was completed in appropriate habitat as the Subject Property was identified to contain potential habitat for grassland SAR Birds, i.e. Eastern Meadowlark (*Sturnella magna*) and Bobolink

(*Dolichonyx oryzivorus*). Survey protocols for these species require three surveys (Ontario Ministry of Natural Resources, 2013).

3.3.4 Breeding Amphibian Surveys

Amphibian breeding surveys were completed in the Spring of 2022 and 2023, following the Environment Canada's *Marsh Monitoring Program* protocol for surveying amphibians (Bird Studies Canada, 2009). The goal of the survey(s) is to help inform overall wetland quality. The survey method provides an indication of amphibian abundance during the breeding season. Species were identified by call and by visual observation. An abundance code for each species heard calling were assessed by following the *Amphibian Road Call Counts Participants Manual* protocol (Gartshore, et al., 2004):

- Code 0: No calls heard.
- Code 1: Calls not overlapping or simultaneous, number of individual frogs can be counted.
- Code 2: Calls overlapping or simultaneous, number of individuals can still be distinguished, number of individual frogs cannot be counted, but a reliable estimate of numbers can be made based on location and call voices.
- Code 3: Full chorus calls simultaneous and overlapping, numbers of calling males cannot be reasonably counted or estimated.

3.3.5 Incidental Wildlife

Incidental observations of wildlife were made during all Palmer field investigations. Palmer Ecologists assessed the Subject Property and adjacent lands, noting any evidence of wildlife or sensitive habitat features (e.g., bat habitat, bird habitat, wildlife corridors) as well as gaining a general characterization of available habitat.

3.3.6 Species at Risk Habitat Assessment

Prior to field work, existing SAR records were queried with the NHIC database and other online resources. Habitat opportunities for SAR on the site were then assessed by comparing habitat preferences of species deemed to have potential to occur against current site conditions. The species noted during the NHIC search and other species known through professional experience to have potential to occur were considered in the assessment.

3.3.7 Significant Wildlife Habitat Assessment

The criteria for the identification of Significant Wildlife Habitat (SWH) features are provided in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (Ontario Ministry of Natural Resources and Forestry, 2015). These criteria were used to screen wildlife habitat within and adjacent to the Subject Property for potential SWH types. Along with field observations and geographical analysis, these criteria were used to provide an assessment and screening for wildlife habitat within the Subject Property.

4. Existing Environmental Conditions

4.1 Physiography

The Subject Property is located within the Lake Simcoe-Rideau Ecoregion 6E. This region extends from Lake Huron in the west to the Ottawa River in the east and includes most of the Lake Ontario shore and the Ontario portion of the St. Lawrence River Valley. The underlying bedrock in this Ecoregion is Paleozoic dolomite, shale, and limestone. The Subject Property bedrock is overlain with a discontinuous thin layer of drift, glaciolacustrine deposits (sand and gravel), as well as organic deposits (Michalski Nielsen Associates Limited, 2004).

The Subject Property is generally situated on a drumlin which occupies the southern portion of the site and thus, the Phase 1 Lands. Other landforms onsite include two positive landforms (knolls), one on the southwest corner and the other on northwest corner of the site, a wetland in the south part of the site, and ponds created as part of the golf course. The ground surface is undulating with elevations ranging from approximately 107 to 133 meters above sea level (masl), and in general sloping from northeast to southwest along the streamline direction of the drumlin.

Karstification refers to the process where carbonate or other soluble rocks outcrops at the ground surface or under a shallow depth of overburden cover and are exposed to leaching and dissolution by acidic or aggressive atmospheric water to produce a series of landform features, or karst, including sinkholes, caves, natural bridges, sinking streams, dry valleys, karren, stalactites, stalagmites, tufa etc. The site is located in Napanee and Kingston Plains Karst Region (OGS, 2008). Areas mapped by OGS as Known Karst and Potential Karst border the northwest edge of the site. Palmer's initial karst risk assessment indicated that no karst features are anticipated to exist within the Subject Property (Palmer, 2024).

4.2 Site Conditions

The Subject Property is located on the north side of Harmony Road and is primarily a mixed-use landscape surrounded by agricultural fields, residential properties, and recreational land-use. Palmer's field investigations included documentation of vegetation communities, natural features, wildlife presence and habitat, and general site conditions. The Subject Property is surrounded by the Moira River to the north, swamp associated with the Foxboro PSW to the northeast, recreational land-use (i.e., golf course) to the east, residential dwellings and Harmony Road to the south, and a snowmobile trail, agricultural fields, and forest-wetland complexes to the west. In the south-central portion of the Subject Property, anthropogenic areas (i.e., 27-hole golf course, laneways, recreational and commercial dwellings, man-made ponds, and treed hedgerows) dominate the landscape. Red cedar (*Juniperus virginiana*) regeneration, cultural woodlands, and plantations are abundant along the edges of the golf course. The northern limit of the Area Outside of Phase 1 Lands consists of both contiguous and fragmented tracts of forest, drainage features, as well as the Foxboro Swamp PSW and unevaluated wetlands. An anthropogenic area, at the northwestern edge of the Subject Property, contains one abandoned dwelling, an existing access ramp to the Moira River, and sparse tree regeneration. The southeastern corner of the Subject Property has since been developed from the outset of this study and is not discussed further in this report

The Phase 1 Lands consist of relatively more disturbed, cultural communities than that of the Area Outside of Phase 1 Lands. However, some natural and hydrological features are present. Specifically, a (warm) watercourse flows southward from a managed wetland feature identified as a Migratory Bird Nesting Sanctuary, through a series of constructed ponds and wetlands (including the Corbyville PSW) and exits the Subject Property under Harmony Road. A maple deciduous swamp, associated with the Corbyville PSW complex), sits within the additional lands to the west (449 Harmony Road). Small tracts of treed areas, as well as unevaluated and Other Wetlands are also present.

4.3 Vegetation Communities and Flora

4.3.1 Vegetation Communities

Vegetation communities were mapped and described in general accordance with the Ecological Land Classification (ELC) System for Southern Ontario (Lee, et al., 1998) on **Figure 3**. A total of fifteen ELC communities were identified within the Phase 1 Lands, which are described in detail through Sections 4.3.1.1 - 4.3.1.2, below. Further characterization of communities throughout the Area Outside of Phase 1 Lands is provided in **Appendix B**.

The Subject Property includes large areas of anthropogenically influenced communities. For example, an 18-hole golf course, hydro corridor, laneways, agricultural fields, old field meadows, hedgerows, constructed ponds, and tree plantations. Tracts of forest on the Subject Property, primarily in the northwest area, were fragmented by a previous owner as part of an earlier development plan. Provincially Significant Wetlands (Foxboro Swamp, Corbyville Wetland), unevaluated and Other Wetlands are also present. The location and distribution of wetlands as mapped by the MNRF was confirmed through field surveys and found to be less representative than the MNRF mapping. A large, constructed Migratory Bird Sanctuary sits in the southeast area of the Subject Property, partially within Phase 1 Lands.

4.3.1.1 Terrestrial Systems

Agricultural (AGR)

Agricultural fields were located at 449 Harmony Road and are fragmented by primarily deciduous hedgerows (HR) and an anthropogenically-influenced cultural woodland/thicket community. The western agricultural lands were noted as fallowed at the time of Palmer's 2024 site visit (**Photo 1**). The northern most agricultural field within the western additional lands was noted as plowed more recently.

Hedgerow (HR)

Hedgerows are found throughout the Phase 1 Lands. The hedgerows primarily consisted of deciduous tree species such as maple (*Acer* sp.), dead/dying Red Ash (*Fraxinus pennsylvanica*), oak sp. (*Quercus* sp.), and White Elm (*Ulmus americana*). The understory was typically dominated by shrub species including European Buckthorn (*Rhamnus cathartica*), Tatarian Honeysuckle (*Lonicera tatarica*), Grey Dogwood (*Cornus racemosa*), and Common Prickly Ash (*Zanthoxylum americanum*).

Coniferous Plantation (CUP3)

Coniferous plantations are present within the Phase 1 Lands, typically surrounded by cultural lands, and consist of young White Spruce (*Picea glauca*), Red Cedar (*Juniperus virginiana*), and Scots Pine (*Pinus sylvestris*) (**Photo 2**). Understory and ground cover was minimal throughout all communities but European Buckthorn and Riverbank Grape (*Vitis riparia*) were noted in the understory.

Mineral Cultural Meadow (CUM1)

Three isolated meadow communities were identified within the Phase 1 Lands. A pocket in the southeast corner, adjacent to a cultural plantation, cattail shallow marsh, and mowed lawn, was dominated by

Common Milkweed (*Asclepias syriaca*), sweet clover (*Melilotus* sp.) and Rough Fleabane (*Erigeron strigosus*). The occasional Hemp Dogbane (*Apocynum cannabinum*), Wild Carrot (*Daucus carota*), Garden Bird's-foot Trefoil (*Lotus corniculatus*), and Dudley's Rush (*Juncus dudleyi*) were recorded. A sparse understory of stunted Red Cedar, Scots Pine, and Eastern Cottonwood (*Populus deltoides*) were observed throughout the community (**Photo 3**).

The second meadow community in the Phase 1 Lands was surrounded by golf course lands, mowed lawn, and a mixed forest. The community primarily consisted of Smooth Brome (*Bromus inermis*), with frequent Wild Timothy (*Muhlenbergia racemosa*), Viper's Bugloss (*Echium vulgare*), Early Goldenrod (*Solidago juncea*), Wild Bergomot (*Monarda fistulosa*), Common Milkweed, and Tufted Vetch (*Vicia cracca*). The occasional Wild Carrot, Common St. John's Wort (*Hypericum perforatum*), and Red Clover (*Trifolium pratense*) were recorded. Sparse, sapling Juniper were also recorded throughout the community.

The third meadow community was located within the deciduous forest of the additional lands to the west (see FOD below). This community was a small, isolated pocket dominated by Kentucky Bluegrass (*Poa pratensis*) and Tufted Vetch.

Cultural Woodland / Thicket (CUW1/CUT1)

A young, moist cultural woodland/thicket community was found in the additional lands to the west. The community consisted of frequent dead Red Ash and Red Cedar in the canopy, and dense European Buckthorn, Common Prickly Ash, and Grey Dogwood in the understory. This community was mapped by the MNRF as an unevaluated wetland however, no definitive wetland characteristics (i.e., plants, saturated soils) were observed at the time of Palmer's September 2022 and May 2024 visit. Evidence of historical disturbance (i.e. invasive species, clearing) to the community was also observed. A moist regenerating upland thicket best characterizes this community.

Dry - Fresh White Cedar Coniferous Forest (FOC2-2)

An upland Eastern White Cedar Forest community was observed adjacent to the PSW deciduous swamp within the additional lands (**Photo 4**). Ground cover within the community was minimal due to the dense canopy however, the occasional Virginia Creeper (*Parthenocissus quinquefolia*) was recorded.

Mixed Forest (Sugar Maple / Red Cedar) (FOM)

A mixed forest, dominated by Sugar Maple and Red Cedar in the canopy, was observed along the northwest boundary of the Phase 1 Lands (**Photo 5**). The occasional Trembling Aspen, Silver Maple (*Acer saccharinum*), White Oak, White Elm, and Ironwood (*Ostrya virginiana*) were also observed in the tree canopy. European Buckthorn, Common Prickly Ash, Blue Beech (*Carpinus caroliniana*), Ironwood, and Grey Dogwood were recorded within the relatively dense understory. The community consisted of a moderately dense ground cover including European Buckthorn, Sugar Maple saplings, Zig Zag Goldenrod (*Solidago flexicaulis*), Bitternut Hickory saplings (*Carya cordiformis*), Jack-in-the-pulpit (*Arisaema triphyllum*), Blue Phlox (*Phlox divaricata*), Licorice Bedstraw (*Galium circaezans*), Virginia Creeper, Enchanter's Nightshade (*Circaea* sp.), Bracken Fern (*Pteridium aquilinum*), Solomon's Seal (*Maianthemum* sp.), sedges (*Carex* sp.), and violets (*Viola* sp.).

Dry – Fresh Mixed Forest (FOM)

A mixed forest community, positioned along the drumlin slope, was dominated primarily by Sugar Maple with abundant Ironwood and the occasional White Pine (*Pinus strobus*) and Shagbark Hickory (*Carya ovata*) (**Photo 6**). A few Red Oak (*Quercus rubra*) individuals were also recorded within the canopy. European Buckthorn, with the occasional White Ash (*Fraxinus americana*), was present throughout the understory and ground cover. The ground cover within the community consisted of Eastern Star Sedge (*Carex radiata*), Red Baneberry (*Actaea rubra*), Arrow-leaved Aster (*Symphyotrichum urophyllum*), Plantain-leaved Sedge (*Carex plantaginea*), Blue-stemmed Goldenrod (*Solidago caesia*), and gooseberry (*Ribes* sp.).

Deciduous Forest (FOD)

A small deciduous forest was also observed along the Phase 1 Lands eastern boundary, surrounded by a constructed pond (**Photo 7**). The community consisted of maple sp. in the canopy, with a dense shrub understory including European Buckthorn, Grey Dogwood, Staghorn Sumac (*Rhus typhina*), and Tatarian Honeysuckle. Access constraints prevented further assessment of the community.

Mixed Forest (Red Cedar / Red Ash) (FOM)

A mixed forest stand is present on the Subject Property, along the southern boundary within the Phase 1 Lands (**Photo 8**). The mixed forest community was largely bordered by the Corbyville PSW to the north and non-participating residential properties to the south. The community was dominated by Red Cedar, with dead/dying Red Ash along the northern fringe. A dense shrub understory consisting of European Buckthorn, Common Prickly Ash, Grey Dogwood, Tatarian Honeysuckle, willow sp. (*Salix* sp.), and Red Osier Dogwood (*Cornus sericea*) was observed along the western and northern fringes of the community. Other mixed forest stands observed in Palmer's field investigations comprised of Red Oak, Sugar Maple, Ironwood, Basswood (*Tilia americana*), and Paper Birch (*Betula papyrifera*).

4.3.1.2 Wetland Systems

Cattail Mineral Shallow Marsh (MAS2-1)

Cattail mineral shallow marshes were present within the southern and eastern reaches of the Phase 1 Lands (**Photo 9**). A large shallow marsh was identified as part of the Corbyville PSW complex near Harmony Road. The cattail-dominated (*Typha* sp.) community also consisted of Reed Canarygrass (*Phalaris arundinacea*) and Purple Loosestrife (*Lythrum salicaria*), specifically along its fringe and immediately north of Harmony Road. Red Cedar, Grey Dogwood, alder sp. (*Alnus* sp.), Bebb's Willow (*Salix bebbiana*), willow sp., Red Osier Dogwood, Nannyberry (*Viburnum lentago*), and Tatarian Honeysuckle were observed along the fringe of the community.

Reed Canarygrass Mineral Meadow Marsh (MAM2-2)

A small Reed Canarygrass dominated meadow marsh was observed within the additional lands to the west. Ponded water was observed along the fringe of the community at the time of Palmer's May 2024 site visit. The community was surrounded by both deciduous and coniferous forest.

Two small Reed Canarygrass inclusions, north and west of the 2.5 ha coniferous plantation (CUP3) community of the Phase 1 Lands, were confirmed and staked by Palmer staff on May 21 and May 28, 2024. The west inclusion was also staked alongside the peer reviewer on file. Both inclusions existed along the fringe of the constructed pond onsite. The west inclusion was dominated by Reed Canarygrass with frequent Meadowsweet (*Spirea alba*) and willow shrubs. The north inclusion was also dominated by Reed Canarygrass but with frequent cattail, primarily near the pond's edge.

Mineral Deciduous Swamp (SWD)

Two deciduous swamps were identified and delineated by Palmer (partially using aerial imagery due to access constraints) within the Subject Property (**Photo 10**). The tree canopy of the unevaluated swamp along the Phase 1 Lands north boundary was dominated by dead/dying Red Ash, with occasional Silver Maple (*Acer saccharinum*), and willow. The community's understory consisted of Common Prickly Ash and European Buckthorn. Pockets of Reed Canarygrass, with frequent Water Hemlock (*Cicuta* sp.), and the occasional cattail, Devil's Beggarticks (*Bidens frondosa*), Stinging Nettle (*Urtica dioica*), and Sensitive Fern (*Onoclea sensibilis*) were recorded.

The SWD community at the northern boundary of the Phase 1 Lands, surrounded by golf course lands, primarily consisted of dead Red Ash, Silver Maple, and Balsam Poplar (*Populus balsamifera*). Clearing practices and indirect impacts associated with the adjacent golf course lands were evident at the time of Palmer's 2022 visit.

Maple Deciduous Swamp (SWD3)

A Freeman's Maple (*Acer x freemanii*) and Silver Maple dominated swamp community was identified within the additional lands to the west (**Photo 11**). This swamp is classified as part of the Corbyville PSW complex and is largely not within the Subject Property boundaries. A farming right-of-way was noted to transect the community, running north-south. A small shallow aquatic and a Reed Canarygrass inclusion was recorded within the community, on the Subject Property but was not mapped due to relative size. A thin film of algae was noted as covering the surface of the shallow aquatic inclusion at the time of Palmer's 2022 site visit. The Reed Canarygrass inclusion also consisted of Nodding Beggarticks (*Bidens cernua*), Spotted Jewelweed (*Impatiens capensis*), and scarce Burreed (*Sparganium* sp.). During Palmer's May 2024 site visit, the entire community, including both inclusions, were flooded.

Mineral Thicket Swamp (SWT2)

A small Mineral Thicket Swamp was dominated by Red Osier Dogwood and Grey Dogwood and surrounded by Cattail Mineral Shallow Marsh (MAS2-1) associated with the Corbyville PSW complex.



Photo 1. Hayfield within the additional lands (May 21, 2024).



Photo 2. Coniferous Plantation (CUP3) in the Phase 1 Lands (February 10, 2022).



Photo 3. Cultural meadow (CUM1-1) in the southeast of the Phase 1 Lands (July 26, 2022).



Photo 4. White Cedar forest community (FOC2-2) within the additional lands (September 6, 2022).



Photo 5. A mixed forest community (FOM, Red Cedar / Sugar Maple) within the additional lands (May 21, 2024).



Photo 6. Mixed forest community along a drumlin slope within the Phase 1 Lands (July 26, 2022).



Photo 7. Deciduous Forest community (FOD) within Phase 1 Lands (May 21, 2024).



Photo 8. Mixed Forest community (FOM) along the southern boundary of the Phase 1 Lands (May 21, 2024).



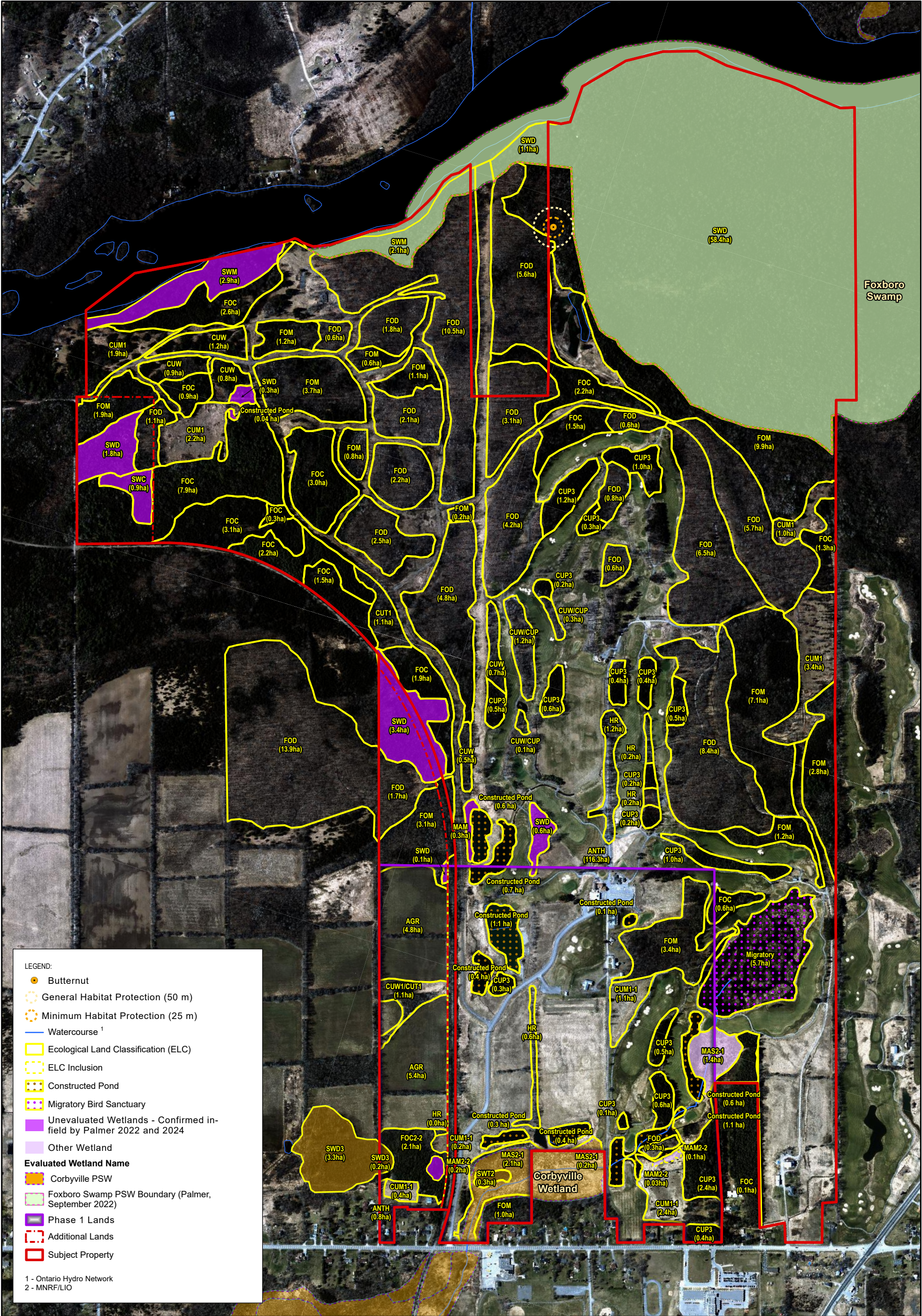
Photo 9. Cattail shallow marsh community (MAS2-1) associated with the Corbyville PSW (May 21, 2024).



Photo 10. Deciduous swamp community (SWD) within the additional lands (May 21, 2024).



Photo 11. Flooded Maple deciduous swamp (SWD3) within the additional lands to the west (May 21, 2024).



LEGEND:

Butternut

General Habitat Protection (50 m)

Minimum Habitat Protection (25 m)

Watercourse ¹

Ecological Land Classification (ELC)

ELC Inclusion

Constructed Pond

Migratory Bird Sanctuary

Unevaluated Wetlands - Confirmed in-field by Palmer 2022 and 2024

Other Wetland

Evaluated Wetland Name

Corbyville PSW

Foxboro Swamp PSW Boundary (Palmer, September 2022)

Phase 1 Lands

Additional Lands

Subject Property

1 - Ontario Hydro Network

2 - MNRF/LIO

ELC Legend

Forest Community
FOC: Coniferous Forest
FOD: Deciduous Forest
FOM: Mixed Forest

Cultural Community
AGR: Agricultural
CUP3: Coniferous Plantations
CUM1: Mineral Cultural Meadow
CUT1: Cultural Thicket
CUW: Cultural Woodland
HR: Hedgerow

Wetland Community
MAM: Mineral Meadow Marsh
MAM2-2: Reed Canarygrass Mineral Meadow Marsh
MAS2-1: Cattail Mineral Shallow Marsh
SWT2: Mineral Thicket Swamp
SWC: Coniferous Swamp
SWD: Deciduous Swamp
SWD3: Maple Deciduous Swamp

0100200300

Metres

North American Datum 1983

Universal Transverse Mercator Projection Zone 18

Scale: 1:9,000

Page Size: Tabloid (11 x 17 inches)

Drawn: SM

Checked: ED

Date: Aug 6, 2024

Source Notes: Base imagery (2019) provided by City of Belleville GIS REST services.

NORTH

CLIENT	Black Bear Ridge GP Inc	
PROJECT	Black Bear Ridge Natural Heritage Review and Environmental Constraints Analysis	
TITLE	Existing Environmental Conditions	
REF. NO.	2200901-MR03-1	Figure 3
Palmer TM PART OF SLR		

4.3.2 Flora

From the spring and summer surveys, 172 species of vascular plants were recorded within the Subject Property, including 113 (66%) native species, 34 (20%) which are non-native to Ontario, and 25 species that were identified to the genus only due to the limited representation of key characteristics (**Appendix C**). The recorded presence of this percentage of non-native species is indicative of farming and past anthropogenic disturbance and is typical of developed areas in Southern Ontario (Morton & Venn, 1984). Similarly, Oldham et al. (1995) indicate that in southern Ontario plant communities, non-native flora presence averages between 20% and 30%. All native plants were identified as S4 or S5 ranking, indicating that they are common within Ontario (Ministry of Natural Resources and Forestry, 2021). One Butternut (*Juglans cinerea*) was observed within the deciduous forest community (FOD) adjacent to the Foxboro Swamp (**Figure 3**), outside the Phase 1 Lands. Thus, impacts and mitigations for the recorded Butternut will be discussed in future development phases.

Coefficients of Conservatism (scale of 1-10) values are used to indicate the ecological sensitivity of a species (10 being the most sensitive), including those that are least aggressive, least able to spread, and typically confined to certain natural habitats (Caitling, 2013). A total of ten plant species, identified on the Subject Property, were identified to have a Coefficient of Conservatism of 7 or 8 (**Appendix C**). Two species on this list had a Coefficient of Conservatism of 8, Butterfly Milkweed (*Asclepias tuberosa*) and Sharp-lobed Hepatica (*Hepatica acutiloba*). The former species was observed within the cultural meadow community (3.4 ha) along the eastern property boundary, adjacent to Trillium Woods Golf Course (outside of Phase 1 Lands). The latter species was recorded within the mixed forest community (9.9 ha) contiguous with the Foxboro Swamp, also outside of Phase 1 Lands.

4.3.3 Breeding Bird Surveys

A total of 61 breeding season bird species were observed – five of these were considered to be foraging on site only or using the area post-breeding season (**Appendix D**). The birds observed were a diverse group as would be expected given the wide variety of habitats on the property (forests, grasslands, wetlands and a variety of edge habitats). Note that additional forest and wetland species would be expected to have been recorded if the whole of the large wetland in the northeast was surveyed, however this was not surveyed due to it being a protected area. Six Species at Risk were recorded; no provincially rare (i.e. S1 through S3 species) species were recorded; and based on our professional experience, no regionally rare species were recorded. The Species at Risk are discussed after the general discussion regarding birds.

4.3.3.1 Birds of the Phase 1 Lands

The 39 bird species observed in Phase 1 Lands were a mixture of disturbance-tolerant edge species that are common and widespread in southern Ontario as well as less common grassland and shrub species. The six most abundant species in order of abundance were: Song Sparrow (*Melospiza melodia*), American Robin (*Turdus americanus*), Red-winged Blackbird (*Agelaius phoeniceus*), American Goldfinch (*Carduelis tristis*), Common Yellowthroat (*Geothlypis trichas*) and Warbling Vireo (*Vireo gilvus*).

Other species present were three grassland area-sensitive species: Savannah Sparrow (*Passerculus sandwichensis*), Bobolink (*Dolichonyx oryzivorus*), and Eastern Meadowlark (*Sturnella magna*). Area-sensitive species are those which either require larger patches of habitat (whether grassland or forest) in which to breed or are more productive in larger patches of habitat. Note that while Savannah Sparrow is

considered an area-sensitive open-land species, it is a very common species in southern Ontario in both row crop and abandoned agricultural fields. On the other hand, Bobolink and Eastern Meadowlark require grasslands, old field or pasture habitat. The latter two species are Species at Risk and are discussed in section 4.3.3.3.

Additionally, bird species within Phase 1 Lands included some normally associated with shrublands that were using the wide hedgerows and similar habitats (e.g. Brown Thrasher *Toxostoma rufum*, Field Sparrow *Spizella pusilla* and Cedar Waxwing *Bombycilla cedrorum*), as well some common wetland species (Mallard *Anas platyrhynchos* and Common Yellowthroat). A less frequently observed Eastern Bluebird (*Sialia sialis*) was observed using one of the nest boxes, as were four pairs of Tree Swallows (*Tachycineta bicolor*) which were nesting in nest boxes in the meadow area north of Corbyville Wetland.

4.3.3.2 Birds of the Area Outside Phase 1 Lands

Of the 50 species observed in the other areas the majority were forest species, with a large percentage of 'generalists' (i.e. those that are more tolerant of disturbance, which use edges, or are found in several habitat types) (**Appendix D**). The five most abundant species in order of abundance in this area were: Red-eyed Vireo (*Vireo olivaceus*), Eastern Wood-Pewee (*Contopus virens*), Yellow-bellied Sapsucker (*Sphyrapicus varius*), Black-capped Chickadee (*Poecile atricapillus*) and Song Sparrow. All but the last are forest species. Additionally, of the birds observed in this area, 12 were forest area-sensitive species; many of these were forest warbler species, but other area-sensitive species were raptors, woodpeckers, nuthatches and Scarlet Tanager (*Piranga olivacea*). Thus, much of this area is good quality forest bird habitat, although it appears to have been degraded due to the presence of numerous small roads leading to the presence of Song Sparrows, Indigo Buntings (*Passerina cyanea*), Chestnut-sided Warbler (*Setophaga pensylvanica*), Baltimore Oriole (*Setophaga pensylvanica*) and other species that are edge species or gap species.

4.3.3.3 Avian Species at Risk

Four breeding Species at Risk (SAR) birds were observed in the surveyed area, with an additional SAR observed foraging over the property, but thought not to be nesting. The nesting species were Eastern Wood-Pewee, Wood Thrush (*Hylocichla mustelina*), Bobolink and Eastern Meadowlark.

Fourteen territories of the Special Concern Eastern Wood-Pewee were recorded in the woodland areas outside of Phase 1 Lands and three territories were recorded within the Phase 1 Lands. This songbird is still a common species found in deciduous and mixed woodlands of many types and sizes.

Six territories of the Special Concern Wood Thrush were recorded in the woodlands outside of Phase 1 Lands. This species is still relatively in common deciduous and mixed forest habitat and some consider it to be a forest area-sensitive species.

An estimated three territories of the Threatened Eastern Meadowlark were observed in two general locations: in the meadow north of Corbyville Wetland, and in the hayfields west of the recreational snowmobile trail dividing the two parts of Phase 1 Lands (**Figure 4**). This species has large territories that are found in hayfields, old fields and early successional lands.

One Threatened Bobolink territory was observed on one of the hayfields west of the recreational snowmobile trail in the Phase 1 Lands (**Figure 4**). Bobolink is still moderately common across southern Ontario in large old fields and hayfields.

One Barn Swallow (*Hirundo rustica*) was observed foraging over the surveyed area. No nests were found in buildings, although an extensive search was not completed. This species has recently been downgraded from Threatened to Special Concern. It is a species of rural landscapes that usually nests on buildings and forages over wetlands, meadows and fields.

Mitigation for nesting avian Species at Risk, if needed, is discussed under the Impacts and Mitigation section of this report.

4.3.4 Breeding Amphibian Surveys

The surveys conducted targeted 13 potentially suitable wetland areas and constructed ponds on Subject Property for breeding amphibians (**Figure 4**). Six species of amphibians were recorded during the surveys including: Gray Treefrog (*Dryophytes versicolor*), Northern Spring Peeper (*Pseudacris crucifer*), Northern Leopard Frog (*Lithobates pipiens*), Green Frog (*Lithobates clamitans*), and American Bullfrog (*Lithobates catesbeianus*). A summary of the surveys is provided in **Table 2**. One Wood Frog (*Lithobates sylvaticus*) as well as Green Frogs and Northern Leopard Frogs were incidentally observed within the Foxboro Swamp, and adjacent forest, during daytime field surveys. Bullfrog and Northern Leopard Frog individuals and Green Frog (Code 2-2) calls were also incidentally recorded within the southern constructed ponds and Migratory Bird Sanctuary.

Table 2. Breeding Amphibians (2022 & 2023)

Breeding Amphibian Monitoring Station	April 2023	May 2023	June 8, 2022
Weather Conditions:	6°C, Beaufort wind 1, 70% cloud cover, light precipitation	19°C, 10% cloud cover, light wind	20°C, 50% cloud cover, light wind
Station 1	Northern Spring Peeper: Code 1-6	No amphibian calls	Gray Treefrog: Code 3
Station 2	No amphibian calls	No amphibian calls	Gray Treefrog: Code 3
Station 3	No amphibian calls	No amphibian calls	No amphibian calls
Station 4	Northern Spring Peeper: Code 3	Northern Spring Peeper: Code 1-1	Gray Treefrog: Code 2-6
Station 5	Northern Spring Peeper: Code 2-18 Northern Leopard Frog: Code 1-4	No amphibian calls	Green Frog: Code 1-1
Station 6	Northern Spring Peeper: Code 1-5	No amphibian calls	No amphibian calls
Station 7	Northern Spring Peeper: Code 1-10 Off Property (7b, Figure 4) Northern Leopard Frog:	No amphibian calls	Gray Treefrog: Code 3

Breeding Amphibian Monitoring Station	April 2023	May 2023	June 8, 2022
	Code 1-2		
Station 8	Northern Spring Peeper: Code 1-4 Northern Leopard Frog: Code 1-4	No amphibian calls	Gray Treefrog: Code 3 American Bullfrog: Code 2-3
Station 9	No amphibian calls	No amphibian calls	Gray Treefrog: Code 3 American Bullfrog: Code 2-2
Station 10	Northern Spring Peeper: Code 3 Northern Leopard Frog: Code 1-1	No amphibian calls	Gray Treefrog: Code 3
Station 11	No amphibian calls	No amphibian calls	No amphibian calls
Station 12	Northern Spring Peeper: Code 2-15	No amphibian calls	Gray Treefrog: Code 3
Station 13	Northern Spring Peeper: Code 1-4 Northern Leopard Frog: Code 1-3	No amphibian calls	Gray Treefrog: Code 3
Station 14	Northern Spring Peeper: Code 3	No amphibian calls	Not surveyed.

***Note:**

The calling codes are designated according to the Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (Bird Studies Canada, 2009).

They are as follows:

- 1 – Individuals of one species can be counted, calls are not overlapping; second number denotes number of individuals.
- 2 – Calls of one species are overlapping; second number denotes estimated number of individuals.
- 3 – Full chorus of one species, calls continuous and overlapping, individuals not distinguishable.

4.3.5 Incidental Wildlife

During Palmer's 2022, 2023, and 2024 field surveys, incidental wildlife were recorded and are listed below:

- Green Frog (*Lithobates clamitans*)
- Northern Leopard Frog (*Lithobates pipiens*)
- American Bullfrog (*Lithobates catesbeianus*)
- Wood Frog (*Lithobates sylvaticus*) – heard calling in southern constructed pond during daytime surveys (May 2024)
- Virginia Rail (*Rallus limicola*) – heard calling within the southern MAS2-1 of the Corbyville PSW (May 2024)
- White-tailed Deer (*Odocoileus virginianus*) – individuals, tracks, scat throughout property
- Red-tailed Hawk (*Buteo jamaicensis*)
- American Robin (*Turdus migratorius*)
- Black-capped Chickadee (*Poecile atricapillus*)
- Common Garter Snake (*Thamnophis sirtalis*)
- Red-winged Blackbird (*gelaius phoeniceus*)
- Canada Goose (*Branta canadensis*)
- Pumpkinseed (*Lepomis gibbosus*) – observed within southern constructed ponds

- Monarch (*Danaus plexippus*) – observed within the southern cultural meadows
- Smallmouth Bass (*Micropterus dolomieu*) – observed within the constructed pond in Foxboro Swamp
- Northern Watersnake (*Nerodia sipedon sipedon*) – observed within the constructed pond in Foxboro Swamp
- North American Beaver (*Castor canadensis*) – observed within the southeast constructed pond
- Great Blue Heron (*Ardea herodias*) – observed flying overhead of southern constructed ponds (multiple occurrences) in 2024; individual observed hunting along the edge of a southern constructed pond (May 2024)
- Mallard (*Anas platyrhynchos*) – call heard within the MAM2-2 community in the additional lands to the west

4.4 Surface Water Features

4.4.1 Moira River

The Moira River, north of the Subject Property, and its associated watershed occupy an area of 2,735 square kilometres (MNAL, 2004). Moira River flows south and eventually drains into the Bay of Quinte in Belleville. Despite the generally steep gradient of the Moira River, a wide, low gradient channel is observed adjacent to the Subject Property. Aquatic habitat observed as recorded by MNAL (2004) adjacent to the Subject Property aligned well with wide, low gradient channels.

4.4.2 Constructed Ponds

A number of constructed ponds were recorded on the Subject Property during Palmer's background review and field investigations (**Figure 4**). One constructed pond was observed in the northwestern portion of the Subject Property, upstream of a drainage feature that terminated at Moira River to the north.

A large, constructed pond was observed north of the 19-hole golf course on the Subject Property, immediately south of the Foxboro Swamp and within a clearing established by the previous property owner (**Figure 4**). It is Palmer's understanding that these ponds do not contribute directly (other than seasonal overtopping) to the overall drainage or overall hydrology of the site as they were initially constructed for recreational use only (i.e., swimming, fishing, skating). Two additional constructed ponds were observed in the interior of the 18-hole golf course and are also considered to be unrelated to the overall drainage or hydrology of the site.

Two constructed ponds observed along the western edge of the 18-hole golf course were determined to be the primary source of surface water to the adjacent Trillium Woods Golf Course via a dug, intermittent drainage channel running east-west. The dug channel was intended to provide the adjacent property with water in the spring and fall seasons, with little to no flow during the summer and winter seasons (MNAL, 2004). Palmer's field investigations confirmed the easterly flow direction towards Trillium Woods Golf Course (**Figure 4**), as well as the aforementioned low- and high-flow periods.

Two additional ponds were observed southwest of the local topographic high (drumlin feature) situated in the central region of the property. Drainage into these two constructed ponds followed local topography. It

is Palmer's understanding that these constructed ponds act as an irrigation source for the 18-hole golf course on site.

A constructed Migratory Bird Nesting Sanctuary and various other online, constructed ponds were observed in the southern portion of the Subject Property. In 2000, the previous owner of Black Bear Ridge Resort, along with Ducks Unlimited and permission from QC (Permit 64/99, August 11, 2000 and Permit 101/2001, August 16, 2001), decided to develop migratory bird nesting areas rather than have conventional stormwater treatment ponds (MNAL, 2004). An intermittent, warmwater watercourse flows south from the Migratory Bird Nesting Sanctuary and is directed through a series of bird nesting ponds, as well as Other wetlands (MAS2-1) and a Provincially Significant Wetland (Corbyville PSW) (**Figure 4**). Drainage subsequently flows south under Harmony Road, into a series of wetland depressions and ultimately, Moira River (MNAL, 2004).

4.4.3 Drainage Features

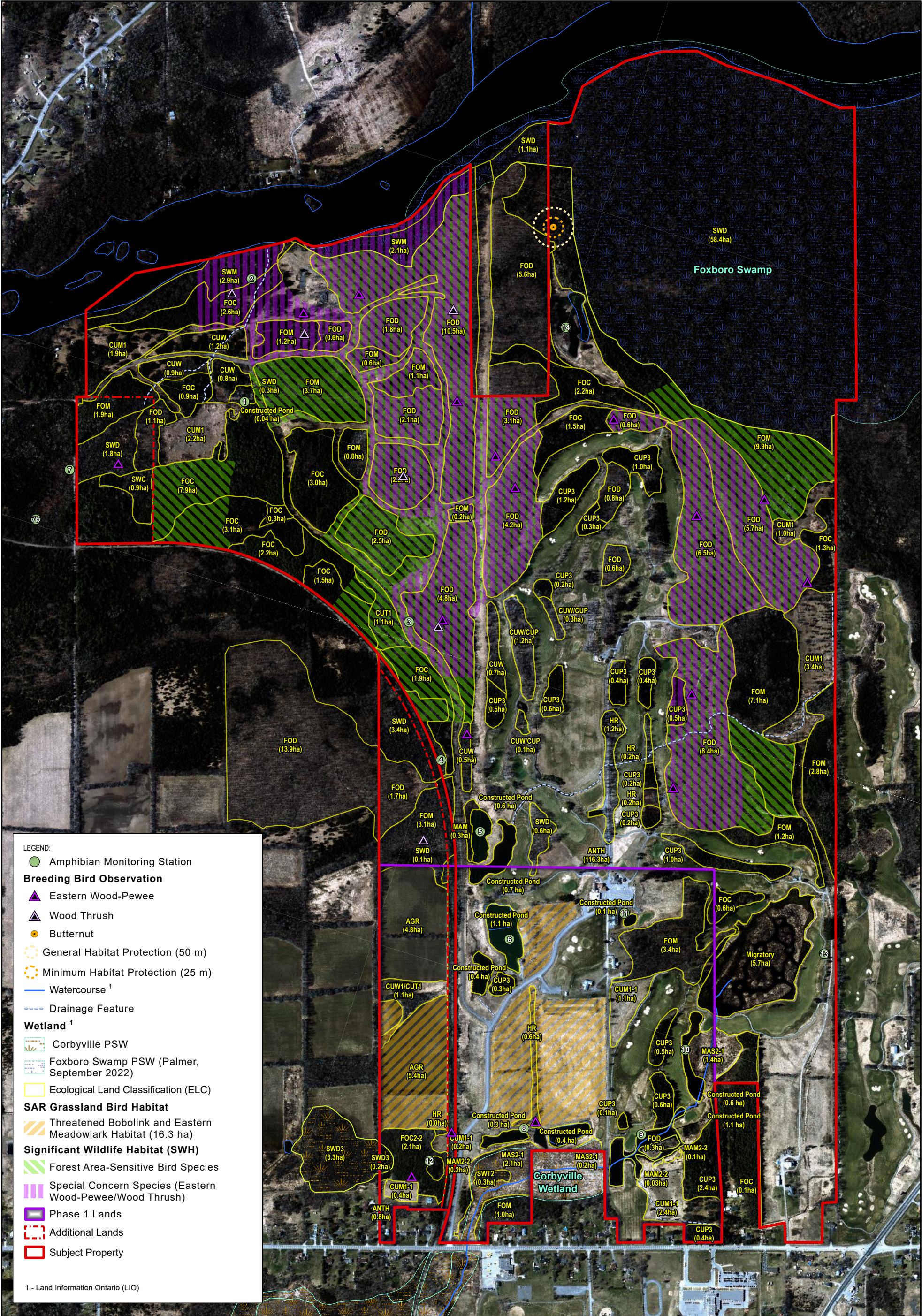
All drainage features identified on the Subject Property were noted as intermittent by Palmer staff. Flow peaked in the spring season, with little to no flow observed within the features during the summer and winter months. All drainage features observed on the Subject Property are presumed to be man-made and/or previously altered by a previous owner for recreational purposes and/or future development (**Figure 4**). The watercourse in the southeastern corner and the drainage feature running east-west are considered indirect or direct fish habitat.

An intermittent, drainage feature exists in the northwest corner to direct water north toward Moira River from the unevaluated wetland along Homan Road (**Figure 4**). The drainage feature utilized a series of culverts and dug channels to direct flow under existing dirt laneways and through fragmented, treed areas.

An intermittent, drainage feature (originating from a constructed pond onsite) runs in an easterly direction, bisecting the Subject Property and ultimately draining onto the adjacent golf course lands (Trillium Woods Golf Course). Palmer understands that this drainage feature was built under an agreement made between the previous landowner and the Trillium Woods landowner (Michalski Nielsen Associates Limited, 2004).

A short, intermittent drainage feature presumably feeds two ponds on the western side of the golf course lands, originating in the east under the main Black Bear Ridge access road (**Figure 4**).

An intermittent watercourse, in the southeastern portion of the Subject Property, originates in the Migratory Bird Sanctuary and flows south through Other Wetlands, online constructed ponds, and the Corbyville PSW prior to exiting under Harmony Road (**Figure 4**). During Palmer's 2024 survey, overland flow was noted as entering the Corbyville PSW (MAS2-1) from a constructed pond to the north.



LEGEND:

● Amphibian Monitoring Station

Breeding Bird Observation

▲ Eastern Wood-Pewee

▲ Wood Thrush

● Butternut

○ General Habitat Protection (50 m)

○ Minimum Habitat Protection (25 m)

— Watercourse ¹

--- Drainage Feature

Wetland ¹

Corbyville PSW

Foxboro Swamp PSW (Palmer, September 2022)

Ecological Land Classification (ELC)

SAR Grassland Bird Habitat

Threatened Bobolink and Eastern Meadowlark Habitat (16.3 ha)

Significant Wildlife Habitat (SWH)

Forest Area-Sensitive Bird Species

Special Concern Species (Eastern Wood-Pewee/Wood Thrush)

Phase 1 Lands

Additional Lands

Subject Property

1 - Land Information Ontario (LIO)

ELC Legend

Forest Community

FOC: Coniferous Forest

FOD: Deciduous Forest

FOM: Mixed Forest

Cultural Community

AGR: Agricultural

CUP3: Coniferous Plantations

CUM1: Mineral Cultural Meadow

CUT1: Cultural Thicket

CUW: Cultural Woodland

HR: Hedgerow

Wetland Community

MAM: Mineral Meadow Marsh

MAM2-2: Reed Canarygrass Mineral Meadow Marsh

MAS2-1: Cattail Mineral Shallow Marsh

SWT2: Mineral Thicket Swamp

SWC: Coniferous Swamp

SWD: Deciduous Swamp

SWD3: Maple Deciduous Swamp

0 100 200 300

Metres

North American Datum 1983

Universal Transverse Mercator Projection Zone 18

Scale: 1:9,000

Page Size: Tabloid (11 x 17 inches)

Drawn: SM

Checked: ED

Date: Aug 12, 2024

Source Notes: Base imagery (2019) provided by City of Belleville GIS REST services.

DRAFT

CLIENT

Black Bear Ridge GP Inc

PROJECT

Black Bear Ridge Natural Heritage Review and Environmental Constraints Analysis

TITLE

Wildlife Habitat and Surface Water Features

Palmer™ PART OF SLR

REF. NO. 2200901-MR04-2

Figure 4

5. Significant Natural Heritage Features

5.1 Species at Risk

The ESA provides protection for species listed as Endangered or Threatened in Ontario, including their habitat. The Species at Risk in Ontario (SARO) List also identifies species of Special Concern that may become Threatened or Endangered in the future. Species of Special Concern and their habitats are not protected under the ESA. Prior to the winter season field investigations, a background review was completed for potential SAR habitat opportunities. The NHIC database and other relevant sources, including the MNAL (2004) report, were reviewed for SAR records.

The Subject Property was screened for potential SAR habitat opportunities by comparing habitat preferences of SAR species with records of local occurrences against current site conditions. This SAR habitat assessment can be found in **Appendix D**, providing a detailed description of each species' habitat (including those deemed to not have potential habitat), as well as a discussion of habitat suitability within and surrounding the Subject Property, potential impacts, and mitigation, where applicable. Based on the rationale provided in **Appendix D**, habitat opportunities for the following 24 SAR were identified as potential, or confirmed, on the Subject Property:

Birds

- Barn Swallow (*Hirundo rustica*) – Special Concern
- Bobolink (*Dolichonyx oryzivorus*) - Threatened
- Eastern Meadowlark (*Sturnella magna*) - Threatened
- Eastern Wood Pewee (*Contopus virens*) – Special Concern
- Wood Thrush (*Hylocichla mustelina*) - Special Concern

Herptiles

- Blanding's Turtle (*Emydoidea blandingii*) – Threatened
- Eastern Musk Turtle (*Sternotherus odoratus*) – Special Concern
- Northern Map Turtle (*Graptemys geographica*) – Special Concern
- Snapping Turtle (*Chelydra serpentina*) – Special Concern

Vascular Plants

- Black Ash (*Fraxinus nigra*) - Endangered
- Butternut (*Juglans cinerea*) – Endangered

Mammals

- Little Brown Myotis (*Myotis lucifugus*) – Endangered
- Northern Myotis (*Myotis septentrionalis*) – Endangered
- Eastern Small-footed Myotis (*Myotis leibii*) – Endangered
- Tri-colored Bat (*Perimyotis subflavus*) – Endangered

Other

- Monarch Butterfly (*Danaus plexippus*) – Special Concern

Four SAR birds were confirmed to be breeding on the Subject Property (Bobolink, Eastern Meadowlark, Eastern Wood Pewee, and Wood Thrush) (**Figure 4 & 5**). Wood Thrush territories, however, were not present within the Phase 1 Lands. Barn Swallow were observed to be foraging on the Subject Property but no nests were observed. Currently, Eastern Wood Pewee and Barn Swallow are not protected under the ESA, as Special Concern species. Habitat associated with Bobolink and Eastern Meadowlark is currently proposed to be removed as part of the Phase 1 development (approximately 16.3 ha). Impacts and mitigations for SAR birds recorded on the Subject Property are discussed in Section 8 and 9.

There are large wetlands, constructed ponds, and the reach of Moira River within and adjacent to the Subject Property. Therefore, SAR herptiles, listed above, may be present in the local landscape in association with the Moira River and Foxboro PSW area. Species such as the Snapping Turtle may find habitat opportunities associated with the wetlands along the Corbyville wetland and large bird sanctuary wetland. However, no direct or indirect (i.e., nesting, tracks) observations were made during Palmer's field investigations. Suitable habitat is specifically present within the larger wetlands and constructed ponds of the Phase 1 Lands.

Habitat for Black Ash and Butternut is present on the Subject Property. No direct observations of Black Ash have been recorded by Palmer. Ideal habitat opportunities for this species would be associated with the Foxboro PSW, which is protected. One Butternut sapling was observed along the fringe of the Foxboro Swamp PSW along the northern edge of the Subject Property in 2022 (**Figure 4 & 5**). It is possible that more individuals exist within the Phase 1 Lands however, given the predominance of cultural communities throughout the Phase 1 Lands, it is less likely and none were observed during the many field surveys completed by Palmer ecologists. No SAR trees or vascular plants have been identified within the Phase 1 Lands.

Suitable forest habitat for SAR bats is present within the Subject Property. Targeted surveys within the proposed development limits, will be required in future application stages as conditions of approval.

Habitat for the Monarch butterfly is present throughout the Subject Property, specifically within meadow communities. A Monarch individual was observed by Palmer staff within the southern meadow communities of the Phase 1 Lands. Currently, Monarchs are listed as Special Concern in Ontario and thus, are not protected under the ESA.

5.2 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) is considered a significant feature in Provincial, Regional, and Municipal (City of Belleville) policies. SWH types are defined by the MNRF in the *Significant Wildlife Habitat Technical Guide* (Ontario Ministry of Natural Resources, 2000). The Natural Heritage Policies of the Provincial Policy Statement [Subsection 2.1.4 d)] identify five principal components of SWH as described in the *Technical Guide*. These are:

- Seasonal Concentration Areas of Animals;
- Rare Vegetation Communities or Specialized Habitat for Wildlife;
- Habitat of Species of Conservation Concern;
- Animal Movement Corridors; and
- Exceptions for Ecoregion 6E.

Criteria for the identification of these features are also provided in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (Ontario Ministry of Natural Resources and Forestry, 2015). These criteria were used to provide a screening for wildlife habitat within and immediately adjacent to the proposed development footprint, as detailed in **Appendix E**. SWH categories were classified as potential, candidate, or confirmed on the Subject Property. 'Potential' meaning no direct or indirect evidence of suitable SWH habitat was observed however, could not entirely be eliminated based on site conditions; 'Candidate' meaning some/all criteria listed in the *Candidate* column of the Ecoregion 6E table were met; and 'Confirmed' meaning some/all criteria listed in the *Confirmed* column were met. The following SWH were identified as confirmed, candidate, or having the potential to occur on the Subject Property:

Seasonal Concentration Areas of Animals

- Waterfowl Stopover and Staging Area (Aquatic): Confirmed
- Raptor Wintering Area: Potential
- Bat Maternity Colonies: Potential
- Turtle Wintering Area: Potential
- Reptile Hibernaculum: Potential
- Colonially-nesting Bird Breeding Habitat (Tree/Shrubs): Potential

Rare Vegetation Communities

- Old Growth Forest: Potential

Specialized Habitat for Wildlife

- Woodland Raptor Nesting Habitat: Candidate
- Turtle Nesting Areas: Potential
- Amphibian Breeding Habitat (Wetlands): Confirmed
- Woodland Area-Sensitive Bird Breeding Habitat: Confirmed

Habitat of Species of Conservation Concern

- Special Concern and Rare Wildlife Species: Confirmed

A Waterfowl Stopover and Staging Area (Aquatic) SWH was originally identified through MNAL's *Environmental Impact Study* for the onsite Migratory Bird Sanctuary (Michalski Nielsen Associates Limited, 2004). As a conservative approach, it is assumed that this Sanctuary is still considered Confirmed SWH and is protected from the proposed development. Impacts and mitigation measures are discussed in Section 8 and 9.

Raptor Wintering Area SWH is potentially present on the Subject Property in the northern area of the property due to sufficient forest habitat adjacent to open water (e.g., Moira River) however, existing meadow habitat does not meet the size criteria. SWH designation for this category remains 'potential' for Areas Outside Phase 1 Lands.

Bat Maternity Colonies SWH may be present within the Subject Property, specifically within the existing large tracts of forest (> 10 ha) in the northern portion of the site. There are forest communities within the Phase 1 Lands however, none are of sufficient size to warrant SWH designation.

Turtle Wintering Areas may be present within the Subject Property, specifically within the Moira River and the large, permanent wetlands (e.g., bird sanctuary wetland). The SWH criteria identifies that constructed ponds are not to be considered SWH. No direct or indirect observations have been made by Palmer staff to date and thus, remains 'potential' for the Subject Property.

Reptile hibernacula SWH could be present on the Subject Property, specifically along the southern, rocky ridge of Foxboro Swamp. No potentially suitable habitat was observed within the Phase 1 Lands. No evidence of hibernacula on the Subject Property have been observed by Palmer to date.

Potential for colonially-nesting bird breeding habitat SWH is present on the Subject Property, associated with Green Heron (not a colonial breeder). However, a low number of Green Heron were observed by Palmer (one post-breeding individual) and no heron colonies have been observed on the Subject Property. SWH remains as 'potential' for Phase 1 Lands within areas that are protected.

Old Growth Forest SWH may be present within the Subject Property, specifically with the Foxboro Swamp PSW. In general, old growth forests are not common in Southern Ontario primarily due to extensive, historical logging and farming practices thus, it is unlikely that it is present on the Subject Property. Additionally, the Foxboro Swamp PSW is currently protected from the proposed development. No old growth forests were observed within Phase 1 Lands.

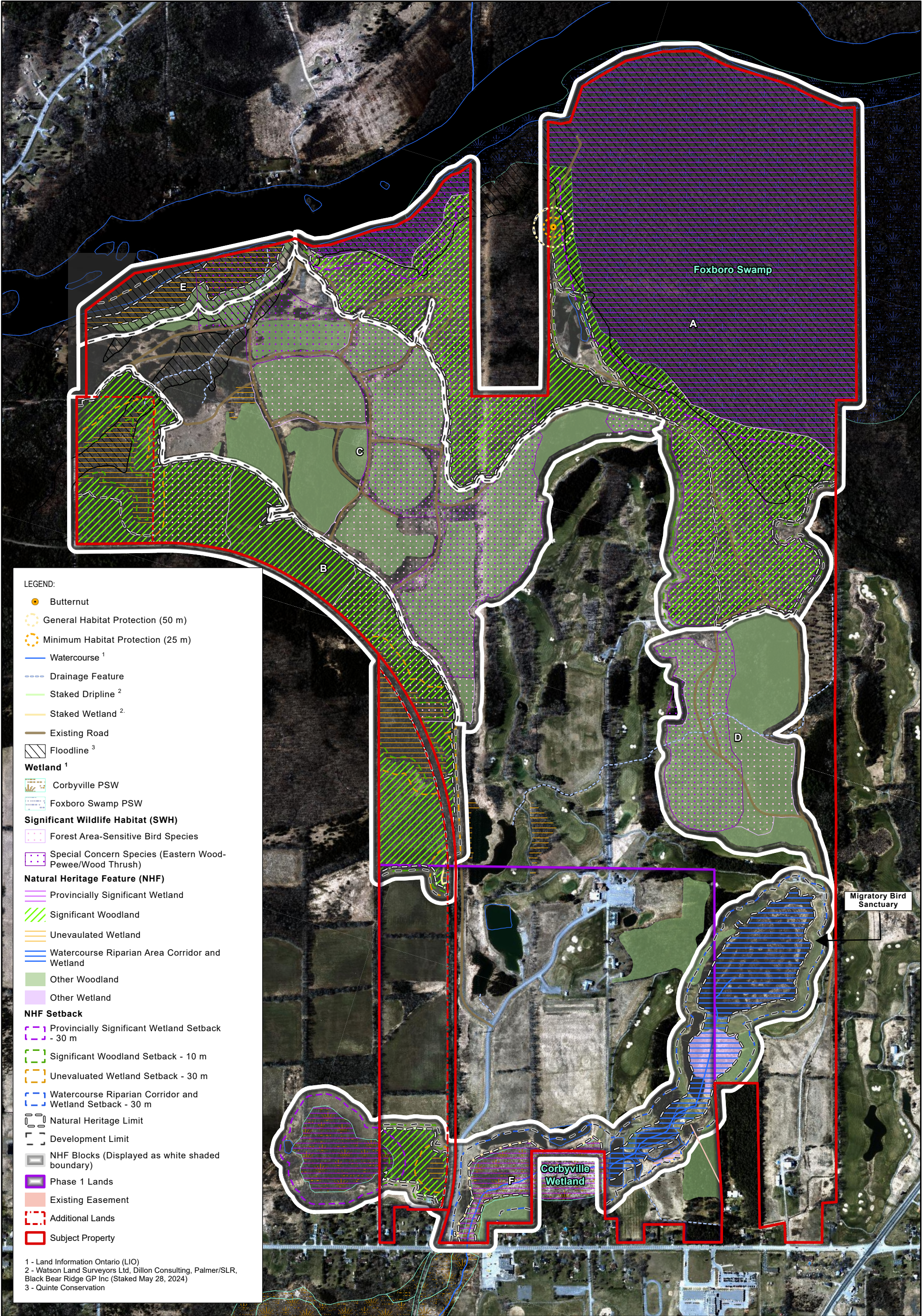
Woodland Raptor Nesting Habitat SWH is considered 'candidate' due to potentially suitable habitat present within Foxboro Swamp, as well as single territories recorded for both Sharp-shinned Hawk and Broad-winged Hawk outside of Phase 1 Lands. At least one nest of the above species would be expected to be present on the Subject Property. SWH criteria was not met for Phase 1 Lands.

Turtle Nesting Areas may be present within the Subject Property (primarily associated with Moira River) however, is expected to be minimal based on limited sand/gravel embankments observed by Palmer staff. No opportunities for turtle nesting are currently known by Palmer staff within the Phase 1 Lands. No direct or indirect observations of turtle nesting on the Subject Property have been observed by Palmer staff to date.

Breeding amphibian surveys, conducted by Palmer staff in 2022 and 2023, indicated the presence of Amphibian Breeding Habitat (Wetlands) SWH within two of the constructed ponds on Phase 1 Lands, north and east of Corbyville PSW (one pond associated with Station 8 and one pond associated with Station 9, **Figure 4 & 5**). Low numbers of Northern Spring Peeper and Leopard Frog were recorded at station 8; a chorus of Gray Treefrogs were recorded at both station 8 and 9. The presence of Bull Frog at these locations meets the criteria for SWH. The remaining amphibian survey locations throughout the Subject Property did not meet the SWH criteria.

Woodland Area-Sensitive Bird Breeding Habitat SWH was confirmed on the Subject Property, in association with five woodland area-sensitive birds (based on Ecoregion 6E criteria) (**Figure 4 & 5**). Additional forest area-sensitive birds (OMNR, 2000) were observed by Palmer. No habitat for this SWH category was observed within the Phase 1 Lands and will not be discussed further.

Special Concern and Rare Wildlife Species SWH is present on the Subject Property; fourteen Special Concern Eastern Wood-Pewee territories were recorded during Palmer's breeding bird surveys, three of which are within Phase 1 Lands (**Figure 4 & 5**). However, it is Palmer's opinion that none of the Eastern Wood-Pewee territories within Phase 1 Lands warrant SWH designation. Six territories of Special Concern Wood Thrush were recorded outside of the Phase 1 Lands. SWH designation for both Special Concern species was confirmed in the Area Outside Phase 1 Lands. Due to the relatively disturbed nature of the Phase 1 Lands, SWH for other Special Concern and rare wildlife species is unlikely to be present.



- LEGEND:
- Butternut
 - General Habitat Protection (50 m)
 - Minimum Habitat Protection (25 m)
 - Watercourse ¹
 - Drainage Feature
 - Staked Dripline ²
 - Staked Wetland ²
 - Existing Road
 - Floodline ³
 - Wetland ¹**
 - Corbyville PSW
 - Foxboro Swamp PSW
 - Significant Wildlife Habitat (SWH)**
 - Forest Area-Sensitive Bird Species
 - Special Concern Species (Eastern Wood-Pewee/Wood Thrush)
 - Natural Heritage Feature (NHF)**
 - Provincially Significant Wetland
 - Significant Woodland
 - Unevaluated Wetland
 - Watercourse Riparian Area Corridor and Wetland
 - Other Woodland
 - Other Wetland
 - NHF Setback**
 - Provincially Significant Wetland Setback - 30 m
 - Significant Woodland Setback - 10 m
 - Unevaluated Wetland Setback - 30 m
 - Watercourse Riparian Corridor and Wetland Setback - 30 m
 - Natural Heritage Limit
 - Development Limit
 - NHF Blocks (Displayed as white shaded boundary)
 - Phase 1 Lands
 - Existing Easement
 - Additional Lands
 - Subject Property

1 - Land Information Ontario (LIO)
2 - Watson Land Surveyors Ltd, Dillon Consulting, Palmer/SLR, Black Bear Ridge GP Inc (Staked May 28, 2024)
3 - Quinte Conservation

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Metres

North American Datum 1983
Universal Transverse Mercator Projection Zone 18

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Page Size: Tabloid (11 x 17 inches)

Drawn: SM
Checked: ED
Date: Aug 12, 2024

Source Notes: Base imagery (2019) provided by City of Belleville GIS REST services.

NORTH

CLIENT	Black Bear Ridge GP Inc		
PROJECT	Black Bear Ridge Natural Heritage Review and Environmental Constraints Analysis		
TITLE	Natural Heritage Features		
<div>Palmer</div> <div>PART OF</div> <div>SLR</div>	REF. NO.	2200901-MR05-2	
	Figure 5		

5.3 Significant Woodlands

The Subject Property supports several woodlands of varying sizes and community types. An assessment of significance for woodlands throughout the Subject Property has been completed. Woodlands in the Area Outside Phase 1 Lands will be subject to refinement in future development phases. The City of Belleville considers significant woodlands as part of their EP designation. Several larger woodland units (many are comprised of several individual ELC communities) have been grouped into 'Blocks' for this assessment (**Figure 5**) for the purposes of reference in this report. To assess whether these features may be considered significant, the policies outlined in the City's OP (3.4 and 3.5) and the *Natural Heritage Reference Manual* (Ontario Ministry of Natural Resources, 2010) have been reviewed. Note, several smaller woodland units and/or fragment woodlands also exist and will be discussed collectively below as *Other Woodlands* (**Figure 5**).

City of Belleville OP

As per the City's OP Section 3.5, significant woodlands are considered components of the EP designation. Lands that are included as part of the EP designation and which are mapped in the OP's Schedule A include "**significant woodlands that have a strong influence on the quality of the environment often providing significant wildlife habitat**". Though the City does not provide specific criteria for significant woodlands, it recognizes that the ecological functions, such as species composition and wildlife habitat, play an important role in designating a woodland as EP. In the absence of significant woodland-specific criteria provided by the City, guidelines within the *Natural Heritage Reference Manual* were used.

MNRF's Natural Heritage Reference Manual

In the absence of specific woodland significance assessment criteria from the City's OP, the *Natural Heritage Reference Manual* (Ontario Ministry of Natural Resources, 2010) has been reviewed to provide further guidance in determining significant woodlands within the Subject Property. This document provides the Province's recommended technical criteria / approaches in protecting the natural heritage features in Ontario while being consistent with the PPS. These are provided for municipalities to use when they are developing municipally specific criteria for the identification of significant woodlands.

The recommended criteria / standards for the evaluation of significant woodlands are the following:

1. Woodland Size (based on the percent forest cover in the regional landscape or planning area, should account for landscape-level physiographic differences);
2. Ecological Functions (woodland interior, shape and proximity, linkages, water protection, woodland diversity);
3. Uncommon Characteristics (rare communities, unique species composition, quality, older woodlands); and
4. Economic and Social Values (high economic productivity and social value).

Based on the manual guidelines, woodlands that meet the standards for any one of the criteria listed above may be considered significant. For woodlands that do not meet the simple size criterion #1, other criteria (based on ecological functions and characteristics) can be considered. For criteria #2-4, when the simple size criterion is not met, a range of size thresholds for significance is provided, where relevant. The following **Table 3** provides the rationale in assessing the significance of each identified woodland feature within the Subject Property.

Table 3. Preliminary Significant Woodland Assessment Using Criteria Provided by the Natural Heritage Reference Manual (MNR, 2010)

Standards	Criteria Notes	Woodland Features that Meet Criteria & Rationale
1. WOODLAND SIZE CRITERIA		
<p>Where woodlands cover:</p> <ul style="list-style-type: none"> Is less than 5% of the land cover, woodlands 2 ha in size or larger should be considered significant; Is about 5-15% of the land cover, woodland 4 ha in size or larger should be considered significant; Is about 15-30% of the land cover, woodlands 20 ha in size or larger should be considered significant; Is about 30-60% of the land cover, woodlands 50 ha in size or larger should be considered significant; and Occupies more than 60% of the land, a minimum size is not suggested, and other factors should be considered. 	<p>Woodland size is evaluated in the context of the percentage forest cover for the planning area (generally based on a municipal or watershed boundary). Through a general review within the City of Belleville boundaries, it was determined that the woodland cover is between 30-60%. As such, woodlands 50 ha or larger may be considered significant within the Subject Property.</p>	<p>Block A and Block B (Figure 5) are larger than 50 ha. Note, for the purpose of this significance assessment, the overall contiguity of the forest communities with adjacent treed swamp conditions should be considered.</p> <p>Woodlands outside of the Phase 1 Lands will be assessed further as part of future development stages.</p>
2. ECOLOGICAL FUNCTIONS CRITERIA		
a. Woodland Interior		
<p>Woodlands should be considered significant if they have:</p> <ul style="list-style-type: none"> Any interior habitat where woodlands cover less than 15% of the land cover. 2 ha or more of interior habitat where woodlands cover about 15-30% of the land cover 8 ha or more of interior habitat where woodlands cover about 30-60% of the land cover 20 ha or more of interior habitat where woodlands cover more than about 60% of the land cover 	<p>As woodland cover within the City was determined to be between 30-60%, woodlands with 8 ha or more of interior habitat would be considered significant within the Subject Property.</p>	<p>Similar to the size criterion above, the Block A, that is connected with the Foxboro PSW, and Block B have more than 8 ha of interior habitat (Figure 5).</p> <p>Woodlands outside of the Phase 1 Lands will be assessed further as part of future development stages.</p>

Standards	Criteria Notes	Woodland Features that Meet Criteria & Rationale
b. Proximity to other woodlands or other habitats		
Woodlands should be considered significant if: <ul style="list-style-type: none"> A portion of the woodland is located within a specified distance (e.g., 30 m) of a significant natural feature or fish habitat likely receiving ecological benefit from the woodland and the entire woodland meets the minimum area threshold (e.g., 0.5-20 ha, depending on circumstance) 	The recommended woodland size range for this criterion is 0.5-20 ha. Given the City's woodland cover (30-60%), a higher threshold would be suitable for this planning area. As such, for determining the significance of woodlands for Criterion 2.b, an approximate 12-ha minimum area threshold has been applied within the Subject Property.	<ol style="list-style-type: none"> Block A is at least 12 ha and adjacent to fish habitat (Moirá River). Block B is at least 12 ha and is contiguous with two unevaluated wetlands (Figure 5). <p>Woodlands outside of the Phase 1 Lands will be assessed further as part of future development stages.</p>
c. Linkages		
Woodlands should be considered significant if they: <ul style="list-style-type: none"> Are located within a defined natural heritage system or provide a connecting link between two other significant features, each of which is within a specific distance (e.g., 120 m) and meets minimum area thresholds (e.g., 1-20 ha, depending on circumstance) 	The recommended woodland size range for this criterion is 1.0-20 ha. Given the City's woodland cover (30-60%), a higher threshold would be suitable for this planning area. As such, for determining the significance of woodlands for Criterion 2.c, a 12-ha minimum area threshold is applied within the Subject Property.	<ol style="list-style-type: none"> Block B is at least 12 ha in size and provides a link between two unevaluated wetlands. <p>Woodlands outside of the Phase 1 Lands will be assessed further as part of future development stages.</p>
d. Water Protection		
Woodlands should be considered significant if they: <ul style="list-style-type: none"> Are located within a sensitive or threatened watershed or a specified distance (e.g., 50 m or top of valley bank if greater) of a sensitive groundwater discharge, sensitive recharge, sensitive headwater area, watercourse, or fish habitat and meet minimum area thresholds (e.g., 0.5-10 ha, depending on circumstance) 	The recommended woodland size range for this criterion is 0.5-10 ha. Given the City's woodland cover (30-60%), a higher threshold would be suitable for this planning area. As such, for determining the significance of woodlands for Criterion 2.d, an 8-ha minimum area threshold is applied within the Subject Property.	<ol style="list-style-type: none"> Block A is at least 8 ha and is within 50 m of a watercourse and fish habitat (Figure 5). <p>Woodlands outside of the Phase 1 Lands will be assessed further as part of future development stages.</p>
e. Woodland diversity		

Standards	Criteria Notes	Woodland Features that Meet Criteria & Rationale
<p>Woodlands should be considered significant if they have:</p> <ul style="list-style-type: none"> A naturally occurring composition of native forest species that have declined significantly south and east of the Canadian Shield and meet minimum area thresholds (e.g., 1-20 ha, depending on circumstance) A high native diversity through a combination of composition and terrain (e.g., a woodland extending from hilltop to valley bottom or to opposite slopes) and meet the minimum area thresholds (e.g., 2-20 ha, depending on circumstance) 	<p>The recommended woodland size range for this criterion is 1.0-20 ha. Given the City's woodland cover (30-60%), a higher threshold would be suitable for this planning area. As such, for determining the significance of woodlands for Criterion 2.e, a 12-ha minimum area threshold is applied within the Subject Property.</p>	<p>Block A and Block B are larger than 12 ha and have the potential to provide a high native diversity (Figure 5). These woodlands have a deciduous canopy cover composed of native species such as oak, ash, and maple. They were also noted to support an understory and groundcover, providing an opportunity for a diverse composition of shrubs and herbaceous species. However, Block B is noted to consist of dense pockets of Red and White Cedar with little to no diversity present (Figure 5). Further studies are needed in the future development phases (Area Outside Phase 1 Lands) in order to determine high diversity within these communities.</p>
3. UNCOMMON CHARACTERISTICS CRITERIA		
<p>Woodlands should be considered significant if they have:</p> <ul style="list-style-type: none"> A unique species composition or the site is represented by less than 5% overall in woodland area and meets minimum area thresholds (e.g., 0.5 ha, depending on circumstance) A vegetation community with a provincial ranking of S1, S2, or S3 (as ranked by the NHIC and meet minimum area thresholds (e.g., 0.5 ha, depending on circumstance) Habitat (e.g., with 10 individual stems or 100 m² of leaf coverage) of a rare, uncommon or restricted woodland plant species and meet 	<p>The recommended woodland size range for this criterion is 0.5 ha (bullets 1-3) and 1.0-10 ha (bullet 4). Given the City's woodland cover (30-60%), a higher threshold would be suitable for this planning area. As such, for determining the significance of woodlands for Criterion 3, a 0.5 ha (bullets 1-3) and an 8-ha (bullet 4) minimum area threshold are applied within the Subject Property.</p>	<p><u>Bullets 1 and 2:</u> There are no woodland features that have a unique species composition or have a ranking of S1-S3 within the Subject Property.</p> <p><u>Bullet 3: Potential</u> All deciduous woodland features, in the Area Outside Phase 1 Lands, that are larger than 0.5 ha and have an understory may potentially support habitat of a rare, uncommon, or restricted woodland plant. Further studies in future development phases would be required to confirm this. No woodlands within the Phase 1 Lands meet this criterion.</p>

Standards	Criteria Notes	Woodland Features that Meet Criteria & Rationale
<p>minimum area thresholds (e.g., 0.5 ha, depending on circumstance):</p> <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 such as sassafras or rock elm ○ Species existing in only a limited number of sites within the planning area <p>• Characteristics of older woodlands or woodlands with larger tree size structure in native species and meet minimum area thresholds (e.g., 1-10 ha, depending on circumstance):</p> <ul style="list-style-type: none"> ○ Older woodlands could be defined as having 10 or more trees/ha greater than 100 years old ○ Larger tree size structure could be defined as 10 or more trees/ha at least 50 cm in diameter, or a basal area of 8 or more m²/ha in trees that are at least 40 cm in diameter. 		<p><u>Bullet 4: Potential</u></p> <p>Future studies are required to determine older woodlands (larger than 8 ha) within the Area Outside Phase 1 Lands. No woodlands within the Phase 1 Lands meet this criterion.</p>
4. ECONOMIC AND SOCIAL FUNCTIONAL VALUES CRITERIA		
<p>Woodlands should be considered significant if they have:</p> <ul style="list-style-type: none"> • High productivity in terms of economically valuable products together with continuous native natural attributes and meet minimum area thresholds (e.g., 2-10 ha, depending on circumstance) 	<p>The recommended woodland size range for this criterion is 2.0-10 ha. Given the City's woodland cover (30-60%), a higher threshold would be suitable for this planning area. As such, for determining the significance of woodlands for Criterion 4, an 8-ha minimum</p>	<p>Block A and Block B are larger than 8 ha and they provide aesthetic value to the golf course resort; they currently do not provide a social functional value to a community.</p> <p>Woodlands outside of the Phase 1 Lands will be assessed further</p>

Standards	Criteria Notes	Woodland Features that Meet Criteria & Rationale
<ul style="list-style-type: none"> A high value in special services, such as air quality improvement or recreation at a sustainable level that compatible with long-term retention and meet minimum area thresholds (e.g., 0.2-10 ha, depending on circumstance) Important identified appreciation, education, cultural, or historical value and meet minimum area thresholds (e.g., 0.2-10 ha, depending on circumstance) 	area threshold is applied within the Subject Property.	as part of future development stages.

A total of 18 *Other Woodlands* were identified on the Subject Property (within and adjacent to **Block C**, **Block D** and **Block F**), with three being within the Phase 1 Lands (**Figure 5**). These *Other Woodlands* did not meet the woodland size threshold indicated, despite some woodlands meeting other criteria (**Table 3**). For example, the *Other Woodland* in the northeastern corner of the Phase 1 Lands would meet the *Proximity to other woodlands or other habitats* criteria (i.e., 30 m from fish habitat) but does not meet the 12 ha size threshold.

5.4 Significant Wetlands

Several wetlands were identified and delineated by Palmer staff within the Subject Property, including PSW complexes (Corbyville, Foxboro) and unevaluated wetlands. Within the Phase 1 Lands specifically, one PSW complex (Corbyville), one unevaluated wetland, and a Migratory Bird Sanctuary were identified. Wetlands associated with the Corbyville wetland adjacent to the Phase 1 lands were staked with the municipal's peer review ecologist.

5.4.1 Provincially Significant Wetlands

5.4.1.1 Foxboro Swamp PSW

The northeast deciduous swamp (SWD) is identified as part of the Foxboro Swamp PSW (Block A, **Figure 5**). The portion of this PSW within the Subject Property is approximately 63.4 ha in size and continues further east into adjacent lands along the southern edge of the Moira River. The vegetation community cover is comprised of mainly deciduous trees (maple sp.), with pockets of mixed and coniferous stands. The PSW area is topographically much lower than the adjacent upland forests to the south and lies within the floodplain of the Moira River. Initial hydrogeological studies conducted by Palmer (2024) indicate that the hydroperiod of the Foxboro Swamp PSW is primarily controlled by surface runoff.

The boundaries of the Foxboro Swamp PSW will be further refined and described in future design stages where necessary based on proposed limits of development.

5.4.1.2 Corbyville PSW

The PSW in the southern portion of the Subject Property, adjacent to Harmony Road, is identified as part of the Corbyville PSW and separate from that of Foxboro Swamp (Block F, **Figure 5**). Drainage on the Subject Property roughly follows the topography of the landscape thus, elevational changes observed across site (i.e., drumlin features) allow for separate features in the north and south (Site Investigation Services Limited, 1999). This feature was identified as being a shrub swamp (SWT2) and cattail marsh (MAS2-1) during Palmer's field investigations. A warm watercourse originates in the Migratory Bird Nesting Sanctuary on the Subject Property, flows in a southerly direction passing through a cattail marsh, the Corbyville PSW, and subsequently empties into a series of wetland depressions south of Harmony Road (MNAL, 2004; Site Investigation Services Limited, 1999). Additionally, a maple swamp community, a mapped component of the Corbyville PSW, encroaches within the additional lands of the Subject Property (449 Harmony Road). Initial hydrogeological studies conducted by Palmer (2024) indicate that the hydroperiod of the Corbyville PSW is primarily controlled by surface runoff.

The Corbyville PSW meadow marsh (MAS2-1) feature was staked by Palmer staff and the peer reviewer on May 28, 2024.

5.4.2 Unevaluated Wetlands

Wetlands in Ontario that have not been evaluated using the Ontario Wetland Evaluation System are classified as *unevaluated wetlands* (**Figure 5**). Several unevaluated wetlands were recorded within the Subject Property including areas of deciduous swamp (SWD), mixed swamp (SWM), and coniferous swamp (SWC), and shallow marsh (MAS2-1). Mapped unevaluated wetlands, such as the SWM and MAS2-1, were observed and refined in-field based on percent cover of wetland plants the OWES 50/50 rule.

In the Phase 1 Lands, unevaluated deciduous swamp (SWD), Reed Canarygrass meadow marsh (MAM2-2), and a Migratory Bird Sanctuary were observed. The unevaluated deciduous swamp adjacent to the proposed development, in the northwest portion of the Phase 1 lands, was staked by Palmer staff and the peer reviewer on May 28, 2024 (**Figure 5**).

Other pockets of unevaluated wetland were identified on MNRF online mapping, however, from Palmer's 2022, 2023, and 2024 surveys were confirmed to not be present (i.e., lack of wetland herbaceous and shrub cover).

All unevaluated wetlands within the Phase 1 Lands are protected from the proposed development.

5.4.3 Other Wetlands

A few *Other Wetlands*, within the Phase 1 Lands, were identified and delineated in the field by Palmer staff (Block F, **Figure 5**). Other Wetlands included a Cattail mineral shallow marsh (MAS2-1) and Reed Canarygrass meadow marsh (MAM2-2) inclusions. The Cattail mineral shallow marsh and associated 30 m buffer are proposed to be protected from development. Both Reed Canarygrass inclusions are largely protected by the watercourse corridor 30 m buffer however, will likely require compensation measures and are further discussed in Section 9.

5.5 Surface Water Features

Palmer's findings, as well as existing conditions from the 2003 summer and autumn field investigations (MNAL, 2003), are incorporated into this section.

As mentioned previously, a segment of the Moira River runs adjacent to the northern limits of the Subject Property. It appears to be approximately 250 m wide, more than 2 m deep, and eventually discharges to the Bay of Quinte to the south. Fish habitat is most important functionally in backwater areas along the shoreline located off the main channel. These areas have large areas of aquatic vegetation and muck substrates. These conditions combined with little or no flow make them good nursery habitat for mostly warmwater fish species. The MNR lists 32 species for the river.

An intermittent drainage feature flows east across the Subject Property, through an *Other Woodland*, and terminates at Trillium Woods Golf Course lands off-property (**Figure 5**). This feature was considered intermittent in the 2004 MNAL report and confirmed by Palmer staff (Michalski Nielsen Associates Limited, 2004). The drainage feature was also determined to have the potential for direct or indirect fish habitat in 2004. The significance of this drainage feature will be further assessed in future development phases.

A second intermittent drainage feature, in the northwest portion of the Subject Property, drains north toward Moira River from a mapped unevaluated wetland and was noted as heavily altered (i.e., channelized, culverted) by the previous landowner (**Figure 5**).

Within the Phase 1 Lands, drainage feature and watercourse transect the property in the central and southeast areas, respectively (**Figure 5**). Both features were labelled intermittent within the 2004 MNAL report and subsequently, confirmed by Palmer staff in 2022. Despite this, both drainage features were said to have the potential to provide spawning, feeding, and nursery habitat for minnows (Michalski Nielsen Associates Limited, 2004). However, the southeast watercourse was considered to have higher quality fish habitat for warmwater species due to its greater ecological and geomorphological complexity. It was noted during Palmer's surveys that no defined channel or evident flow was observed just north of Harmony Road within the Corbyville PSW (MAS2-1) community.

6. Constraints, Opportunities, and the Natural Heritage System

Table 4 outlines the proposed buffers for significant natural features found on the Subject Property, with a focus on the Phase 1 lands. Significant natural heritage features, and their associated buffers, for the Area Outside of Phase 1 Lands will require further assessment in future design stages.

Table 4. Required Buffers for Natural Heritage Features and Key Hydrological Features

Feature Type	City of Belleville OP	QC Policy Document	Buffers
<i>Wetland (Other, Unevaluated, Provincially Significant Wetland)</i>	30 m	For evaluated wetlands and wetlands greater than 2 hectares in size: 30 m Other wetlands and wetlands less than 2 hectares: 15 m	Proposed: 30 m
<i>Surface Water Features/Fish Habitat</i>	30 m from top of bank or seasonal high watermark (if floodplain mapping is unavailable)	If 1:100 yrs. floodplain is not known: 30 m (from high water mark)	Proposed: 30 m
<i>Floodplain</i>	NA	15 m	Proposed: 0 m <i>Development within a floodplain will require QC approval.</i>
<i>Significant Woodland</i>	The width of an ecologically appropriate buffer has been determined through this EIS based on the existing natural features and in accordance with Section 3.5.6 of the OP, and in accordance with Sections 2.1.5 and 2.1.8 of the PPS.	NA	Proposed: 10 m

Feature Type	City of Belleville OP	QC Policy Document	Buffers
<i>Significant Wildlife Habitat</i>	30 m from Habitat of Threatened or Endangered Species	NA	Proposed: varies depending on SWH.

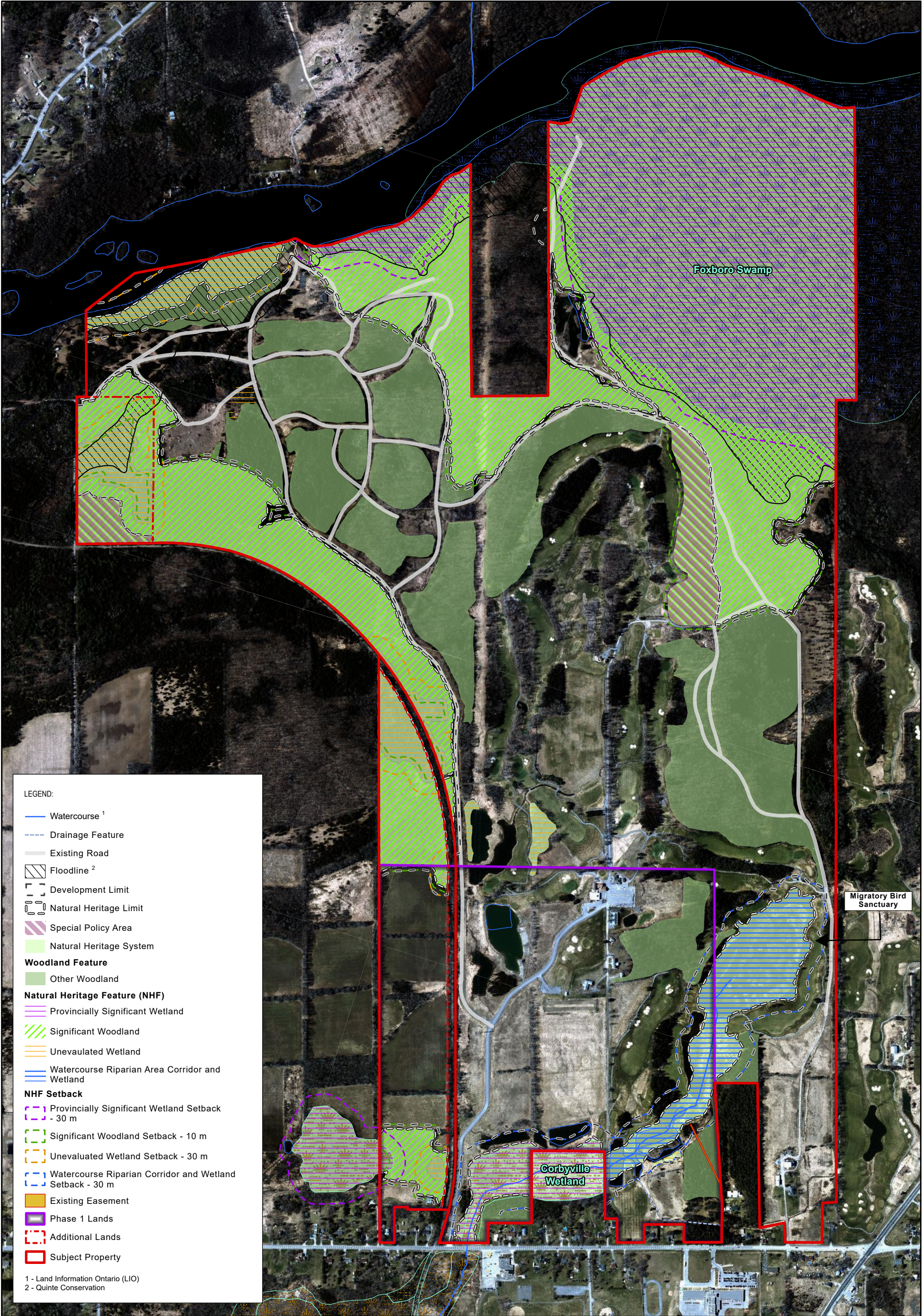
Other Woodlands in **Block C** and **Block D**, as discussed in Section 5.3 and identified on the Subject Property, will be required to undergo a no-negative impact test to inform future development phases. It is Palmer's general opinion that these *Other Woodlands* may have the potential for low-density development, provided the proponent implements adequate compensation measures.

Significant Wildlife Habitat, associated with Habitat of Threatened and Endangered Species (Bobolink and Eastern Meadowlark), is currently proposed to be removed in Phase 1 Lands. Thus, no buffer is applied. Removal of this habitat will be compensated for through O. Reg. 242/08.

The identification of natural heritage features, ecological linkages, and buffers facilitated the development of the Natural Heritage System (NHS) on the Subject Property (**Figure 6**). The NHS within the Phase 1 lands consists of:

- Significant Woodlands
- Significant Wetlands (PSW, unevaluated wetlands, *Other Wetlands*)
- Significant Wildlife Habitat
- Watercourses
- Fish habitat

The Natural Heritage System, within the Area Outside Phase 1 Lands, is subject to refinement through future development application phases.



<div>DRAFT</div>	<div>0100200300Metres</div> <div>North American Datum 1983 Universal Transverse Mercator Projection Zone 18</div> <div>Scale: 1:9,000 Page Size: Tabloid (11 x 17 inches)</div> <div>Drawn: SM Checked: ED Date: Aug 6, 2024</div> <div>Source Notes: Base imagery (2019) provided by City of Belleville GIS REST services.</div>	<div>CLIENT</div> <div>Black Bear Ridge GP Inc</div> <div>PROJECT</div> <div>Black Bear Ridge Natural Heritage Review and Environmental Constraints Analysis</div> <div>TITLE</div> <div>Natural Heritage System and Other Natural Features</div>	<div>REF. NO.</div> <div>2200901-MR06-1</div>
		<div>Palmer</div> <div>PART OF SLR</div>	<div>Figure 6</div>

7. Proposed Development

The overall proposed development for the Subject Property including future Phases includes less than 2,000 dwelling units. The Municipal Zoning Order currently provides zoning approval for up to 3,049 dwelling units. It is anticipated that the proposed Structure Plan (see **Appendix G**) for the greater Subject Property will evolve as part of future development phases. However, the proposed development for Phase 1 Lands is more defined and is discussed below in greater detail as part of the proposed Draft Plan of Subdivision (see **Appendix G**).

Within Phase 1 Lands, a wide range of housing types are proposed including low density residential (singles/semis), medium density residential (townhouses/clusters), and mixed nodes (towns/apartments/commercial) (**Figure 7** and **Appendix G**). Multiple access points are proposed for the Phase 1 Lands via existing laneways (Golf Course entrance and Harmony Road). There is currently areas of parks & open space and two stormwater management ponds (for a total area of 0.24 ha or 2400 m²) proposed throughout the Phase 1 Lands (Jewell Engineering, 2024). A number of overland flow routes and culvert improvements are also proposed for the Phase 1 Lands.

The proposed Phase 1 development on the Subject Property primarily surrounds and is south of the existing golf course lands and constructed ponds and avoids natural heritage features and their buffers with some minor encroachments. It is noted that the proposed development of the Area Outside Phase 1 Lands is largely conceptual at this time and subject to refinement. While subject to further assessment and refinement, encroachments into the NHS are proposed within the Area Outside of Phase 1 Lands, primarily associated with existing laneways and/or road development, including:

- Intersection of Homan Road and proposed roadway, along the northwestern edge of Block B;
- Immediately north of the golf course lands within Block A; and
- Along the northeastern edge of Block F, associated with the Migratory Bird Sanctuary 30 m buffer.

These encroachments will require further assessment in future development stages, including a no-negative impact test and compensation measures for encroachment and/or removal of Other Woodlands. Potential enhancement areas within the Area Outside of Phase 1 Lands will be determined and discussed in future development phases. Portions of the floodplain (provided by QC) associated with Moira River are within areas proposed for development in future phases and will be subject further review with QC.

In general, the proposed development within the Phase 1 Lands adheres to appropriate protection of the NHS and associated natural heritage feature constraints (**Figure 7**). The westernmost block of proposed development (within the additional lands) is abutted by existing agricultural fields and a public snowmobile trail to the west and east, respectively. Natural Heritage System abuts the westernmost block to the north and south and is protected by appropriate buffers. The southeast development block of the Phase 1 Lands will be accessed by Harmony Road and abuts constructed ponds and encroaches into two small wetland inclusions to the north. Compensation measures for these wetland inclusions are detailed in Section 9. The southeast development block does not encroach into the Corbyville PSW (MAS2-1) feature and its associated 30 m setback. All Significant Woodland features have an applied buffer (10 m) and are protected from the proposed development in the Phase 1 Lands. Natural hazard features (i.e., PSW, unevaluated wetlands, watercourse) have an applied buffer (30 m) and are protected from the proposed development in the Phase 1 Lands.

8. Impact Assessment

Based on this assessment, a management strategy has been developed that includes measures for the protection, mitigation, and enhancement of the environmental conditions of the Subject Property.

Due to the range of processes that influence site conditions, the following components were considered as part of the management strategy:

- SWM measures for the maintenance and protection of flow regime conditions, which include baseflow, and management of water quality quantity.
- The protection of terrestrial features with an approach that identifies opportunities for preservation, restoration, and enhancement of the existing environmental conditions.
- The preservation and enhancement of linkages to ensure that a sustainable natural heritage system is maintained.
- The protection of watercourse corridors for aquatic habitat, hydrologic processes, and water quality.
- The identification of rehabilitation opportunities to maintain and improve ecological conditions on the Subject Property.

Potential impacts of the proposed development on the Subject Property can be divided generally into two types: those primarily associated with the construction phase and those that are permanent. Many of these impacts can be mitigated – these details are discussed in the next section. Some mitigation measures may lead to overall enhancements.

Permanent potential or actual impacts include:

- Removal of natural vegetation and associated wildlife habitat;
- Removal or impacts to Species at Risk habitat;
- Removal or impacts to Significant Wildlife Habitat;
- Impacts to wetlands and existing watercourse through changes in water inputs;
- Impacts to water quality through for example soil erosion, removal of vegetation etc.; and,
- Reduction in wildlife connectivity.

Construction related impacts include:

- Potential for erosion and loss of soils; and
- Disturbance to wildlife (i.e., birds, bats, herptiles).

8.1 Area Outside Phase 1 Lands

A general impact assessment has been summarized for the Area Outside Phase 1 Lands, with a more detailed assessment for Phase 1 Lands provided in Section 8.2. Based on the general Structure Plan as provided in **Appendix G** for the overall proposed land use scenario, the ecological and associated hydrological conditions are to be maintained to the extent possible recognizing that within the current MZO there are existing and permitted uses. Consideration must be given to the terrestrial, wetland, and aquatic

conditions (and associated management requirements) to manage for the preservation and enhancement of the key natural heritage features and functions.

Prescriptive buffers have been applied to the natural heritage and hydrologic features identified within the Subject Property, as outlined in Section 6 (**Figure 7**). Section 9 describes the mitigation and enhancement recommendations for these features.

A No-negative Impact Test will be performed for the *Other Woodlands* throughout the Area Outside Phase 1 Lands in future development phases to determine development potential. A detailed impact assessment for the Area Outside Phase 1 Lands and determination of the final limits of development will be provided in future development phases once the development plans and designs are further detailed.

8.2 Phase 1 Lands

8.2.1 Natural Habitat and Vegetation Removal

While no identified significant natural feature areas will be removed within the Phase 1 Lands, through the proposed development, some vegetation and tree removal will occur (**Figure 7**). This will consist of the removal of agricultural lands, 'cultural' vegetation communities, and some *Other Woodlands*. Most of the proposed development will occur in pre-existing agricultural lands and 'anthropogenic' areas (i.e., mowed lawn). The following cultural and treed communities types will be removed.

- Mixed Forest
- Cultural Woodland/Cultural Thicket
- Cultural Meadow
- Coniferous Plantation
- Hedgerows (HR)
- Constructed Ponds

8.2.2 Species at Risk

As noted in Section 4.3, there were four breeding avian SAR observed on the Subject Property. One Barn Swallow was observed foraging on the Subject Property but was thought not to be breeding, as no nests were observed. Wood Thrush (four territories) was not recorded within Phase 1 Lands. Three Special Concern Eastern Wood-Pewee territories were recorded in the Phase 1 Lands. One territory, identified within the central hedgerow community, is proposed for removal (**Figure 7**). The two remaining territories will remain as part of the proposed development. General mitigation measures for breeding bird habitat are provided in Section 9.

Habitat for Bobolink (one territory) and Eastern Meadowlark (three territories) will be affected by the proposed development plan. A total of 16.3 ha is anticipated to be removed. Compensation measures will be discussed in future development stages and must be consistent with the ESA regulations.

No Species at Risk turtle species has been recorded within the Phase 1 Lands by Palmer, however, potential habitat is present within the constructed ponds. The majority of the constructed ponds are currently proposed to be retained. Mitigation and enhancement measures are provided in Section 8.

No Species at Risk vascular plants or trees have been found within the Phase 1 Lands to date.

Potential SAR bat habitat occurs in the Phase 1 Lands in the form of hedgerows, woodlands, and swamp forest. However, it should be noted that habitat is generally limited within the Phase 1 Lands compared to that of nearby areas (i.e., Foxboro Swamp) consisting of large tracts of contiguous forest. Mitigation measures are provided in Section 9.

8.2.3 Significant Wildlife Habitat

Table 5 lists potential, candidate, or confirmed SWH within the Phase 1 Lands and whether impacts and mitigation measures are required. Additional details on the location of each was given in Section 5.2. Impacts of SWH present in the Area Outside Phase 1 Lands will be discussed in future development phases.

Table 5. Impacts to Significant Wildlife Habitat (Phase 1 Lands)

SWH Category	Confirmed, Candidate or Potential	Impacts Anticipated
Waterfowl Stopover and Staging Area (Aquatic)	Confirmed	None, as the Migratory Bird Sanctuary and its associated buffer (30 m) will be retained.
Turtle Wintering Area	Potential*	Minimal impacts expected as most ponds will be retained and site conditions will continue to provide habitat opportunities within the local landscape.
Colonially-nesting Bird Breeding Habitat	Potential*	Minimal impacts expected as no evidence of breeding (Green Heron) was observed to date.
Amphibian Breeding Habitat (Wetlands)	Confirmed	Minimal impacts expected as most ponds will be retained and site conditions will continue to provide habitat opportunities within the local landscape.

*as determined by Palmer

9. Mitigation Measures

General mitigation measures for the Subject Property are provided in Section 9.1 below. A more detailed mitigation strategy for the Phase 1 Lands is provided in Section 9.2 through 9.6.

9.1 General Mitigation

9.1.1 Timing Windows

In order to avoid and mitigate impacts to breeding birds and ensure compliance with the MBCA, removal of vegetation should be completed outside of the breeding bird season (**April 1 – August 31**; note, the bat maternity roosting tree clearing window is more conservative). Development timing may require clearing within the bird/bat window. Should this prove to be the case, it is recommended that a qualified biologist complete an active nest search of the vegetation (and any structures) proposed for removal, to ensure that there are no conflicts with the MBCA. Depending on the time of year, vegetation clearing activities generally have to occur within a few days of nest search surveys. If activity is detected, clearing activities should be delayed until it can be determined that the birds have fledged and left the nest.

An additional sensitive timing window, during which all tree removal should be avoided, is the maternity roosting period for bats (**March 15 to November 30**). If tree removals need to occur within this window, a qualified ecologist must screen for potential snag trees that may be used for roosting. The proposed future development in Other Woodlands in the northwest portion of the property will require a detailed bat acoustic survey.

9.1.2 Erosion and Sediment Control

The following erosion and sediment control recommendations are provided for incorporation into the final Erosion and Sediment Control Plan:

- To minimize the potential for erosion and off-site transport of sediment into surface drainage areas and the natural environment, the project will implement Best Practices related to ESC. ESC measures used by the contractor on all construction should meet guidelines as outlined in Erosion and Sediment Control Guideline for Urban Construction (2006) prepared by the Greater Golden Horseshoe Area Conservation Authorities (GGHACA), or equivalent standards.
- ESC measures should be installed prior to beginning work and maintained in working order throughout all stages of the proposed construction activities and remain in place until the buffer and enhancement plantings have been completed.
- All exposed and newly constructed surfaces should be stabilized using appropriate means in accordance with the characteristics of the exposed soils. These surfaces should be fully stabilized and re-vegetated as quickly as possible following the completion of the works, with native vegetation ground cover. Revegetation and sodding recommendations would include use of appropriate seed mixes.
- No sediment, sediment-laden water or deleterious substances are to be discharged into existing natural ponds, wetlands or watercourses at any time;

- All ESC measures will be inspected daily including after every rainfall, cleaned, maintained and/or adjusted accordingly to ensure sediment does not enter wetland/watercourse features at any time.
- No machinery or equipment will be maintained or refueled within 30 m of the wetlands/watercourse/pond features.

9.1.3 Vegetation Protection Zones

As outlined in Section 6 above, prescriptive buffers have been applied to the natural heritage features and hydrologic features (i.e., significant woodlands, PSWs, unevaluated wetlands, other wetlands, watercourses) identified within the Subject Property (**Figure 7**). Restoration and enhancement of these applied buffers is discussed in Section 9.5.

Two small Reed Canarygrass inclusions, north and west of the 2.5 ha coniferous plantation (CUP3) community of the Phase 1 Lands (in the southeast area), do not have an applied buffer from the proposed development. The west inclusion sits within the watercourse 30 m buffer however, the north inclusion partially encroaches into the proposed development limit. It is Palmer's opinion that the relative size and low floristic diversity of these communities make them ideal candidates for restoration and enhancement opportunities elsewhere on the Subject Property.

9.2 Management of Surface Water Features

The watercourse identified within the Phase 1 Lands, and its associated 30 m buffer, is to be protected from the proposed development of the Phase 1 Lands. Online constructed ponds and the Migratory Bird Sanctuary will also be maintained as part of the proposed development in the Phase 1 Lands. There are no proposed changes to these features within the Phase 1 Lands. Enhancement of the watercourse buffer is recommended through the application of native seed mixes and tree plantings.

9.3 Restoration and Enhancement

The proposed mitigation plan also proposes to provide enhancement/re-vegetation of VPZ areas to augment the existing natural areas and ecological functions. Enhancement in the buffer areas will include varying densities of tree and shrub plantings along with restoration preparation and seeding with appropriate native species so that the area will support natural self-sustaining vegetation. Enhancing buffers (plantings) is an approach that provides for the early establishment of vegetation and habitat opportunities for many species. To support the enhancement of the buffers and achieve the intended ecological functions, the following approaches are proposed to be implemented as part of the development:

- Develop a setback planting plan and management/monitoring requirements in consultation with the relevant agencies.
- Where required, remove soil compaction and enrich soils with organics (e.g., compost/mulch).
- Implement a plan for the management of invasive species.
- Complete the vegetation planting as early as possible and establish a barrier and sediment/erosion control fencing between the development.
- Installation of fencing along buffers.
- Continued management and monitoring.

Woody species present in the region, and not highly disease susceptible, should be used for restoration purposes; some examples are:

- Eastern White Pine (*Pinus strobus*)
- Red or Silver Maple (*Acer rubrum* or *saccharinum*)
- Bitternut or Shagbark Hickory (*Carya cordiformis* or *ovata*)
- American Beech (*Fagus grandifolia*)
- Trembling Aspen (*Populus tremuloides*)
- White, Red or Swamp White, Bur or Pin Oaks (*Quercus alba*, *rubra*, *bicolor*, *macrocarpa* or *palustris*)
- American Basswood (*Tilia americana*)
- Grey or Red-osier Dogwood (*Cornus racemosa* or *sericea*)
- Blue-beech (*Carpinus caroliniana*)
- Chokecherry (*Prunus virginiana*)

The watercourse (and its 30 m setback) that flows through the Corbyville PSW and the Migratory Bird Sanctuary within the Phase 1 Lands is an ideal candidate for restoration measures. The establishment of supplemental native riparian plantings are recommended methods to enhance the ecological function of the feature.

A detailed restoration and enhancement plan is recommended to be developed in consultation with relevant agencies (i.e., QC, City of Belleville) as part of the site plan and permitting process.

9.4 Species at Risk

Bobolink and Eastern Meadowlark are both a Threatened grassland species. A Bobolink territory was observed in the hayfields west of the snowmobile trail and an estimated three Eastern Meadowlark territories in the meadow north of Corbyville PSW and in the lands west of the snowmobile trail, within the Phase 1 Lands. If this habitat is removed, habitat compensation would have to occur elsewhere in accordance with Ontario Regulation 242/08 Section 23. This regulation requires the enhancement or creation of a similar area of grassland in another location with specific conditions. It may be helpful to re-survey the field a year prior to vegetation removal in order to i) determine if the species is still present (which may or may not affect compensation requirements) and ii) precisely determine the area of habitat to be removed. Compensation occurs on an area basis, not a number-of-territories basis. Conversely compensation can occur through a provincial Compensation Fund (O. Reg 829/21 Section 90).

Eastern Wood Pewee will be discussed under Section 9.5 as Special Concern species are not protected under the ESA.

Erosion and sediment control measures should be taken to ensure protection of potential SAR herptile habitat (i.e., Snapping Turtle).

Potential Endangered bat habitat may occur in the forests and swamps within the Phase 1 Lands however, suitable habitat is considered minimal and of lesser quality relative to potential habitat in the Area Outside of Phase 1 Lands (i.e., Foxboro Swamp). In addition, higher quality bat habitat (i.e., maple swamp) present

within the Phase 1 Lands will be retained as part of the proposed development. As a conservative approach, it is recommended that timing windows are followed for tree removal and compensation measures (i.e., bat boxes) be undertaken. Consultation with the Ministry of Environment, Conservation, and Parks (MECP) is advised, to ensure compliance with the Endangered Species Act.

9.5 Significant Wildlife Habitat

Table 5 in Section 8.2.3 outlines the anticipated impacts and mitigations for associated Significant Wildlife Habitat present, or potentially present, within the Phase 1 Lands.

For Waterfowl Stopover and Staging Area (Aquatic) Confirmed SWH on the Subject Property, a prescriptive buffer of 30 m, erosion and sediment control measures, and enhancement efforts are recommended to minimize negative impacts associated with the proposed development.

Turtle Wintering Area SWH is potentially present within Phase 1 Lands (and within the greater Subject Property) however, no evidence has been observed by Palmer. Currently, no confirmed habitat (i.e., constructed ponds with confirmed SWH) is proposed for removal. A prescriptive buffer of mostly 30 m has been applied to Significant Wetlands within Phase 1 Lands. Additionally, erosion and sediment control measures and riparian enhancement efforts are recommended to minimize negative impacts associated with the proposed development to SWH areas.

Amphibian Breeding Habitat (Wetlands) SWH was confirmed within two constructed ponds (pond below Station #8 and #9) of the Phase 1 Lands however, neither are proposed for removal. Erosion and sediment control measures and riparian enhancement efforts are recommended to minimize negative impacts associated with the proposed development.

9.6 Water Servicing and Stormwater Management

As detailed within the *Functional Servicing Report* prepared by Jewell Engineering (2024), a detailed water servicing concept has been proposed that addresses both quantity and quality controls required to meet all design criteria. A general assessment was completed for the Area Outside Phase 1 Lands. It is anticipated that the recommended servicing and stormwater management plans are feasible, provided no major challenges arise in the detailed design stage.

The Subject Property will be municipally serviced via a 450 millimeter feeder watermain extended from existing infrastructure on River Road, approximately 3 km to the south of property limits. This feeder main will connect to an elevated water storage tank near the onsite, existing clubhouse. A booster station will also be required to provide adequate supply for the proposed development.

Sanitary servicing for the Subject Property will consist of both gravity sewers and lift stations. Five lift stations are proposed to discharge to a central lift station located near the current golf course entrance and Harmony Road.

The City of Belleville is currently completing a servicing study for water and sewer needs in areas north of Highway 401, at the time of writing of this report. Current water and sanitary servicing designs for the Subject Property may be subject to refinement if servicing limitations are found as a result of this study.

Drainage boundaries have been established to estimate flows to the proposed drainage collection system for the site in order to develop a comprehensive drainage and stormwater management plan for the proposed development. The Subject Property has been divided into five stormwater management zones with varying controls in place. Quality treatment, in all zones, is provided prior to the discharging of stormwater into the natural environment. The overall quality target for the Subject Property is *Enhanced*.

Phase 1 Lands is made up of two zones, Zone 1 and Zone 2. Stormwater ponds (for a total of 2400 m²) are proposed in the former zone and culvert improvements within the latter. Culvert improvements of Zone 2 may result in a permanent 5 centimeter increase in the adjacent wetland water level however, a subdrain may help to offset this change. Provided that the permanent increase will not be significantly greater than 5 cm and there will be no impacts to water quality, it is anticipated that the functions of the wetland feature will be maintained. Overland flow routes have also been established for both zones of the Phase 1 Lands.

10. Policy Conformity – Phase 1 Lands

A policy conformity discussion has been provided and this section must be read and considered in recognition of the existing MZO which has permitted and zoned uses through much of the Subject Property. **Table 6** below summaries applicable natural heritage policies and the manner in which the proposed development plan of the Phase 1 Lands meets their requirements and to the extent possible in the context of an existing MZO.

Table 6. Natural Heritage Policy Conformity – Phase 1 Lands

Policy Document	Policy Intent/Objective	Implications and Policy Conformity
Provincial Policy Statement	The Provincial Policy Statement (PPS) provides direction to regional and local municipalities regarding planning policies for the protection and management of natural heritage features and resources (Ontario Ministry of Municipal Affairs and Housing, 2020). Section 2.1 of the PPS defines ten natural heritage features (NHF) and adjacent lands and provides planning policies for each.	<p>Within the Phase 1 Lands, the following PPS natural heritage features have been identified:</p> <ul style="list-style-type: none"> • Significant Woodlands • Confirmed Significant Wildlife Habitat • Significant Wetlands • Habitat of Threatened and Endangered Species • Fish Habitat <p>Negligible impacts are anticipated to the functions of these features, except Habitat of Endangered Species (Bobolink, Eastern Meadowlark) which are covered through the ESA and compensation through the regulatory requirements.</p>
City of Belleville Official Plan	To ensure proper land-use planning and the protection of environmental and physical resources within the City.	<p>Within the Phase 1 Lands, and with the exception of two small wetland inclusions proposed for removal, the following City features are present and protected through proposed plan:</p> <ul style="list-style-type: none"> • Natural Hazard Lands • Wetlands • Confirmed Significant Wildlife Habitat • Significant Woodlands • Streams and Fish Habitat. <p>Habitat of Endangered and Threatened Species is covered through the ESA.</p>
Conservation Authorities Act (QCA) and O. Reg 41/24	To prohibit or regulate development in regulated areas within its jurisdiction where the control of flooding, erosion, dynamic beaches, pollution, or the conservation of land could be impacted by development and in other areas where development could interfere in any way with watercourses or wetlands.	Wetlands and watercourses in the Phase 1 Lands are protected from the proposed development with prescriptive buffers (30 m). Two, small wetland inclusions are not currently protected by buffers but will be compensated for. Several hazard lands within the Phase 1 Lands are regulated by QC, thus a permit under O. Reg. 41/24 is expected to be required.

Policy Document	Policy Intent/Objective	Implications and Policy Conformity
<i>Endangered Species Act</i>	Species designated as Endangered or Threatened by the Committee on the Status of Species at Risk in Ontario (COSSARO) are listed as Species at Risk in Ontario (SARO). These species at risk (SAR) and their habitats (e.g., areas essential for breeding, rearing, feeding, hibernation and migration) are afforded legal protection under the Endangered Species Act (ESA).	Threatened Bobolink and Eastern Meadowlark habitat is proposed for removal. This requires 'compensation' through O. Reg. 242/08. Endangered bat habitat may be present within the woodlands and swamps within Phase 1 Lands. Timing windows (March 15 – November 30) and consultation with the MECP is recommended to ensure compliance.
<i>Migratory Birds Convention Act</i>	The Migratory Birds Convention Act (MBCA), 1994 and Migratory Birds Regulations (MBR), 2014 protect most species of migratory birds and their nests and eggs anywhere they are found in Canada.	To ensure the protection of migratory birds, their eggs and their nests, vegetation removal will be completed outside of the breeding bird season (April 1 – August 31) or a site inspection for nesting bird activity should be completed immediately prior to vegetation removal to ensure no nesting (if nesting vegetation clearing is delayed).

11. Conclusion

The findings of the EIS are the result of a background review, detailed field investigations and an analysis of data using the current scientific understanding of the ecology of the area, as well as the current natural heritage policy requirements. Based on the work completed, we have identified the natural environmental sensitivities, constraints and development opportunities of the Subject Property. Palmer has completed a comprehensive Environmental Impact Study that incorporates an assessment of potential impacts to the natural heritage features within the Subject Property, and specifically within the Phase 1 Lands, based on a proposed Draft Plan of Subdivision shown on Figure 7 and provided in **Appendix G**, with a review of environmental policies and evaluation of policy conformity for the overall proposed development. Policy conformity must be considered in the context of an existing MZO that has permitted uses and zoning.

Further development of the Subject Property, outside of the Phase 1 Lands, will be subject to a separate EIS.

The EIS has been completed through an integrated approach and collaboration with the Palmer Hydrogeology team and Jewell Engineering (Functional Servicing Report) to provide specific design and mitigation measures outlined in Section 9.0.

Based on the EIS it is our professional opinion that the proposed development for a Draft Plan of Subdivision on Phase 1 Lands is environmentally feasible, consistent with the applicable natural heritage policies, consideration of the MZO, and would not result in negative impacts to the identified natural heritage features provided that the recommended mitigation and enhancement measures described in Section 9.0 of this report are implemented.

12. Certification

This report was prepared, reviewed and approved by the undersigned:

Prepared By:



Karisa Tyler, M.Sc.
Ecologist

Reviewed By:



Jesse Snider, B.Sc., EPT
Ecology Project Manager

Reviewed By:



Erin Donkers, B.Sc., PG[ER]
Senior Ecologist

**Reviewed and
Approved By:**



Dirk Janas, B.Sc.
Principal Ecologist

13. References

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Appendix A

Terms of Reference & Agency Correspondence

June 22, 2022

Lindsay Nash
Quinte Conservation
RR#2, 2061 Old Hwy #2
Belleville, ON K8N 4Z2

via email: lnash@quinteconservation.ca

Dear Lindsay:

**Re: Terms of Reference for Detailed Natural Heritage Constraints and Opportunities
Assessment – Black Bear Ridge Resort, City of Belleville**

1. Introduction

Palmer is pleased to provide the following Terms of Reference for the completion of an updated Natural Heritage Constraints and Opportunities Assessment for the proposed Black Bear Ridge Resort at 501 Harmony Road in the City of Belleville (the Subject Property).

1.1 Ecology Background

Palmer is familiar with the Subject Property, having completed preliminary ecological work for it as part of a Minister's Zoning Order (MZO) application. The goal of the study was to conduct an initial delineation of existing environmental constraints on the property and identify remaining lands that may be suitable for rezoning to facilitate the future proposed mixed-use development.

This Terms of Reference is based on the results of Palmer's initial ecological investigations at the Subject Property. Following our preliminary assessments, including a site visit and preliminary review of regulatory agency mapping and background information, Palmer has preliminarily identified the following Key Natural Features:

- Provincially Significant Wetlands (PSWs) and unevaluated wetlands;
- Significant Woodlands and potential Significant Woodlands;
- Fish habitat (within Moira River and southern watercourse);
- Hazard Lands (associated with the Moira River floodplain);
- Potential Significant Wildlife Habitat (SWH); and
- Potential Species at Risk (SAR) habitat

This Terms of Reference aims to further characterize the on-site natural heritage system through detailed seasonally appropriate field investigations. This will also serve as an outline for the completion of a future EIS. The purpose of this stage of work will be to confirm and refine existing natural feature boundaries that have been documented previously in order to inform Block and Draft Plans.

2. Scope of work

The items listed below present the scope of work proposed to be completed:

Task 1 – Background Review, Terms of Reference (TOR) and First Nations Consultation

Documents will include background information relating to the Subject Property's biological and physical resources, including records for Species at Risk (SAR). Natural heritage mapping and associated environmental policies at the provincial, regional, and municipal levels will be identified.

In order to confirm that the Palmer work plan and study approach is acceptable to the relevant regulatory agencies (Quinte Conservation, City of Belleville), this TOR is being provided. Palmer will also conduct consultation with local First Nations groups to give the opportunity for them to review Palmer's TOR and provide comment.

Task 2 – Field Investigations

Detailed field investigations will be completed to evaluate existing natural features and their functions, as well as identify presence of wildlife and their use of natural areas. Due to the large size of the Subject Property, the scope of field surveys will aim to characterize those natural features within and immediately adjacent to the proposed development features. Palmer proposes the following surveys:

- *Ecological Communities Assessment*
 - The on-site ecological communities will be confirmed and refined in accordance with Ecological Land Classification of Southern Ontario (ELC) protocols. Vegetation surveys will be completed to classify and map existing vegetation communities and prepare a floral inventory, while concurrently evaluating ecological features and functions, as well as record incidental wildlife observations.
 - Due to the timing of project commencement, ELC conditions will be investigated during a summer 2022 field investigation. The general Ecological Conditions were characterized during a winter season site visit on February 10, 2022.
- *Breeding Bird Surveys*
 - Two standard breeding birds surveys have been completed, as per accepted Bird Studies Canada protocols. One visit was conducted on June 3 and a second is scheduled for June 23, 2022.
- *Amphibian Surveys*
 - Two amphibian breeding surveys will be completed following Marsh Monitoring Program protocols.
 - For efficiency purposes, due to the large size of the Subject Property, these surveys will be focussed on characterizing the presence of breeding amphibians within those wetland features identified as needing further study to confirm their associated constraints.
 - Due to the timing of project commencement, two surveys will be able to be conducted during the 2022 amphibian breeding window. The first Breeding Bird Survey was completed on June 8th, 2022.

- *Aquatic Habitat Assessment*
 - An aquatic habitat assessment will be completed for the two watercourse segments within the Subject Property to document general habitat characteristics including channel dimensions, riparian and in-stream habitat, and water quality and inputs. This can be conducted concurrently with the ELC task as described above.
- *Species at Risk (SAR) Habitat and Significant Wildlife Habitat (SWH) Screenings*
 - Species at Risk habitat and SWH screenings will be completed using the vegetation community data collected during field visits and by noting suitable habitat or indications of potential habitat opportunities recorded during the site visits.

Task 3 – Natural Heritage Feature Staking

To identify the limits of the natural feature areas (i.e., wetlands and woodlands) it is proposed that the feature limits (wetlands, Significant Woodlands) be delineated alongside Quinte Conservation (QC) and Prince Edward County (PEC) staff. Limits of natural features will be incorporated into the proposed development plan for the property and will inform necessary buffers and setback positioning from contiguous natural features.

Task 4 – Natural Heritage Review and Environmental Constraints Assessment Reporting

Palmer will compile a Natural Heritage Constraints and Opportunities Assessment report for the subject property. This report will incorporate the results of all field investigations and identify all existing natural heritage constraints and development opportunities. This report will be submitted to QCA and the County for review. This information will be used to inform future development plans and incorporated into a subsequent EIS.

3. Closing

We trust that the provided TOR is considered suitable. Please reach out to the undersigned for any questions or comments.

Yours truly,

Palmer™



Erin Donkers, B.Sc., PG[ER]
Senior Ecologist, Arborist



Erin Donkers <erin.donkers@pecg.ca>

Black Bear Ridge Resort, Belleville - TOR for Natural Heritage Review and Environmental Constraints Assessment

Ashton, Stephen <sashton@belleville.ca>

Wed, Jul 6, 2022 at 9:12 PM

To: "Deming, Thomas" <tdeming@belleville.ca>, Erin Donkers <erin.donkers@pecg.ca>

Cc: "McAdam, Desta" <dmcadam@belleville.ca>

When the paperwork is in place for this development we can review. We will have to discuss with the main consultant how this process will occur. The main consultant is Anthony Biglieri.

We will be utilizing a peer reviewer at that time.

Thanks.

Sent from my Bell Samsung device over Canada's largest network.

----- Original message -----

From: "Deming, Thomas" <tdeming@belleville.ca>

Date: 2022-06-27 11:01 a.m. (GMT-05:00)

To: Erin Donkers <erin.donkers@pecg.ca>, "Ashton, Stephen" <sashton@belleville.ca>

Cc: "McAdam, Desta" <dmcadam@belleville.ca>

Subject: RE: Black Bear Ridge Resort, Belleville - TOR for Natural Heritage Review and Environmental Constraints Assessment

Hi Erin,

Yes, I can confirm you will be dealing with the City of Belleville on this.

I have copied my director, Stephen Ashton as he has been directly involved in the MZO.

I do not believe they have finalized the requirements for this just yet but I will let him confirm and get back to you regarding this TOR for the Natural Heritage Review and Environmental Constraints Assessment.

Please note, Stephen is away until July 4th.

Thanks,

Thomas Deming, CPT

Principal Planner, Policy Planning

Engineering and Development Services

Corporation of the City of Belleville



City Hall, 169 Front Street
Belleville, ON K8N 2Y8
613-967-3234
tdeming@belleville.ca
belleville.ca

From: Erin Donkers [mailto:erin.donkers@pecg.ca]

Sent: Monday, 27 June 2022 10:30 AM

To: Deming, Thomas

Subject: Fwd: Black Bear Ridge Resort, Belleville - TOR for Natural Heritage Review and Environmental Constraints Assessment

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Hi Thomas,

I received your contact information from the County's Dale Egan. He informed me that the City of Belleville is a separate municipality apart from the County and suggested I reach out to you instead. If there is someone else at the City whom I should forward this to, please let me know.

I have attached a Terms of Reference (TOR) related to a natural heritage constraints review being conducted at the Black Bear Ridge Resort property located on Harmony Road in Belleville. As per the feed below, we have provided the TOR to Quinte Conservation Authority for their review and comment, and wanted to give Belleville the opportunity to provide comment as well.

Please let me know if you have any questions. I look forward to receiving the City's response.

Thank you,

Erin Donkers, B.Sc., PG[ER]
Ecologist, Arborist

(she/her)



| t (905) 870 7490 | e erin.donkers@pecg.ca

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----- Forwarded message -----

From: **Erin Donkers** <erin.donkers@pecg.ca>

Date: Wed, Jun 22, 2022 at 7:57 PM

Subject: Black Bear Ridge Resort, Belleville - TOR for Natural Heritage Review and Environmental Constraints Assessment

To: <lnash@quinteconservation.ca>

Cc: <degan@pecounty.on.ca>, Dirk Janas <dirk.janas@pecg.ca>, Mike Pettigrew <mpettigrew@thebiglierigroup.com>

Hi Lindsay,

Please find attached a Terms of Reference related to preparation of a Natural Heritage Review and Environmental Constraints Assessment study at the Black Bear Ridge Resort property in Belleville. The aim of this study is to characterize and delineate the existing natural heritage system on the property. This information will inform development plans for the property and be incorporated into a subsequent Environmental Impact Study.

I have Cc'd County planning as well to provide them with the opportunity to comment on the TOR as well.

Thank you!

Erin Donkers, B.Sc., PG[ER]

Ecologist, Arborist

(she/her)



| t (905) 870 7490 | e erin.donkers@pecg.ca

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Erin Donkers <erin.donkers@pecg.ca>

Black Bear Ridge Resort, Belleville - TOR for Natural Heritage Review and Environmental Constraints Assessment

Erin Donkers <erin.donkers@pecg.ca>

Wed, Aug 3, 2022 at 12:21 PM

To: Paul McCoy <PMcCoy@quinteconservation.ca>

Cc: Jesse Snider <jesse.snider@pecg.ca>, Anthony Biglieri <abiglieri@thebiglierigroup.com>, Mike Pettigrew <mpettigrew@thebiglierigroup.com>, Dirk Janas <dirk.janas@pecg.ca>

Hi Paul,

Just following up on our TOR. Please let us know if you have any questions or concerns. Also, should Quinte Conservation require a feature staking then please provide some available dates.

Thanks!

Erin Donkers, B.Sc., PG[ER]

Ecologist, Arborist

(she/her)



| t (905) 870 7490 | e erin.donkers@pecg.ca

Learn More:

www.pecg.caOn Mon, Jul 25, 2022 at 3:44 PM Erin Donkers <erin.donkers@pecg.ca> wrote:

Hi Paul,

Thank you for your voicemail last week. My apologies for the delayed response, as I had been on holidays for a few days. As requested, I have attached the Terms of Reference related to the ecological studies being conducted at the Black Bear Ridge property in Belleville.

Please note, only 1 amphibian breeding survey has been conducted this year, due to the seasonal constraints associated with when we received the formal confirmation from our client to proceed with the project (we were only able to fit in a "late breeding" survey). We did manage to get all 3 breeding bird surveys in this year.

We will be headed out tomorrow to conduct our vegetation communities assessment.

Please don't hesitate to reach out if you have any questions as you review the TOR.

We look forward to your comments!

Erin Donkers, B.Sc., PG[ER]

Ecologist, Arborist

(she/her)



| t (905) 870 7490 | e erin.donkers@pecg.ca

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----- Forwarded message -----

From: **Lindsay Nash** <LNash@quinteconservation.ca>

Date: Mon, Jul 18, 2022 at 10:07 AM

Subject: RE: Black Bear Ridge Resort, Belleville - TOR for Natural Heritage Review and Environmental Constraints Assessment

To: Erin Donkers <erin.donkers@pecg.ca>

Cc: Dirk Janas <dirk.janas@pecg.ca>, Paul McCoy <PMcCoy@quinteconservation.ca>, Mary Gunning <MGunning@quinteconservation.ca>

Good morning,

I have Cc'd Paul McCoy and Mary Gunning in this email. They will likely be your main Quinte Conservation contacts for your proposed development.

Thanks,

Lindsay

Lindsay Nash (She/Her)

Regulations Officer

Quinte Conservation

RR#2, 2061 Old Hwy #2, Belleville, ON K8N 4Z2

Phone: (613) 968-3434 or (613) 354-3312

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www.QuinteConservation.ca

www.QuinteSourceWater.ca

Disclaimer: This is intended for the addressee indicated above. It may contain information that is privileged, confidential, or otherwise protected from disclosure under the Municipal Freedom of Information and Privacy Protection Act. If you have received this in error, please notify us immediately.

From: Erin Donkers <erin.donkers@pecg.ca>

Sent: July-18-22 10:01 AM

To: Lindsay Nash <LNash@quinteconservation.ca>

Cc: Dirk Janas <dirk.janas@pecg.ca>

Subject: Re: Black Bear Ridge Resort, Belleville - TOR for Natural Heritage Review and Environmental Constraints Assessment

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Hi Lindsay,

I am just checking in on the status of this TOR that was provided last month for the Black Bear Ridge Resort property in Belleville.

We will be scheduling in our ELC work soon, and if it can be coordinated with Quinte Conservation's feature staking visit (if required this year) then that would be great.

Please let me know if you have any questions.

Thanks!

Erin Donkers, B.Sc., PG[ER]

Ecologist, Arborist

(she/her)

Palmer™

| t (905) 870 7490 | e erin.donkers@pecg.ca

Learn More:

www.pecg.ca

On Wed, Jun 22, 2022 at 7:57 PM Erin Donkers <erin.donkers@pecg.ca> wrote:

Hi Lindsay,

Please find attached a Terms of Reference related to preparation of a Natural Heritage Review and Environmental Constraints Assessment study at the Black Bear Ridge Resort property in Belleville. The aim of this study is to characterize and delineate the existing natural heritage system on the property. This information will inform development plans for the property and be incorporated into a subsequent Environmental Impact Study.

I have Cc'd County planning as well to provide them with the opportunity to comment on the TOR as well.

Thank you!

Erin Donkers, B.Sc., PG[ER]
Ecologist, Arborist

(she/her)

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Appendix B

Ecological Land Classification (Area Outside of Phase 1 Lands)

Appendix B

Ecological Land Classification (Area Outside of Phase 1 Lands)

ELC Community	Description
Terrestrial Systems	
Mineral Cultural Meadow Ecosite (CUM1)	Several meadow communities were noted throughout the Subject Property and were dominated by Smooth Brome (<i>Bromus inermis</i>), with frequent Wild Timothy (<i>Muhlenbergia racemosa</i>), Viper's Bugloss (<i>Echium vulgare</i>), Early Goldenrod (<i>Solidago juncea</i>), Wild Bergomot (<i>Monarda fistulosa</i>), Common Milkweed (<i>Asclepias syriaca</i>), and Tufted Vetch (<i>Vicia cracca</i>). The occasional Wild Carrot (<i>Daucus carota</i>), Common St. John's Wort (<i>Hypericum perforatum</i>), and Red Clover (<i>Trifolium pratense</i>). The occasional Common Juniper (<i>Juniperus communis</i>) were also found scattered throughout these communities.
Cultural Woodland (CUW)	This community's canopy was dominated by Eastern White Cedar (<i>Thuja occidentalis</i>). There was sparse White Elm (<i>Ulmus americana</i>) within the sub-canopy. Ground cover was made up of scarce European Buckthorn (<i>Rhamnus cathartica</i>), Thicket Creeper (<i>Parthenocissus vitacea</i>), and Rough Horsetail (<i>Equisetum hyemale</i>).
Coniferous Plantation (CUP3)	This community's canopy was dominated by Red Cedar (<i>Juniperus virginiana</i>) and White Spruce (<i>Picea glauca</i>) with frequent Scots pine (<i>Pinus sylvestris</i>). The groundcover was dominated by European Buckthorn and Wild Grape (<i>Vitis sp.</i>).
Mineral Cultural Thicket Ecosite (CUT1)	This upland community consisted of abundant Trembling Aspen in the canopy but was largely dominated by dense European Buckthorn, Grey Dogwood (<i>Cornus racemosa</i>), and the occasional willow species (<i>Salix sp.</i>) in the understory.
Anthropogenic Land Use (ANTH)	This land use was characterized by a golf course, accessory paths, and buildings. The primary vegetation community was mowed grasses.
Hedgerow (HR)	Hedgerows were found throughout the southern portion of the Subject Property and primarily consisted of deciduous tree species such as maple (<i>Acer sp.</i>), dead/dying Red Ash (<i>Fraxinus pennsylvanica</i>), oak sp. (<i>Quercus sp.</i>), and White Elm. The understory was typically dominated by shrub species including European Buckthorn, Tatarian Honeysuckle (<i>Lonicera tatarica</i>), Grey Dogwood, and Common Prickly Ash (<i>Zanthoxylum americanum</i>).
Coniferous Forest (FOC)	This community consisted of Eastern White Cedar and sparse Black Cherry (<i>Prunus serotina</i>) in the canopy with 80% canopy cover. The subcanopy was Eastern White Cedar with 80% cover. Understory vegetation included frequent Sugar Maple (<i>Acer saccharum</i>) with occasional Black Locust (<i>Robinia pseudoacacia</i>). Groundcover was

ELC Community	Description
	dominated by Bulbet Fern (<i>Cystopteris bulbifera</i>) with abundant Pennsylvania Sedge (<i>Carex pensylvanica</i>) and American Lopseed (<i>Phryma leptostachya</i>).
Deciduous Forest (FOD)	This community's canopy was dominated by Sugar Maple with Ironwood (<i>Ostrya virginiana</i>) and Basswood (<i>Tilia americana</i>) with 80% canopy cover. The subcanopy was dominated by Sugar Maple with Ironwood, Bitternut Hickory (<i>Carya cordiformis</i>), and Red Ash. The understory comprised of Ironwood with Bitternut Hickory and European Buckthorn. Ground cover was primarily Virginia Creeper (<i>Parthenocissus quinquefolia</i>), Large-leaved Aster (<i>Eurybia macrophylla</i>), Sugar Maple, Herb-Robert (<i>Geranium robertianum</i>), and Poison Ivy (<i>Toxicodendron radicans</i>).
Mixed Forest (FOM)	This community's canopy was composed of Trembling Aspen (<i>Populus tremuloides</i>) and White Pine (<i>Pinus strobus</i>) with 70% canopy cover. The subcanopy was made up of Bitternut Hickory, Ironwood, White Birch (<i>Betula papyrifera</i>), and Eastern White Cedar. The understory vegetation was European Buckthorn with Common Prickly Ash, Bitternut Hickory, and Red Ash. The ground cover was dominated by grasses (<i>Poa sp.</i>) with European Buckthorn, Virginia Creeper, and Bitternut hickory.
Wetland Systems	
Coniferous Swamp (SWC)	This community was dominated by Red Cedar with an understory of European Buckthorn.
Deciduous Swamp (SWD)	This community's canopy was dominated by Freeman's Maple (<i>Acer freemanii</i>) with White Elm and Silver Maple. The occasional Eastern White Cedar was also observed in the canopy. The groundcover was dominated by Canada Nettle (<i>Laportea canadensis</i>) with Woolgrass Bulrush (<i>Scirpus cyperinus</i>), Sensitive Fern (<i>Onoclea sensibilis</i>), and Spotted Joe-pye Weed (<i>Eutrochium maculatum</i>).
Mixed Swamp (SWM)	This community's canopy was dominated by Eastern White Cedar and Silver Maple with willow, Sugar Maple, and Yellow Birch (<i>Betula alleghaniensis</i>). The subcanopy was dominated by Eastern White Cedar and Silver Maple with Sugar Maple, Red Ash, and Yellow Birch. The understory contained Common Prickly Ash. The groundcover was dominated by Bulbet Fern with Stinging Nettle (<i>Urtica dioica</i>), Lady fern (<i>Athyrium filix-femina</i>), Sensitive Fern, and sedges (<i>Carex sp.</i>).
Shallow Marsh (MAS)	This community was characterized by Willows, Tamarack (<i>Larix laricina</i>), Rough Horsetail, Pondweeds (<i>Epotomogeton sp.</i>), Soft-stem Bulrush (<i>Schoenoplectus tabernaemontani</i>), and Muskgrass (<i>Chara sp.</i>).
Cattail Mineral Shallow Marsh Ecosite (MAS2-1)	This community was dominated by Broad-leaved Cattail (<i>Typha latifolia</i>) and Phragmites (<i>Phragmites australis</i>) with Red Cedar and Grasses.
Meadow Marsh (MAM)	This community was characterized by Tufted Vetch, Common Milkweed, Reed Canary Grass (<i>Phalaris arundinacea</i>), and Smooth Brome.
Aquatic Systems	

ELC Community	Description
Constructed Pond	These communities were largely open-water with frequent occurrences of Pondweeds along the water edge. The fringe of these communities were characterized by Broad-leaved Cattail, Phragmites, Reed Canary Grass, Staghorn Sumac (<i>Rhus typhina</i>), and Red-osier Dogwood (<i>Cornus sericea</i>).
Migratory Bird Sanctuary	This community was dominated by Broad-leaved Cattail with Reed Canary Grass, stunted Red Cedar, Sedges, and Pondweeds.

Appendix C

Flora List

Scientific Name	Common Name	Native/Exotic/Unranked	S Rank	Coefficient of Conservatism	Coefficient of Wetness
<i>Acer negundo</i>	Manitoba Maple	N	S5	0	0
<i>Acer saccharinum</i>	Silver Maple	N	S5	5	-3
<i>Acer saccharum</i>	Sugar Maple	N	S5	4	3
<i>Acer x freemanii</i>	Freeman's Maple - (<i>Acer rubrum</i> X <i>Acer saccharinum</i>)	E	SNA	6	-5
<i>Actaea rubra</i>	Red Baneberry	N	S5	6	3
<i>Alisma plantago-aquatica</i>	European Water-plantain			3	-5
<i>Alnus incana ssp. rugosa</i>	Speckled Alder	N	S5	6	-3
<i>Alnus sp.</i>	Alder Species				
<i>Alopecurus pratensis</i>	Meadow Foxtail	E	SNA		-3
<i>Ambrosia artemisiifolia</i>	Common Ragweed	N	S5	0	3
<i>Anemonastrum canadense</i>	Canada Anemone	N	S5	3	-3
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	N	S5	3	5
<i>Apocynum cannabinum</i>	Hemp Dogbane	N	S5	3	0
<i>Aralia nudicaulis</i>	Wild Sarsaparilla	N	S5	4	3
<i>Arctium sp.</i>	Burdock Species				
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	N	S5	5	-3
<i>Asclepias syriaca</i>	Common Milkweed	N	S5	0	5
<i>Asclepias tuberosa</i>	Butterfly Milkweed	N	S4	8	5
<i>Athyrium filix-femina</i>	Common Lady Fern	N	S5	4	0
<i>Betula alleghaniensis</i>	Yellow Birch	N	S5	6	0
<i>Betula papyrifera</i>	Paper Birch	N	S5	2	3
<i>Bidens cernua</i>	Nodding Beggarticks	N	S5	2	-5
<i>Bidens frondosa</i>	Devil's Beggarticks	N	S5	3	-3
<i>Bidens sp.</i>	Beggar's Ticks Species				
<i>Botrypus virginianus</i>	Rattlesnake Fern	N	S5	5	3
<i>Bromus inermis</i>	Smooth Brome	E	SNA		5
<i>Bromus sp.</i>	Brome Species				

<i>Caltha palustris</i>	Yellow Marsh Marigold	N	S5	5	-5
<i>Carex intumescens</i>	Bladder Sedge	N	S5	6	-3
<i>Carex pensylvanica</i>	Pennsylvania Sedge	N	S5	5	5
<i>Carex plantaginea</i>	Plantain-leaved Sedge	N	S5	7	5
<i>Carex radiata</i>	Eastern Star Sedge	N	S5	4	0
<i>Carex sp.</i>	Sedge Species				
<i>Carex tuckermanii</i>	Tuckerman's Sedge	N	S5	7	-5
<i>Carpinus caroliniana</i>	Blue-beech	N	S5	6	0
<i>Carya cordiformis</i>	Bitternut Hickory	N	S5	6	0
<i>Carya ovata</i>	Shagbark Hickory	N	S5	6	3
<i>Chelone glabra</i>	White Turtlehead	N	S5	7	-5
<i>Cicuta maculata</i>	Spotted Water-hemlock	N	S5	6	-5
<i>Cicuta sp.</i>	Water-hemlock Species				
<i>Circaea sp.</i>	Nightshade Species				
<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	N	S5	6	3
<i>Cornus obliqua</i>	Silky Dogwood	N	S5	2	-3
<i>Cornus racemosa</i>	Grey Dogwood	N	S5	2	0
<i>Cornus sericea</i>	Red-osier Dogwood	N	S5	2	-3
<i>Cystopteris bulbifera</i>	Bulblet Bladder Fern	N	S5	5	-3
<i>Cystopteris fragilis</i>	Fragile Fern	N	S4	7	3
<i>Daucus carota</i>	Wild Carrot	E	SNA		5
<i>Dryopteris marginalis</i>	Marginal Wood Fern	N	S5	5	3
<i>Echinocystis lobata</i>	Wild Cucumber	N	S5	3	-3
<i>Echium vulgare</i>	Common Viper's Bugloss	E	SNA		5
<i>Eleocharis sp.</i>	Spikerush Species				
<i>Equisetum arvense</i>	Field Horsetail	N	S5	0	0
<i>Equisetum hyemale ssp. affine</i>	Common Scouring-rush	N	S5	2	0
<i>Equisetum sp.</i>	Horsetail Species				
<i>Equisetum variegatum</i>	Variegated Scouring-rush	N	S5	5	-3
<i>Erigeron annuus</i>	Annual Fleabane	N	S5	0	3
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	N	S5	1	-3
<i>Erigeron strigosus</i>	Rough Fleabane	N	S5	4	3

<i>Eupatorium perfoliatum</i>	Common Boneset	N	S5	2	-3
<i>Eurybia macrophylla</i>	Large-leaved Aster	N	S5	5	5
<i>Fagus grandifolia</i>	American Beech	N	S4	6	3
<i>Fragaria virginiana</i>	Wild Strawberry	N	S5	2	3
<i>Fraxinus americana</i>	White Ash	N	S4	4	3
<i>Fraxinus pennsylvanica</i>	Red Ash	N	S4	3	-3
<i>Galium circaeans</i>	Licorice Bedstraw	N	S5	7	3
<i>Galium palustre</i>	Common Marsh Bedstraw	N	S5	5	-5
<i>Galium sp.</i>	Bedstraw Species				
<i>Geranium robertianum</i>	Herb-Robert	N	S5	2	3
<i>Hackelia virginiana</i>	Virginia Stickseed	N	S5	5	3
<i>Helianthus tuberosus</i>	Jerusalem Artichoke	U	SU	1	0
<i>Hepatica acutiloba</i>	Sharp-lobed Hepatica	N	S5	8	5
<i>Heracleum maximum</i>	American Cow Parsnip	N	S5	3	-3
<i>Hypericum perforatum</i>	Common St. John's-wort	E	SNA		5
<i>Impatiens capensis</i>	Spotted Jewelweed	N	S5	4	-3
<i>Iris versicolor</i>	Harlequin Blue Flag	N	S5	5	-5
<i>Juglans cinerea</i>	Butternut	N	S2?	6	3
<i>Juncus dudleyi</i>	Dudley's Rush	N	S5	1	-3
<i>Juniperus sp.</i>	Juniper Species				
<i>Juniperus virginiana</i>	Eastern Red Cedar	N	S5	4	3
<i>Laportea canadensis</i>	Canada Wood Nettle	N	S5	6	-3
<i>Larix laricina</i>	Tamarack	N	S5	7	-3
<i>Lemna sp.</i>	Duckweed Species				
<i>Leucanthemum vulgare</i>	Oxeye Daisy	E	SNA		5
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	E	SNA		3
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil	E	SNA		3
<i>Lysimachia borealis</i>	Northern Starflower	N	S5	6	0
<i>Lythrum salicaria</i>	Purple Loosestrife	E	SNA		-5
<i>Maianthemum canadense</i>	Wild Lily-of-the-valley	N	S5	5	3

<i>Maianthemum racemosum</i>	Large False Solomon's Seal	N	S5	4	3
<i>Maianthemum sp.</i>	Solomon's Seal Species				
<i>Matteuccia struthiopteris</i>	Ostrich Fern	N	S5	5	0
<i>Medicago lupulina</i>	Black Medick	E	SNA		3
<i>Melilotus officinalis</i>	Yellow Sweet-clover	E	SNA		3
<i>Melilotus sp.</i>	Sweet Clover Species				
<i>Mentha sp.</i>	Mint Species				
<i>Monarda fistulosa</i>	Wild Bergamot	N	S5	6	3
<i>Muhlenbergia racemosa</i>	Marsh Muhly	N	S4		3
<i>Myriophyllum spicatum</i>	Eurasian Water-milfoil	E	SNA		-5
<i>Nepeta cataria</i>	Catnip	E	SNA		3
<i>Onoclea sensibilis</i>	Sensitive Fern	N	S5	4	-3
<i>Ostrya virginiana</i>	Eastern Hop-hornbeam	N	S5	4	3
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	N	S4?	6	3
<i>Parthenocissus vitacea</i>	Thicket Creeper	N	S5	4	3
<i>Pastinaca sativa</i>	Wild Parsnip	E	SNA		5
<i>Penstemon hirsutus</i>	Hairy Beardtongue	N	S4	7	5
<i>Phalaris arundinacea</i>	Reed Canarygrass	N	S5	0	-3
<i>Phlox divaricata</i>	Wild Blue Phlox	N	S4	7	3
<i>Phragmites australis ssp. australis</i>	European Reed	E	SNA		-3
<i>Phryma leptostachya</i>	Lopseed	N	S4S5	6	3
<i>Picea glauca</i>	White Spruce	N	S5	6	3
<i>Pilosella caespitosa</i>	Meadow Hawkweed	E	SNA		5
<i>Pinus strobus</i>	Eastern White Pine	N	S5	4	3
<i>Pinus sylvestris</i>	Scots Pine	E	SNA		3
<i>Poa pratensis</i>	Kentucky Bluegrass	N	S5	0	3
<i>Poa sp.</i>	Bluegrass Species				
<i>Podophyllum peltatum</i>	May-apple	N	S5	5	3
<i>Populus balsamifera</i>	Balsam Poplar	N	S5	4	-3

<i>Populus deltoides</i>	Eastern Cottonwood	N	S5	4	0
<i>Populus grandidentata</i>	Large-toothed Aspen	N	S5	5	5
<i>Populus tremuloides</i>	Trembling Aspen	N	S5	2	0
<i>Potamogeton sp.</i>	Pondweed Species				
<i>Potentilla recta</i>	Sulphur Cinquefoil	E	SNA		5
<i>Prunus serotina</i>	Black Cherry	N	S5	3	3
<i>Pteridium aquilinum</i>	Bracken Fern	N	S5	2	3
<i>Quercus alba</i>	White Oak	N	S5	6	3
<i>Quercus macrocarpa</i>	Bur Oak	N	S5	5	3
<i>Quercus rubra</i>	Northern Red Oak	N	S5	6	3
<i>Ranunculus acris</i>	Common Buttercup	E	SNA		0
<i>Rhamnus cathartica</i>	European Buckthorn	E	SNA		0
<i>Rhus typhina</i>	Staghorn Sumac	N	S5	1	3
<i>Ribes glandulosum</i>	Skunk Currant	N	S5	6	-3
<i>Ribes sp.</i>	Currant Species				
<i>Robinia pseudoacacia</i>	Black Locust	E	SNA		3
<i>Rosa multiflora</i>	Multiflora Rose	E	SNA		3
<i>Rubus pubescens</i>	Dwarf Raspberry	N	S5	4	-3
<i>Salix alba</i>	White Willow	E	SNA		-3
<i>Salix bebbiana</i>	Bebb's Willow	N	S5	4	-3
<i>Salix sp.</i>	Willow Species				
<i>Sanguinaria canadensis</i>	Bloodroot	N	S5	5	3
<i>Sanicula marilandica</i>	Maryland Sanicle	N	S5	5	3
<i>Schoenoplectus tabernaemontani</i>	Soft-stemmed Bulrush	N	S5	5	-5
<i>Scirpus cyperinus</i>	Common Woolly Bulrush	N	S5	4	-5
<i>Silene vulgaris</i>	Bladder Champion	E	SNA		5
<i>Sisyrinchium angustifolium</i>	Narrow-leaved Blue-eyed-grass	N	S4	6	0
<i>Solanum dulcamara</i>	Bittersweet Nightshade	E	SNA		0
<i>Solidago caesia</i>	Blue-stemmed Goldenrod	N	S5	5	3
<i>Solidago flexicaulis</i>	Zigzag Goldenrod	N	S5	6	3
<i>Solidago juncea</i>	Early Goldenrod	N	S5	3	5
<i>Solidago sp.</i>	Goldenrod Species				

<i>Sonchus arvensis</i>	Field Sow-thistle	E	SNA		3
<i>Sparganium sp.</i>	Bur-reed Species				
<i>Spiraea alba</i>	White Meadowsweet	N	S5	3	-3
<i>Spiraea sp.</i>	Meadow-sweet Species				
<i>Symphyotrichum lateriflorum</i>	Calico Aster	N	S5	3	0
<i>Symphyotrichum urophyllum</i>	Arrow-leaved Aster	N	S4	6	5
<i>Taraxacum officinale</i>	Common Dandelion	E	SNA		3
<i>Thalictrum dioicum</i>	Early Meadow-rue	N	S5	6	3
<i>Thelypteris palustris</i>	Marsh Fern	N	S5	5	-3
<i>Thuja occidentalis</i>	Eastern White Cedar	N	S5	4	-3
<i>Tilia americana</i>	Basswood	N	S5	4	3
<i>Toxicodendron radicans</i>	Poison Ivy	N	S5	2	0
<i>Trifolium hybridum</i>	Alsike Clover	E	SNA		3
<i>Trifolium pratense</i>	Red Clover	E	SNA		3
<i>Trifolium repens</i>	White Clover	E	SNA		3
<i>Trillium grandiflorum</i>	White Trillium	N	S5	5	3
<i>Typha latifolia</i>	Broad-leaved Cattail	N	S5	1	-5
<i>Ulmus americana</i>	White Elm	N	S5	3	-3
<i>Urtica dioica</i>	Stinging Nettle	N	S5	2	0
<i>Uvularia grandiflora</i>	Large-flowered Bellwort	N	S5	6	5
<i>Verbascum thapsus</i>	Common Mullein	E	SNA		5
<i>Veronica officinalis</i>	Common Speedwell	E	SNA		5
<i>Viburnum lentago</i>	Nannyberry	N	S5	4	0
<i>Vicia cracca</i>	Tufted Vetch	E	SNA		5
<i>Viola sp.</i>	Violet Species				
<i>Vitis riparia</i>	Riverbank Grape	N	S5	0	0
<i>Zanthoxylum americanum</i>	Common Prickly-ash	N	S5	3	3

LEGEND	
SRANK	Provincial Status: Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These ranks are not legal generally uncommon to common in the province. Species ranked S1-S3 are considered to be rare in Ontario. designations. S4 and S5 species are generally uncommon to common in the province. Species ranked S1-S3 are considered to be rare in Ontario.
S1 Critically Imperiled	Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2 Imperiled	Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3 Vulnerable	Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 Apparently Secure	Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 Secure	Common, widespread, and abundant in the nation or state/province.
SU Unrankable	Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA Unranked	A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
SX Presumed Extirpated	Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH Possibly Extirpated (Historical)	Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered.
SE# Exotic Status	
S#? Rank Uncertain	

Ontario Ministry of Natural Resources (OMNR). 2018. Natural Heritage Information Centre Species Lists. Last updated January 30, 2018. <https://www.ontario.ca/page/get-natural-heritage-information>

COSSARO	
END Endangered	A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
THR Threatened	A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
SC Special Concern	A species with characteristics that make it sensitive to human activities or natural events.
DD Data Deficient	
EXP Extirpated	A species that no longer exists in the wild in Ontario but still occurs elsewhere.

Ontario Ministry of Natural Resources and Forestry (2018). Species Risk in Ontario. Last updated UNE 28, 2018. <https://www.ontario.ca/environment-and-energy/species-risk-type>

COSEWIC	
END Endangered	A wildlife species facing imminent extirpation or extinction.
THR Threatened	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC Special Concern	A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
VUL Vulnerable	
NAR Not at Risk	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
DD Data Deficient	A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.
NA Non-active	
XT Extirpated	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.

Committee for the Status on Endangered Wildlife in Canada (COSEWIC). 2018. Canadian Wildlife Species at Risk. Last updated February 22, 2018. http://www.sararegistry.gc.ca/sar/index/default_e.cfm

Coefficient of Conservation

'Higher values of the coefficients of conservatism, on the scale of 1–10, indicate species that are more "conservative" (or ecologically sensitive), including those least associated with anthropogenic disturbance, least aggressive, least able to spread, and most confined to particular natural habitat' (Catling Catling, Paul M. 2013. Using Coefficients of Conservatism and the Floristic Quality Index to assess the potential for serious and irreversible damage to plant communities. Canadian Field-Naturalist 127(3): 285–288.

Coefficient of Wetness

5 - Almost always occur on upland; 3 - Usually occur on uplands; 0 - Found on uplands and in wetlands; -3 Usually occur in wetlands; -5 Almost always occur in wetlands

Floristic Assessment System for Southern Ontario (Oldham et al, 1995).

Appendix D

Breeding Bird Survey List

Breeding Birds of Black Bear Ridge

Common Name	Scientific Name	Status				Number of Pairs/Territories		
		National Species at Risk COSEWIC ^a	Species at Risk in Ontario Listing ^a	Provincial breeding season SRANK ^b	Area-sensitive (OMNR) ^c	Phase 1 Area	Remainder of Surveyed Area	Total
Great Blue Heron	<i>Ardea herodias</i>			S4		1 F	1 F	2 F
Green Heron	<i>Butorides virescens</i>			S4		1 PB		1 PB
Mallard	<i>Anas platyrhynchos</i>			S5		1		1
Turkey Vulture	<i>Cathartes aura</i>			S5			3 F	3 F
Sharp-shinned Hawk	<i>Accipiter striatus</i>			S5	A		1	1
Broad-winged Hawk	<i>Buteo platypterus</i>			S5	A		1	1
Red-tailed Hawk	<i>Buteo jamaicensis</i>			S5		1	1	2
Wild Turkey	<i>Meleagris gallopavo</i>			S5			1	1
Killdeer	<i>Charadrius vociferus</i>			S5		2		2
Mourning Dove	<i>Zenaida macroura</i>			S5		4	7	11
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>			S5	A		11	11
Downy Woodpecker	<i>Dryobates pubescens</i>			S5		1	2	3
Hairy Woodpecker	<i>Dryobates villosus</i>			S5	A		1	1
Northern Flicker	<i>Colaptes auratus</i>			S4		1	1	2
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4		3	14	17
Eastern Phoebe	<i>Sayornis phoebe</i>			S5			2	2
Great Crested Flycatcher	<i>Myiarchus crinitus</i>			S4			5	5
Eastern Kingbird	<i>Tyrannus tyrannus</i>			S4		3	2	5
Tree Swallow	<i>Tachycineta bicolor</i>			S4		4		4
Barn Swallow	<i>Hirundo rustica</i>	SC	SC	S4		1 F		1 F
Blue Jay	<i>Cyanocitta cristata</i>			S5		2	8	10
American Crow	<i>Corvus brachyrhynchos</i>			S5			1	1
Common Raven	<i>Corvus corax</i>			S5			1	1
Black-capped Chickadee	<i>Poecile atricapillus</i>			S5		1	10	11
Red-breasted Nuthatch	<i>Sitta canadensis</i>			S5	A		2	2
White-breasted Nuthatch	<i>Sitta carolinensis</i>			S5	A	1 PB	3	3, 1 PB
House Wren	<i>Troglodytes aedon</i>			S5		3	1	4
Eastern Bluebird	<i>Sialia sialis</i>			S5		1		1
Wood Thrush	<i>Hylocichla mustelina</i>	THR	SC	S4			6	6
American Robin	<i>Turdus migratorius</i>			S5		10	9	19
Gray Catbird	<i>Dumetella carolinensis</i>			S4		2	1	3
Brown Thrasher	<i>Toxostoma rufum</i>			S4		1		1
Cedar Waxwing	<i>Bombycilla cedrorum</i>			S5		5	3	8
European Starling	<i>Sturnus vulgaris</i>			SE		3		3
Warbling Vireo	<i>Vireo gilvus</i>			S5		6	1	7

Common Name	Scientific Name	Status				Number of Pairs/Territories		
		National Species at Risk COSEWIC ^a	Species at Risk in Ontario Listing ^a	Provincial breeding season SRANK ^b	Area-sensitive (OMNR) ^c	Phase 1 Area	Remainder of Surveyed Area	Total
Red-eyed Vireo	<i>Vireo olivaceus</i>			S5		2	28	30
Yellow Warbler	<i>Setophaga petechia</i>			S5		2	1	3
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>			S5		1	5	6
Black-throated Green Warbler	<i>Setophaga virens</i>			S5	A		1	1
Pine Warbler	<i>Setophaga pinus</i>			S5	A		2	2
Black-and-white Warbler	<i>Mniotilta varia</i>			S5	A		3	3
American Redstart	<i>Setophaga ruticilla</i>			S5	A		2	2
Ovenbird	<i>Seiurus aurocapilla</i>			S4	A		6	6
Northern Waterthrush	<i>Parkesia noveboracensis</i>			S5			1	1
Common Yellowthroat	<i>Geothlypis trichas</i>			S5		6	3	9
Scarlet Tanager	<i>Piranga olivacea</i>			S4	A		4	4
Northern Cardinal	<i>Cardinalis cardinalis</i>			S5		2	6	8
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>			S4			6	6
Indigo Bunting	<i>Passerina cyanea</i>			S4		1	6	7
Eastern Towhee	<i>Pipilo erythrophthalmus</i>			S4			2	2
Chipping Sparrow	<i>Spizella passerina</i>			S5		2	4	6
Field Sparrow	<i>Spizella pusilla</i>			S4		1	1	2
Savannah Sparrow	<i>Passerculus sandwichensis</i>			S4	A	5		5
Song Sparrow	<i>Melospiza melodia</i>			S5		10	10	20
Swamp Sparrow	<i>Melospiza georgiana</i>			S5			1	1
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	S4	A	1		1
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			S4		9	3	12
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	S4	A	3		3
Common Grackle	<i>Quiscalus quiscula</i>			S5		1	2	3
Baltimore Oriole	<i>Icterus galbula</i>			S4		5	6	11
American Goldfinch	<i>Spinus tristis</i>			S5		6	5	11

F = Foraging only; PB = Post-breeding (see report)

Field Work Conducted On:	Date	Temp (°C)	Wind Speed (Beaufort)	Cloud Cover (%)
Site visit 1	June 3, 2022	12	0-1	90
Site visit 2	June 23, 2022	14	0-1	5
Site visit 3	July 6, 2022	14	0-1	30

Total Area Surveyed (not all of property)

Total Number of Species: 61

Number of (provincial and national) Species at Risk: 4 nesting; 2 foraging

Common Name	Scientific Name	Status				Number of Pairs/Territories		
		National Species at Risk COSEWIC ^a	Species at Risk in Ontario Listing ^a	Provincial breeding season SRANK ^b	Area- sensitive (OMNR) ^c	Phase 1 Area	Remainder of Surveyed Area	Total

Number of S1 to S3 (provincially rare) Species: 0

Number of Forest Area-sensitive Species: 12

Number of Grassland Area-sensitive Species: 3

Phase 1 Area

Number of Species: 39

Number of (provincial and national) Species at Risk: 3 nesting; plus 1 foraging only

Number of S1 to S3 (provincially rare) Species: 0

Number of Forest Area-sensitive Species: 0

Number of Grassland Area-sensitive Species: 3

All other Areas Surveyed (mainly forested)

Number of Species: 50

Number of (provincial and national) Species at Risk: 2 nesting

Number of S1 to S3 (provincially rare) Species: 0

Number of Forest Area-sensitive Species: 12

Number of Grassland Area-sensitive Species: 0

KEY

a COSEWIC = Committee on the Status of Endangered Wildlife in Canada

a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)

END = Endangered, THR = Threatened, SC = Special Concern

^b SRANK (from Natural Heritage Information Centre) for breeding status if:

S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)

SZB (breeding migrants or vagrants) and SR (reported as breeding, but no persuasive documentation) .

SE (exotic, i.e. non-native)

^c Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.

Appendix E

Species at Risk Assessment

Appendix E: Species at Risk Screening

NAME	SARA STATUS	SARO	COSEWIC	SCHEDULE	S-RANK	HABITAT REQUIREMENTS	SOURCE OF RECORD	HABITAT PRESENT (Y/P/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
AVIFAUNA										
Bank Swallow (<i>Riparia riparia</i>)	THR	THR	THR	1	S4B	The Bank Swallow is threatened by loss of breeding and foraging habitat, destruction of nesting habitat and widespread pesticide use. Bank swallows are small songbirds with brown upperparts, white underparts and a distinctive dark breast band. It averages 12 cm long and weighs between 10 and 18 grams. The swallow can be distinguished in flight from other swallows by its quick, erratic wing beats and its almost constant buzzy, chattering vocalizations. They nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposit, including banks of rivers and lakes, active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs (Ministry of Natural Resources and Forestry, 2014).	OBBA	N	There are no exposed banks or cliffs within the Subject Property.	None
Barn Swallow (<i>Hirundo rustica</i>)	THR	THR	THR	1	S4B	The Barn Swallow is a threatened species, is found throughout southern Ontario, and can range into the north as long as suitable nesting locations can be found. These birds prefer to nest within human made structures such as barns, bridges, and culverts. Barn Swallow nests are cup-shaped and made of mud; they are typically attached to horizontal beams or vertical walls underneath an overhang. A significant decline in populations of this species has been documented since the mid-1980s, which is thought to be related to a decline in prey. Since the Barn Swallow is an aerial insectivore, this species relies on the presence of flying insects at specific times during the year. Changes in building practices and materials may also be having an impact on this species (Ministry of Natural Resources and Forestry, 2015).	MNAL 2004, OBBA	N	Structures are present on the Subject Property. One foraging individual was observed during Palmer's breeding bird surveys in 2022. No breeding evidence was recorded.	None anticipated.
Black Tern (<i>Chlidonias niger</i>)	No Status	SC	Not at Risk	No Schedule	S3B	The Black Tern is a small shorebird that builds floating nests in loose colonies in shallow marshes, with a preference for cattails. The Black Tern is a species of special concern in Ontario due to population decline that is thought to be directly related to the loss of wetland habitat and anthropogenic influences in near shore areas of wetlands and shallow water bodies (i.e. fluctuations in water level, boat traffic, and wakes) (Ministry of Natural Resources and Forestry, 2015).	MNAL 2004	N	None recorded during Palmer's 2022 breeding bird surveys.	None anticipated.
Bobolink (<i>Dolichonyx oryzivorus</i>)	THR	THR	THR	1	S4B	The Bobolink is found in grasslands and hayfields, and feeds and nests on the ground. This species is widely distributed across most of Ontario; however, are designated at risk because of rapid population decline over the last 50 years (Ministry of Natural Resources and Forestry, 2014). The historical habitat of the bobolink was tallgrass prairie and other natural open meadow communities; however, as a result of the clearing of native prairies and the post-colonial increase in agriculture, bobolinks are now widely found in hayfields. Due to their reproductive cycle, nesting habits, and use of agricultural areas, bobolink nests and young are particularly vulnerable to loss as a result of common agricultural practices (i.e. first cut hay).	NHIC, OBBA	Y	One territory was recorded within Phase 1 Lands during Palmer's 2022 breeding bird surveys.	Compensation for removal of habitat will be required through the Endangered Specie Act regulations
Eastern Meadowlark (<i>Sturnella magna</i>)	THR	THR	THR	1	S4B	The Eastern Meadowlark is a bird that prefers pastures and hayfields, but is also found to breed in orchards, shrubby fields and human use areas such as airports and roadsides. Eastern meadowlarks can nest from early May to mid-August, in nests that are built on the ground and well-camouflaged with a roof woven from grasses. The decline in population of these species is thought to be at least partially related to habitat destruction and agricultural practices (Ministry of Natural Resources and Forestry, 2014).	NHIC, OBBA	Y	Three territories were recorded within Phase 1 Lands during Palmer's 2022 breeding bird surveys.	Compensation for removal of habitat will be required through the Endangered Specie Act regulations
Eastern Wood-Pewee (<i>Contopus virens</i>)	SC	SC	SC	1	S4B	The Eastern Wood-pewee is classified as a species of special concern by COSSARO. Their population has been gradually declining since the mid-1960's (The Cornell Lab of Ornithology, 2015). The Eastern Wood-pewee is a "flycatcher", a bird that eats flying insects, that lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It prefers intermediate-age forest stands with little understory vegetation. Threats to the population are largely unknown; however, causes may include loss of habitat due to urban development and decreases in the availability of flying insect prey (Ministry of Natural Resources and Forestry, 2014).	MNAL 2004, OBBA	Y	17 territories were recorded throughout the Subject Property; three territories were recorded within Phase 1 Lands.	Adherence to proper timing windows in accordance with the MBCA. As a Special Concern species, Eastern Wood-Pewee is not protected under the ESA.
Grasshopper Sparrow (<i>Ammodramus savannarum</i>)	No Status	No Status	SC	X	S4B	Grasshopper Sparrow are specialized to open relatively short grassland habitat, preferably grasslands with relatively sparse cover such as those in areas of poor soils, including alvars, moraines, and sand plains and generally does not favour tall grass moist meadows. It will also breed in manmade hayfields and occasionally in cereals such as Rye (<i>Secale cereale</i>).	OBBA	N	No individuals were recorded during Palmer's 2022 breeding bird surveys.	None.

[illegible]

Tri-colored Bat (Eastern Pipistrelle) (<i>Perimyotis subflavus</i>)	END	END	END	1	S3?	The eastern pipistrelle is a small bat that is widely distributed in eastern North America and whose range extends north to southern Ontario. The eastern pipistrelle is rare in this region of Ontario which is at the northernmost limit of the natural range for the species. These bats prefer to nest in foliage, tree cavities and woodpecker holes, and are occasionally found in buildings; though this is not their preferred habitat. Winter hibernation takes place in caves, mines and deep crevices. Eastern pipistrelles feed primarily on small insects and prefer an open forest habitat type in proximity to water (University of Michigan Museum of Zoology, 2004).	Professional Experience	Y	Suitable forest habitat present within the Subject Property.	Low potential for impacts expected. Mitigation: As SAR bats are typically active between early April and late October, and hibernate in caves outside of that period, tree removal should be carried out between December 1 - March 14. This will avoid harm or impacts to individuals. Additional mitigation measures such the installation of bat boxes may be needed. Consultation with MECP will be required.
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	No Status	END	No Status	No Schedule	S2S3	The eastern small-footed myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Eastern small-footed bat's fur has black roots and shiny light brown tips, giving it a yellowish-brown appearance. Its face mask, ears and wings are black, and its underside is grayish-brown, about 8 cm long in size and weighs 4-5 grams. In the spring and summer, eastern small-footed bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. They change their roosting locations daily and hunt at night for insects to eat, including beetles, mosquitos, moths, and flies. They hibernate in winter, often in caves and abandoned mines. They can be found from south of Georgian Bay to Lake Erie and east to the Pembroke area, and choose colder and drier sites (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y	Suitable forest habitat present within the Subject Property.	Low potential for impacts expected. Mitigation: As SAR bats are typically active between early April and late October, and hibernate in caves outside of that period, tree removal should be carried out between December 1 - March 14. This will avoid harm or impacts to individuals. Additional mitigation measures such the installation of bat boxes may be needed. Consultation with MECP will be required.
Little Brown Myotis (<i>Myotis lucifugus</i>)	END	END	END	1	S4	Little brown myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Little brown bats have glossy brown fur and usually weigh between four and 11 grams. Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings and barns for summer colonies where they can raise their young. Little brown bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing – an ideal environment for the fungus to grow and flourish. The syndrome affects bats by disrupting their hibernation cycle, so that they use up body fat supplies before the spring when they can once again find food sources (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y	Suitable forest habitat present within the Subject Property.	Low potential for impacts expected. Mitigation: As SAR bats are typically active between early April and late October, and hibernate in caves outside of that period, tree removal should be carried out between December 1 - March 14. This will avoid harm or impacts to individuals. Additional mitigation measures such the installation of bat boxes may be needed. Consultation with MECP will be required.
Northern Myotis (<i>Myotis septentrionalis</i>)	END	END	END	1	S3	The northern long-eared myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Northern long-eared bats have dull yellow-brown fur with pale grey bellies. They are approximately eight cm long, with a wingspan of about 25 cm, and usually weigh six to nine grams. Northern long-eared bats can be found in boreal forests, roosting under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April, most often in caves or abandoned mines (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y	Suitable forest habitat present within the Subject Property.	Low potential for impacts expected. Mitigation: As SAR bats are typically active between early April and late October, and hibernate in caves outside of that period, tree removal should be carried out between December 1 - March 14. This will avoid harm or impacts to individuals. Additional mitigation measures such the installation of bat boxes may be needed. Consultation with MECP will be required.
FISH										
American Eel (<i>Anguilla rostrata</i>)	No Status	END	THR	No Schedule	S1?	The American eel is a long, slender bodied fish, with one long fin extending down the back and around the tail, and two small pectoral fins. It has thick lips, and a protruding lower jaw that extends out above the upper jaw. American eel spawn in the Sargasso Sea and the larva drift up the eastern seaboard of North America before undergoing metamorphosis into glass eels and then elvers. At this stage the juveniles swim up the St. Lawrence River to reach Lake Ontario and connected tributaries where they will remain for eight (8) to 23 years before migrating back to their spawning grounds. In Ontario the American eel prefers mud, sand or gravel substrates during the juvenile stage when they reside primarily in the benthic zone of waterbodies. More mature eels are able to thrive in most environments provided there is available cover during daylight hours, and the habitat is accessible. The greatest threat to this species is the density and design of hydro power facilities along migration routes. American eels are affected during migration by the inability to pass these barriers while travelling upstream, and the high rates of mortality experienced by individuals pulled into turbines while heading downstream (Government of Canada, 2016).	NHIC	N	Potential habitat for this species exists outside of the Subject Property. No impacts are anticipated in or immediately adjacent to the Moira River.	None

Channel Darter (<i>Percina capelandi</i>)	THR	SC	END (Lake Erie and Lake Ontario populations)/SC (St. Lawrence populations)	1	S2	In Ontario, the Channel Darter lives in clean streams and lakes with sandy or gravel bottoms. During the breeding season in late spring, it prefers riffle areas with fairly fast moving water but spends the winter in deeper, calmer water. It eats mostly aquatic insect larvae from the bottom of the stream.	DFO, NHIC	N	Potential habitat for this species exists outside of the Subject Property. No impacts are anticipated in or immediately adjacent to the Moira River.	None
Rainbow Mussel (<i>Villosa iris</i>)	END	SC	END	-	S2S3	Rainbow mussel utilize small to medium-sized rivers with a moderate to strong current and sand, rocky, or gravel bottoms. They are found in or near riffle areas and along the edges of vegetation in water less than one metre deep.	DFO, NHIC	N	Potential habitat for this species exists outside of the Subject Property. No impacts are anticipated in or immediately adjacent to the Moira River.	None
OTHER										
Monarch Butterfly (<i>Danaus plexippus</i>)	SC	SC	END	1	S2N,S4B	The monarch is an orange and black butterfly with small white spots and is classified as a species of special concern by COSSARO. The monarch relies on milkweed plants as a food source for growing caterpillars, but the adult butterflies forage in diverse habitats for nectar from wildflowers. The greatest threat to the monarch is loss of overwintering habitat in Mexico. Other threats include use of pesticides and herbicides throughout its range (Ministry of Natural Resources and Forestry, 2014).	OBA	Y	Open areas containing milkweed are present on the Subject Property however, minimal foraging opportunities are present within Phase 1 Lands.	Loss of Common Milkweed (considered to be widespread in Ontario), as a result of the proposed work, is not anticipated to impact this species.

Notes:

SC - Special Concern

THR - Threatened

END - Endangered

S1 - Extremely rare in Ontario

S2 - Very rare in Ontario

S3 - Rare to uncommon in Ontario

S4 - Considered to be common in Ontario

S5 - Species is widespread in Ontario

SH - Possibly extirpated

S#S# - Indicates insufficient information exists to assign a single rank.

S#? - Indicates some uncertainty with the classification due to insufficient data.

S#N - Nonbreeding

S#B - Breeding

Appendix F

Significant Wildlife Habitat Assessment

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence	Additional Notes and Species Observations
Seasonal Concentration Areas of Animals					
Waterfowl Stopover and Staging Areas (Terrestrial)	Ducks	CUM + CUT ecosites	Fields with sheet-water flooding mid-March to May	N	Suitable habitat/sheet water areas are absent within the Subject Property.
Waterfowl Stopover and Staging Area (Aquatic)	Ducks, Geese	Ponds, Lakes, Inlets, Marshes, Swamps, Shallow Water Ecosites	Sewage & SWM ponds not SWH. Reservoir managed as a large wetland or pond/lake qualifies.	Confirmed	A constructed migratory bird sanctuary present on the Subject Property was identified as SWH in MNAL's <i>Environmental Impact Study</i> (2004).
Shorebird Migratory Stopover Area	Shorebirds	Beaches, Dunes, Meadow Marshes	Shorelines. Sewage treatment ponds and storm water ponds not SWH.	N	Suitable shoreline habitat is absent within the Subject Property.
Raptor Wintering Area	Eagles, Hawks, Owls	Hawks/Owls: Combination of both Forest and Cultural Ecosites Bald Eagle: Forest or swamp near open water (hunting ground)	Raptors: >20ha, with a combo of forest and upland. Meadow (>15ha) with adjacent woodlands. Eagles: open water, large trees & snags for roosting.	P	Possible, as large forest habitat adjacent to open water (e.g., Moira River) is present on the Subject Property. Insufficient meadow size found on the property for hawks/owls.
Bat Hibernacula	Big Brown Bat, Tri-coloured Bat	Caves, Crevices, mines, karsts	Buildings and active mine sites not SWH.	N	Suitable habitat is absent within the Subject Property.
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	Deciduous or mixed forests and swamps.	Mature deciduous and mixed forests with >10/ha cavity trees >25 cm DBH.	P	Deciduous and mixed forest habitats with cavity trees >25 cm DBH are present within the Subject Property.
Turtle Wintering Area	Turtles (Midland, N. Map, Snapping)	SW, MA, OA, SA, FEO, BOO (requires open waters)	Free water beneath ice. Soft mud substrate. Permanent water bodies, large wetlands, bogs, fens with adequate DO.	P	Suitable swamp, marsh habitat, and shallow water is present within the Subject Property. Contucted ponds are not considered for SWH.
Reptile Hibernaculum	Snakes	Snakes: Any ecosite (esp. w/ rocky areas), other than very wet ones. Five-lined Skink: FOD and FOM, FOC1, FOC3 - with rock outcrops	Access below frost line: burrows; rock crevices, piles or slopes, stone fences or foundations. Conifer/shrubby swamps/swales, poor fens, depressions in bedrock w/ accumulations of sphagnum moss or sedge hummock ground cover.	P	Potentially suitable habitat along the southern ridge of the Foxboro Swamp. No observed hibernacula within the Phase 1 Lands. No targeted surveys have been conducted to date.
Colonially-nesting Bird Breeding Habitat (Bank and Cliff)	Cliff Swallow, N. Rough-winged Swallow	Banks, sandy hills/piles, pits, slopes, cliff faces, bridge abutments, silos, barns.	Exposed soil banks, not a licensed/permitted aggregate area or new man-made features (2 yrs).	N	Exposed bank habitat is absent within the Subject Property. No individuals were observed.
Colonially-nesting Bird Breeding Habitat (Tree/Shrubs)	Great Blue Heron, Black-crowned NightHeron, Great Egret, Green Heron	SWM2, SWM3, SWM5, SWM6, SWD1 to SWD7, FET1	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and emergents may be used. Nests in trees are 11 - 15 m from ground, near tree tops.	P	No heron colonies were observed during breeding bird surveys on the Subject Property. Green Heron, which is not a colonial breeder, may have nested on the property.
Colonially-nesting Bird Breeding Habitat (Ground)	Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer's Blackbird	Gulls/Terns: Rocky island or peninsula in lake or river. Brewer's Blackbird: close to watercourses in open fields or pastures with scattered trees or shrubs.	Gulls/Terns: islands or peninsulas with open water or marshy areas. Brewer's Blackbird colonies: on the ground in low bushes close to streams and irrigation ditches.	N	None observed during Palmer's breeding bird surveys.

Migratory Butterfly Stopover Area	Painted Lady, Red Admiral, Special Concern: Monarch	Combination of open (CU) and forested (FO) ecosites (need one from each).	≥10 ha, located within 5 km of Lake Ontario. Undisturbed sites, with preferred nectar species.	N	Subject Property is not within 5 km of Lake Ontario; meadows are not >10 ha.
Landbird Migratory Stopover Areas	All migratory songbirds. All migrant raptor species.	Forest (FO) and Swamp (SW) ecosites	Woodlots >10 ha within 5 km of Lake Ontario. If multiple woodlands are along the shoreline, those <2 km from L. Ontario are more significant.	N	While some woodlots are >10 ha, the Subject Property is not within 5 km of Lake Ontario.
Deer Yarding Areas	White-tailed Deer	Mixed or Conifer ecosites	Determined by MNRF - no studies	N	Suitable habitat is absent within the Subject Property. No Deer Yarding Areas mapped by the MNRF and conifer cover is minimal across site.
Deer Winter Congregation Areas	White-tailed Deer	Mixed or Conifer ecosites	Determined by MNRF - no studies	N	Suitable habitat is absent within the Subject Property. No Deer Yarding Areas mapped by the MNRF and conifer cover is minimal across site.
Rare Vegetation Communities					
Cliffs and Talus Slopes		TAO, TAS, CLO, CLS, TAT, CLT e.g., Niagara Escarpment (contact NEC)	Cliff: near vertical bedrock >3m Talus Slope: coarse rock rubble at the base of a cliff	N	Suitable habitat is absent within the Subject Property.
Sand Barren		SBO1, SBS1, SBT1	Sand Barrens >0.5 ha. Vegetation can vary from patchy and barren to tree covered, but <60%. <50% vegetation cover are exotic species.	N	Suitable habitat is absent within the Subject Property.
Alvar	<i>Carex crawei</i> , <i>Panicum philadelphicum</i> , <i>Eleocharis compressa</i> , <i>Scutellaria parvula</i> , <i>Trichostema brachiatum</i> , Loggerhead Shrike	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2	Alvar >0.5 ha. Need 4 of the 5 Alvar Indicator Spp. <50% vegetation cover are exotic species.	N	Suitable habitat is absent within the Subject Property.

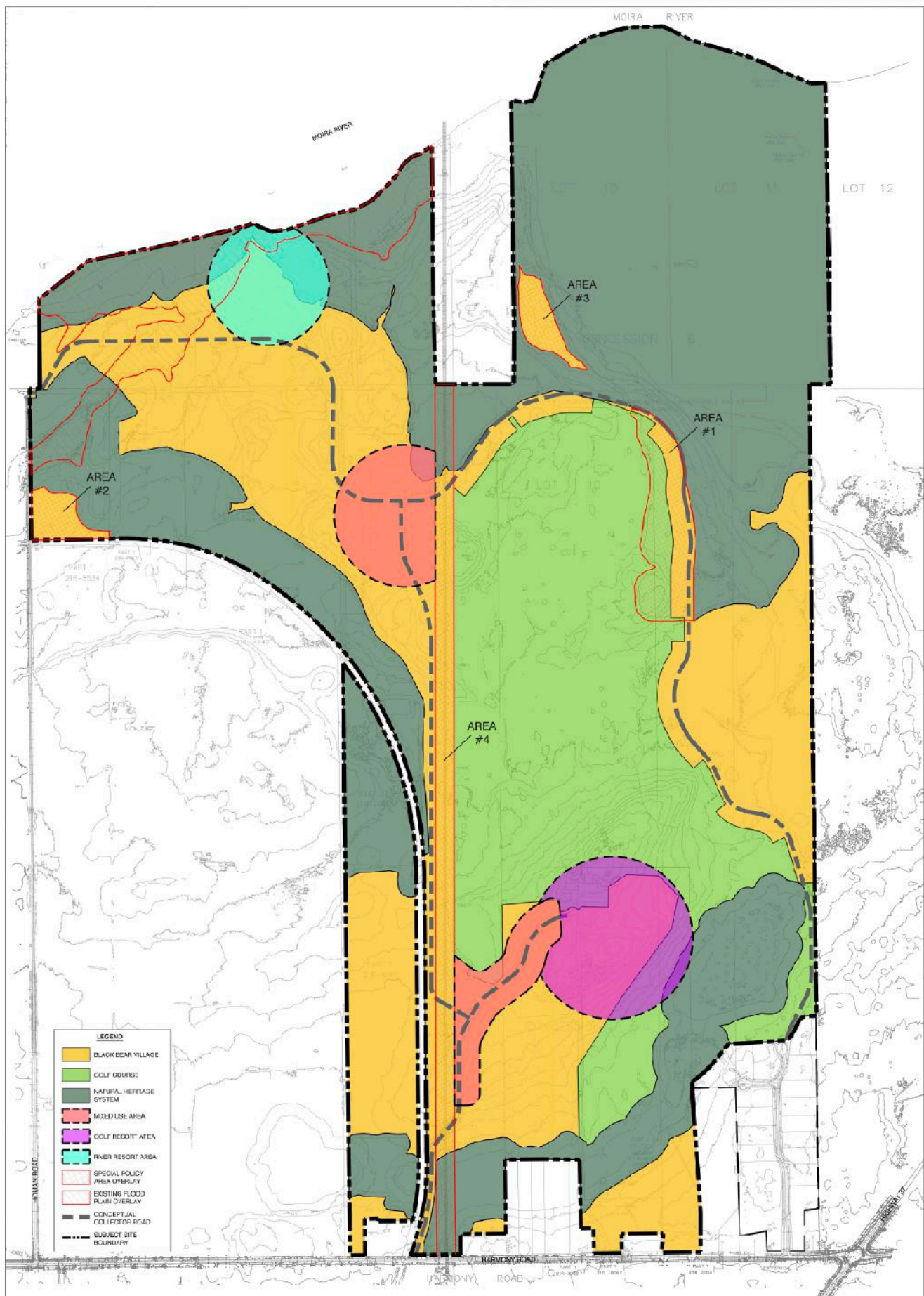
Old Growth Forest	Trees >140 yrs; heavy mortality = gaps. Multi-layer canopy, lots of snags and downed logs	FOD, FOC, FOM, SWD, SWC, SWM	Woodland areas ≥30 ha with a ≥10 ha interior habitat, assuming a 100 m buffer at edge of forest.	P	While there is potential for old growth in Foxboro Swamp PSW, it is unlikely to be present due to the scarcity of old growth in southern Ontario. Habitat not present within Phase 1 Lands.
Savannah	Prairie Grasses w/ trees	TPS1, TPS2, TPW1, TPW2, CUS2	A Savannah is a <u>tallgrass prairie</u> habitat that has tree cover of 25 – 60%. <50% cover of exotic species.	N	Suitable habitat is absent within the Subject Property.
Tallgrass Prairie	Prairies Grasses dominate	TPO1, TPO2	An <u>open Tallgrass Prairie</u> habitat has < 25% tree cover. Less than 50% cover of exotic species.	N	Suitable habitat is absent within the Subject Property.
Other Rare Vegetation Communities		Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of SWHTG.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	N	Suitable habitat is absent within the Subject Property.
Specialized Habitat for Wildlife					
Waterfowl Nesting Area	Ducks	Upland habitats adjacent to: MAS1 to MAS3, SAS1, SAM1, SAF1, MAM1 to MAM6, SWT1, SWT2, SWD1 to SWD4 (>0.5 ha open water wetlands, alone or collectively).	Extends 120 m from a wetland or wetland complex. Upland areas should be at least 120 m wide. Wood Ducks and Hooded Mergansers use cavity trees (>40 cm dbh).	N	Only one Mallard was observed during breeding bird surveys and there is minimal suitable habitat adjacent to wetlands.
Bald Eagle & Osprey Nesting, Foraging and Perching Habitat	Osprey, Bald Eagle	FOD, FOM, FOC, SWD, SWM, SWC directly adjacent to riparian areas	Nesting areas are associated with waterbodies along forested shorelines, islands, or on structures over water.	N	No nesting habitat recorded during Palmer's breeding bird surveys.
Woodland Raptor Nesting Habitat	Barred Owl. Hawks: N. Goshawk, Cooper's, Sharp-shinned, Red-shouldered, Broad-winged.	Forests (FO), swamps (SW), and conifer plantations	>30 ha with > 10 ha interior habitat.	Candidate	Suitable habitat (i.e., Foxboro Swamp) and one territory of both Sharp-shinned Hawk and Broad-winged Hawk were observed outside of Phase 1 Lands, at least one nest of the listed species would be expected on the property.
Turtle Nesting Areas	Midland Painted Turtle Special Concern: Snapping Turtle, Northern Map Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within: MAS1 to MAS3, SAS1, SAM1, SAF1, BOO1	Nest sites within open sunny areas with soil suitable for digging. Sand and gravel beaches.	P	Suitable habitat is present within the Subject Property, specifically along Moira River. Suitable habitat was not observed within Phase 1 Lands.
Seeps and Springs	Wild Turkey, Ruffed Grouse, Spruce Grouse, White-tailed Deer, Salamander spp.	Seeps/Springs are areas where ground water comes to the surface.	Any forested area within the headwaters of a stream/river system. (2 or more confirms SWH type).	N	No springs were reported on the Subject Property or additional lands as per Palmer's <i>Hydrogeological Assessment</i> (2023).
Amphibian Breeding Habitat (Woodland)	Woodland Frogs and Salamanders	FOC, FOM, FOD, SWC, SWM, SWD	Open water wetlands, pond or woodland pool of >500 m ² within or adjacent to wooded areas. Permanent ponds or holding water until mid-July preferred.	N	Criteria not met on the Subject Property.

Amphibian Breeding Habitat (Wetlands)	Toads, Frogs, and Salamanders	SW, MA, FE, BO, OA and SA. Typically isolated (>120m) from woodland ecosites, however larger wetlands may be adjacent to woodlands.	Open water wetland ecosites >500m ² isolated from woodland ecosites with high species diversity. Permanent water with abundant vegetation for bullfrogs.	Confirmed	American Bullfrog recorded in two constructed ponds (Station 8 and 9) within Phase 1 Lands in 2022. Low numbers of Northern Spring Peeper and Leopard Frog were recorded at station 8 (north of Corbyville PSW). A chorus of Gray Treefrogs were recorded at both Station 8 and 9.
Woodland Area-Sensitive Bird Breeding Habitat	Birds (area-sensitive species)	FOC, FOM, FOD, SWC, SWM, SWD	Large mature (>60 years) forest stands/woodlots >30 ha. Interior forest habitat >200m from forest edge.	Confirmed	Breeding habitat was confirmed on the Subject Property for five woodland area-sensitive birds (based on Ecoregion 6E criteria). Additional forest area-sensitive birds (OMNR, 2000) were observed by Palmer. No habitat under this category was recorded within the Phase 1 Lands.
Habitat of Species of Conservation Concern					
Marsh Bird Breeding Habitat	Wetland Birds	MAM1 to MAM6, SAS1, SAM1, SAF1, FEO1, BOO1 Green Heron: SW, MA and CUM1	Wetlands with shallow water and emergent vegetation. Gr. Heron @ edges of these types w/ woody cover.	N	The marsh breeding bird community was quite low in diversity, one Green Heron observation has been covered under the Colonially-nesting Bird Breeding Habitat (Tree/Shrubs) SWH category.
Open Country Bird Breeding Habitat	Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, N. Harrier, Savannah Sparrow, Short-eared Owl (SC)	CUM1, CUM2	Grassland/meadow >30 ha. Not being actively used for farming. Habitat established for 5 years or more.	N	SWH criteria was not met, only one listed grassland species (Savannah Sparrow) was recorded.
Shrub/Early Successional Bird Breeding Habitat	Brown Thrasher + Clay-coloured Sparrow (indicators) , Field Sparrow, Black-billed Cuckoo, E. Towhee, Willow Flycatcher, Yellow-breasted Chat, Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2	Large field areas succeeding to shrub and thicket habitats > 10 ha. Areas not actively used for farming in the last 5 years.	N	Insufficient numbers of early successional species were observed to meet the criteria. There were no large areas of early successional habitat. Brown Thrasher, Field Sparrow, and Eastern Towhee were recorded, in small numbers, within the Subject Property.
Terrestrial Crayfish	Chimney or Digger Crayfish; Devil Crayfish or Meadow Crayfish	MAM1 to MAM6, MAS1 to MAS3, SWD, SWT, SWM. CUM1 sites with inclusions of the aforementioned.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish (typc. protected by wetland setbacks).	N	While Suitable wetland habitat could be present within the Subject Property. No chimney crayfish have been observed to date.
Special Concern and Rare Wildlife Species	Any species of concern or rare wildlife species	Any ELC code.	Presence of species of concern or rare wildlife species.	Confirmed	SWH for Special Concern Eastern Wood-Pewee was identified based on 12 (out of 17) territories of the species. Five territories (out of six) of Special Concern Wood Thrush are within this area.
Animal Movement Corridors					
Amphibians	Amphibians	all ecosites assoc. w/ water	When Breeding Habitat - wetland confirmed	N	No movement corridors identified by the MNRF or planning authority on the Subject Property.
Deer Movement	White-tailed Deer	all forested ecosites	When Deer Wintering Habitat confirmed	N	No Deer Yarding habitat mapped by MNRF.
Exceptions for Ecoregion 6E					

Mast Producing: 6E-14	Black Bear	Forested Ecosites	>30 ha w/ mast producing species: Cherry (berries), Oak, Beech (nuts).	N	Subject Property is not within 6E-14.
Leks: 6E-17	Sharp-tailed Grouse	CUM, CUS, CUT	Grassland/meadow >15 ha adjacent to shrublands, >30 ha adjacent to woodlands. Low agricultural intensity.	N	Subject Property is not within 6E-17.

Appendix G

Black Bear Village Structure Plan & Phase 1 Draft Plan of Subdivision

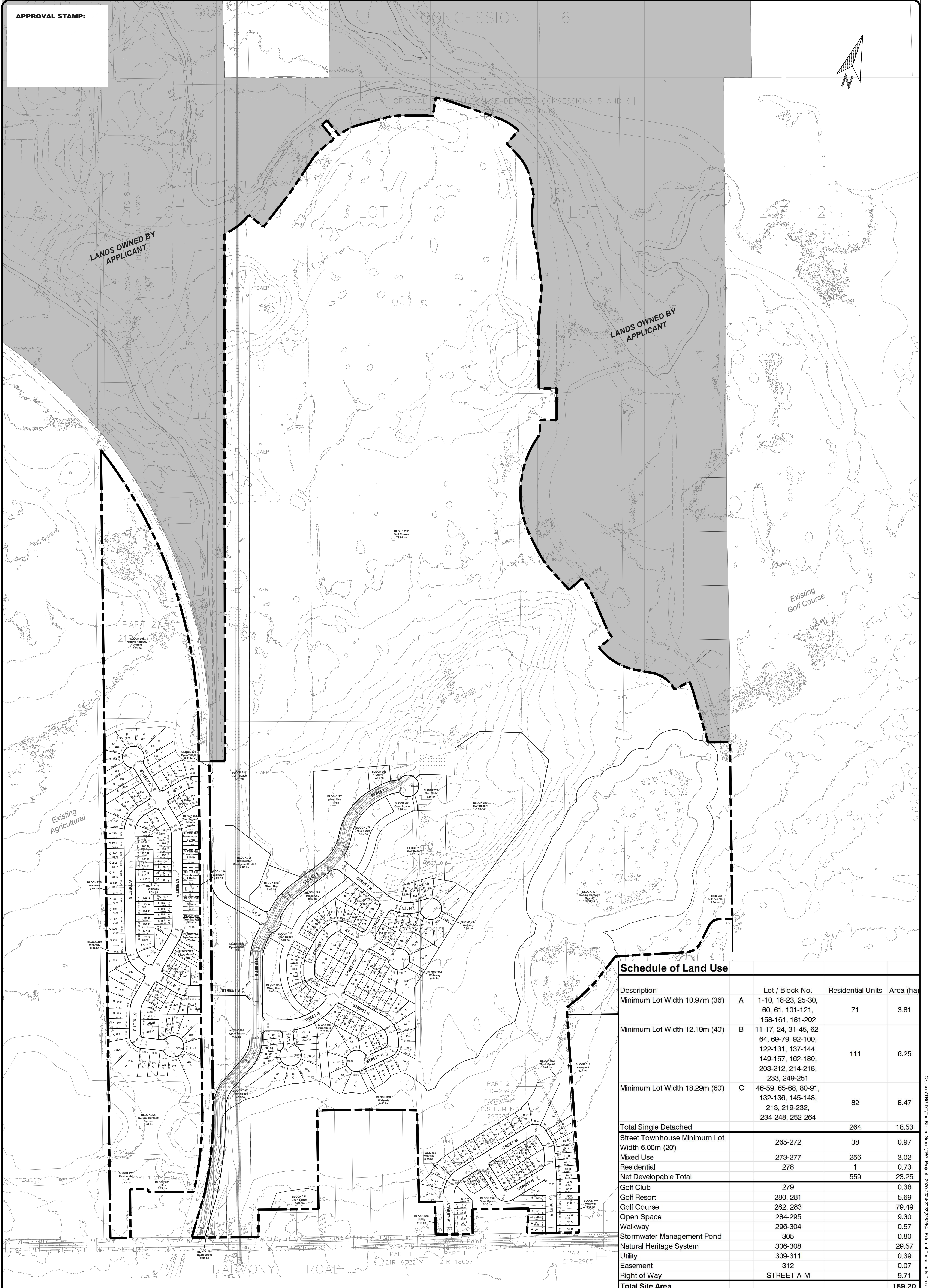


BLACK BEAR VILLAGE SECONDARY PLAN SCHEDULE "A"

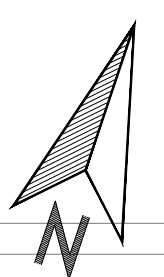
LEGAL DESCRIPTION:
Part of Lots 8, 9, 10 and 11,
Concession 6
Part of Lots 7, 8, 9, 10 and 11,
Concession 6
Township of Thurlow
Now in the City of Belleville
County of Hastings

STRUCTURE PLAN





APPROVAL STAMP:



Schedule of Land Use			
Description	Lot / Block No.	Residential Units	Area (ha)
Minimum Lot Width 10.97m (36')	A 1-10, 18-23, 25-30, 60, 61, 101-121, 158-161, 181-202	71	3.81
Minimum Lot Width 12.19m (40')	B 11-17, 24, 31-45, 62-64, 69-79, 92-100, 122-131, 137-144, 149-157, 162-180, 203-212, 214-218, 233, 249-251	111	6.25
Minimum Lot Width 18.29m (60')	C 46-59, 65-68, 80-91, 132-136, 145-148, 213, 219-232, 234-248, 252-264	82	8.47
Total Single Detached		264	18.53
Street Townhouse Minimum Lot Width 6.00m (20')	265-272	38	0.97
Mixed Use	273-277	256	3.02
Residential	278	1	0.73
Net Developable Total		559	23.25
Golf Club	279		0.36
Golf Resort	280, 281		5.69
Golf Course	282, 283		79.49
Open Space	284-295		9.30
Walkway	296-304		0.57
Stormwater Management Pond	305		0.80
Natural Heritage System	306-308		29.57
Utility	309-311		0.39
Easement	312		0.07
Right of Way	STREET A-M		9.71
Total Site Area			159.20

TITLE:

**DRAFT PLAN
OF SUBDIVISION**

LEGAL DESCRIPTION:

Part of Lots 8, 9, 10 and 11, Concession 5
Part of Lots 7, 8, 9, 10 and 11, Concession 6
Township of Thurlow
Now in the City of Belleville
County of Hastings

BLACK BEAR RIDGE LP.

KEY PLAN:

**BLACK BEAR RIDGE
VILLAGE**

SURVEYOR'S CERTIFICATE:

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATE AND CORRECTLY SHOWN IN ACCORDANCE WITH A PLAN OF SURVEY PREPARED BY

SURVEYOR
WATSON LAND SURVEYORS, OLS.

DATE _____

OWNER'S CERTIFICATE:

I HEREBY AUTHORIZE THE BIGLIERI GROUP LTD. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF WHITBY

NAME _____
COMPANY _____

APRIL 23, 2021
DATE _____

REQUIRED INFORMATION:

AS REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT R.S.O. 1990.

(a) SEE PLAN
(b) SEE PLAN
(c) SEE KEY MAP
(d) SEE SCHEDULE OF LAND USE
(e) SEE PLAN
(f) SEE PLAN
(f.1) N/A

(g) SEE PLAN
(h) MUNICIPAL SERVICES AVAILABLE
(i) SANDY SILT, SILTY SAND, AND CLAYEY SILT
(j) SEE PLAN
(k) MUNICIPAL SERVICES AVAILABLE
(l) SEE PLAN

NOTE:
DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

REVISIONS

No.	Description	Date	Int.
3			
2			
1			

PROJECT No.: 22826
DATE: JUNE 25, 2024
SCALE: 1:3000
DRAFTED BY: EC
CHECKED BY: MP
DRAWING No.: **DP-01**

**BIGLIERI
GROUP**

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thebiglierigroup.com

C:\Users\TBO\OneDrive\Biglieri Group\TBO - Project - 2020-2024\2022\22826-4 - External Consultants Docs - Design - Survey\24.02.21 - Updated - Topo and Boundary for Phase 1\Black Bear Ridge