



GUIDING SOLUTIONS IN THE  
NATURAL ENVIRONMENT

# Bradford Highlands Golf Club Environmental Impact Study

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*Prepared For:*

**Bradford Highlands Joint Venture**

*Prepared By:*

**Beacon Environmental Limited**

*Date:* *Project:*

**May 2020 220036**

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MARKHAM  
80 Main Street North  
Markham, ON L3P 1X5  
T) 905.201.7622 ✪ F) 905.201.0639

BRACEBRIDGE  
126 Kimberley Avenue  
Bracebridge, ON P1L 1Z9  
T) 705.645.1050

GUELPH  
373 Woolwich Street  
Guelph, ON N1H 3W4  
T) 519.826.0419

PETERBOROUGH  
305 Reid Street  
Peterborough, ON K9J 3R2  
T) 705.243.7251

BARRIE  
6 Cumberland Street  
Barrie, ON L4N 2P4  
T) 705.999.4935

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## 1. Introduction

Beacon Environmental Limited (Beacon) has been retained by the Bradford Highlands Joint Venture (BHJV) to prepare an Environmental Impact Study (EIS) triggered by a proposal to redevelop the Bradford Highlands Golf Club (subject property) to accommodate low / medium density residential uses.

The subject property is comprised of two properties, the Bradford Highlands Golf Club and a residential property located south of the golf course. It is approximately 60 ha (147 acres) in area, with frontage onto Brownlee Drive and Sixth Line. Natural features that are present on the subject property include a number of ponds, drainage features and wetlands. There are also a number of buildings on the property including a club house, a shed to house equipment used to maintain the golf course and an old farm house. Several of the houses located along Brownlee Drive back onto the golf course. The subject property falls within the jurisdiction of the Lake Simcoe Region Conservation Authority (LSRCA), and is entirely within the area subject to the *Lake Simcoe Protection Plan* (LSPP). In addition, part of the southern half of the property lies within the plan area for the *Greenbelt Plan* (**Figure 1**).

Currently these lands are located outside of, but immediately adjacent to, the Town of Bradford West Gwillimbury Urban Planning Area (Schedule A, Bradford West Gwillimbury Official Plan) and are designated as part of a Rural Area. These lands may be planned for urban uses following an Urban Area boundary expansion as part of a municipal comprehensive review following allocation from the County. For the purposes of this Environmental Impact Study we have assumed that the subject property will be reclassified to allow for urban development. This EIS has been prepared to address an Official Plan Amendment (“OPA”) application on behalf of the BHJV to redevelop the subject site for residential land use (MGP 2020). The OPA application is being filed on the basis that there is an opportunity for certain growth in the Town to be located within the subject property. Council is aware of the scope of the project as per a deputation to Council at the October 4<sup>th</sup> public meeting (MGP 2016).

The Greenbelt Plan (2005), the Lake Simcoe Protection (2009), the County of Simcoe Official Plan (2015) and the Town of Bradford West Gwillimbury Official Plan (2002) contain policies that require an EIS, or a comparable study, be prepared in support of development proposals that occur on lands that are adjacent to the various natural heritage systems / areas that are defined within these documents. These policies are discussed further in **Section 2** of this report.

## 2. Environmental Policy Framework

This section contains a summary of a number of key environmental policies and regulations that will need to be addressed by the proposed development. The following sections summarize key environmental legislation policies and regulations that will apply to the subject property within the context of the proposed development application should the lands be brought into the Town of Bradford West Gwillimbury Urban Planning Area through this Official Plan Amendment (OPA).

## 2.1 Provincial Policy Statement (2020)

The 2020 version of the *Provincial Policy Statement* (PPS) replaced the 2014 PPS as of May 1, 2020.

Section 2.0 of the PPS provides direction to regional and local municipalities regarding planning policies specifically for the protection and management of natural heritage features and resources.

Section 2.1 of the PPS describes eight natural heritage features and provides planning policies for each. The *Natural Heritage Reference Manual* (MNR 2010) is a technical document used to help assess the natural heritage features listed below:

- *Significant wetlands;*
- *Significant coastal wetlands;*
- *Significant habitat of endangered and threatened species;*
- *Fish habitat;*
- *Significant woodlands;*
- *Significant valleylands;*
- *Significant Areas of Natural and Scientific Interest (ANSIs); and*
- *Significant wildlife habitat.*

Each of these features is afforded varying levels of protection subject to guidelines, and in some cases, regulations. Of these features, significant wetlands and ANSIs are designated by the Ministry of Natural Resources and Forestry (MNRF), and woodlands are designated by the municipality using criteria provided by the MNRF. Habitat of Endangered or Threatened species is regulated by the Ministry of Environment, Conservation and Parks (MECP) if a species is identified on a property through site specific investigation or through existing information. Fish habitat is governed by Fisheries and Oceans Canada (DFO). The identification and regulation of the remaining features are the responsibility of the municipality or other planning authority.

Part III of the PPS notes that Provincial plans shall be read in conjunction with the PPS and take precedence over policies in the PPS to the extent of any conflict, except where legislation establishing provincial plans provides otherwise.

## 2.2 Greenbelt Plan (2017)

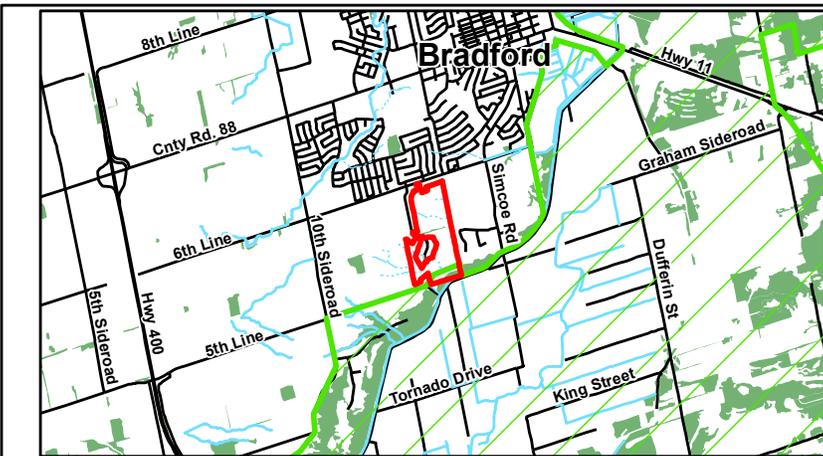
A portion of the southern half of the subject property falls within the *Greenbelt Plan Area*. The *Greenbelt Area* includes lands within the *Niagara Escarpment Plan*, the *Oak Ridges Moraine Area*, the *Parkway Belt West Plan Area* and lands designated as *Protected Countryside* within the *Greenbelt Plan* (2005). There are three types of policies that apply to specific lands within the *Protected Countryside*: *Agricultural System*, *Natural System* and *Settlement Areas*.

*Schedule 1 – Greenbelt Plan Area* identifies that the woodlot located along the southern property boundary is located within the *Greenbelt Area – Protected Countryside*.

*Schedule 2 – Holland Marsh* identifies that the woodlot located along the southern property boundary is located within the *Holland Marsh Specialty Crop Area*.

**Legend**

- ▬ Subject Property
- ▬ Greenbelt
- ▬ Road
- ▬ Intermittent/Ephemeral Watercourse
- ▬ Permanent Watercourse
- ▬ Woodlands



**Site Location**

**Figure 1**

Bradford Highlands Joint Venture

First Base Solutions  
Web Mapping Service 2016

UTM Zone 17 N, NAD 83



0 180 360 720 Metres



1:20,000



Project 220036  
May 2020

*Schedule 4 – Natural Heritage System* identifies that the woodlot located along the southern property boundary is located within the *Protected Countryside – Natural Heritage System*.

The *Natural System* within the *Protected Countryside* comprises a *Natural Heritage System* and *Water Resource System*. New *development* or *site alteration* within the *Natural Heritage System* (as permitted by the policies of the **Greenbelt Plan**) shall demonstrate that:

- *There will be no negative effects on key natural heritage features or key hydrological features or their functions;*
- *Connectivity along the system and between key natural heritage features and key hydrological features located within 240 metres of each other will be maintained, or where possible, enhanced for the movement of native plants and animals across the landscape;*
- *The removal of other natural features not identified as key natural heritage features and key hydrological features should be avoided. Such features should be incorporated into the planning and design of the proposed use wherever possible;*
- *The disturbed area of any site does not exceed 25%, and the impervious surface does not exceed 10%, of the total developable area; and*
- *At least 30% of the total developable area will remain or be returned to natural self-sustaining vegetation.*

*Key natural heritage features* include:

- *Habitat of endangered species and threatened species;*
- *Fish habitat;*
- *Wetlands;*
- *Life science ANSIs;*
- *Significant valleylands;*
- *Significant woodlands;*
- *Significant wildlife habitat (including habitat of special concern species);*
- *Sand barrens, savannahs and tallgrass prairies; and*
- *Alvars.*

*Key hydrological features* include:

- *Permanent and intermittent streams;*
- *Lakes (and their littoral zones);*
- *Seepage areas and springs; and*
- *Wetlands.*

For lands within a key natural heritage feature or a key hydrologic feature in the Protected Countryside, the following policies shall apply:

- *Development or site alteration is not permitted in the key hydrologic features and key natural heritage features within the Natural Heritage System, including any associated vegetation protection zones, with the exception of:*
  - *Forest, fish and wildlife management;*
  - *Conservation and flood or erosion control projects; and*
  - *Infrastructure, aggregate, recreational, shoreline and existing uses.*

For wetlands, seepage areas and springs, fish habitat, permanent and intermittent streams, lakes and significant woodlands, the minimum vegetation protection zone shall be a minimum of 30 m wide measured from the outside boundary of the feature.

Any proposed new development or site alteration within 120 m of a key natural heritage feature within the Natural Heritage System or a key hydrologic feature anywhere within the Protected Countryside required a natural heritage evaluation and hydrological evaluation, which identify a vegetation protection zone which:

- *Is of sufficient width to protect the key natural heritage feature or key hydrologic feature and its functions from the impacts of the proposed change and associated activities that may occur before, during, and after construction, and where possible, restore or enhance the feature and/or its function; and*
- *Is established to achieve and be maintained as natural self-sustaining vegetation.*

## **2.3 Lake Simcoe Protection Plan (2009)**

The *Lake Simcoe Protection Plan (LSPP)* was developed by the Ontario Ministry of the Environment in 2009, and is a plan that addresses the promotion and protection of Lake Simcoe proper, its shoreline, and the natural heritage features and functions associated with the entire Lake Simcoe watershed. The subject property is located within this regulated area.

*Chapter 6 - Shorelines and Natural Heritage* speaks specifically to the natural heritage policies that would apply to the subject property. These policies outline various requirements for site alteration within or adjacent to a natural feature, including requirements for employing best management practices during construction, and the maintenance and improvement of habitat.

Section 6.35-DP states that, for greater certainty, where lands have been incorporated into a *settlement area* after the effective date of the Plan, an application for *development* or *site alteration* within those lands are subject to the policies in this Chapter other than policies 6.32 to 6.34.

The subject property was outside of a Settlement Area at the time the plan came into effect and will therefore be subject to the policies for lands outside of Settlement Areas, even if an OPA is granted.

Development and site alteration is not permitted within a Key Natural Heritage Feature (KNHF), a Key Hydrologic Feature (KHF) or a related vegetation protection zone, except for select restricted uses as outlined in Policy 6.23.

Under the LSPP, KNHFs are identified as:

- Wetlands;
- Significant woodlands;
- Significant valleylands; and
- Natural Areas abutting Lake Simcoe.

KHFs are identified as:

- Wetlands;
- Permanent and intermittent streams; and
- Lakes other than Lake Simcoe.

Development within 120 m of a permanent or intermittent stream is subject to Policies 6.8 to 6.11 of the LSPP. As per Section 5.2 of the *Technical Definitions and Criteria for Identifying Key Natural Heritage Features and Key Hydrologic Features for the Lake Simcoe Protection Plan* (MNR, 2015b), ephemeral streams are not included as KHFs.

Policy 6.24 states that the minimum vegetation protection zone for all KNHFs and KHFs is 30 m. An application for development or site alteration within 120 m of a KNHF or KHF requires a NHE to be completed in accordance with Policy 6.26. The LSPP outlines that new development or site alteration within 120 m of a KNHF or KHF that identifies a vegetation protection zone as required by Policy 6.24 is required to provide for natural self-sustaining vegetation in vegetation protection zones or established buffer.

## **2.4 County of Simcoe Official Plan (2016 Consolidation)**

The Official Plan was adopted by the County of Simcoe Council on November 25, 2008, and is under appeal to the Ontario Municipal Board (OMB). On April 19, 2013 the OMB granted partial approval of the County of Simcoe Official Plan including text and schedules. The most current version of the Proposed Modified County of Simcoe Official Plan includes the most recent OMB approvals and was partially approved by the OMB on December 29, 2016, however site specific appeals remain in some areas.

The majority of the subject property lies within a Rural Designation, as identified on *Schedule 5.1 – Land Use Designations*. This mapping also shows that the southern edge of the subject property also falls within the *Greenbelt Plan – Protected Countryside*. There are no County Greenlands identified on or adjacent to the subject property per *Schedule 5.1*.

The application includes an Official Plan Amendment to designate the Rural lands on the property for Settlement Area uses. The Settlement lands will remain outside of the County Greenlands and Greenbelt Plan area.

The natural heritage system within the County of Simcoe Official Plan (2016) is protected under a Greenlands Designation. The Greenlands Designation includes, but is not limited to, the following natural heritage features and areas, wherever they occur in the County:

- *Significant habitat of endangered species and threatened species;*
- *Significant wetlands, significant coastal wetlands and all wetlands 2.0 ha or larger in areas, including but not limited to evaluated wetlands;*
- *Significant woodlands south and east of the Canadian Shield;*
- *Significant valleylands south of the southern limit of the Canadian Shield;*
- *Significant wildlife habitat;*
- *Significant areas of natural and scientific interest (ANSIs);*
- *Regional ANSIs;*
- *Fish habitat;*
- *Linkage areas, which the County has identified as areas in which it would be desirable to restore lost or severed natural corridors through natural succession and/or supplementary planting; and*
- *Public lands as defined in the Public Lands Act.*

Under the County's Official Plan *development and site alteration* is not permitted:

- *In the significant habitat of endangered and threatened species except in accordance with provincial and federal requirements, significant wetlands and significant coastal wetlands;*
- *Significant woodlands south of the Canadian Shield, wetlands 2.0 ha or larger in area (including but not limited to evaluated wetlands), significant valleylands south of the Canadian Shield, significant wildlife habitat, significant areas of natural and scientific interest (ANSIs), and linkage areas (which the County has identified as areas in which it would be desirable to restore lost or severed natural corridors through natural succession and/or supplementary planting) unless it has been demonstrated that there will be no negative impacts on their natural features or their ecological functions;*
- *In fish habitat, except in accordance with provincial and federal requirements; and*
- *On adjacent lands to the natural heritage features and areas listed above, unless the ecological functions of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

## **2.5 Town of Bradford West Gwillimbury Official Plan (2002 Consolidation)**

The OPA proposes Residential land use which will remain outside of the Natural Areas described below and will be limited to the existing Rural Areas.

The Town of Bradford West Gwillimbury Official Plan also identifies *Provincial Areas of Natural and Scientific Interest (ANSIs) and Provincially Significant Wetlands on Schedule 'A' Rural Land Use Plan. No new development or site alteration other than for flood protection of lands is permitted in these areas.* In addition to this the *Schedule 'E' Natural Areas Overlay* of Town of Bradford West Gwillimbury Official Plan identifies *Natural Areas* system that includes:

- *County Greenlands and Linkages;*
- *Locally significant wetlands;*

- *Environmentally Significant Areas; and*
- *The Scanlon Creek Conservation Area.*

Building setbacks may be imposed from the margin of the Natural Area. These setbacks may be established by the Town in consultation with the appropriate approval authorities.

The Official Plan also states that development and site alteration is not permitted within or adjacent Natural Areas, sensitive ground water recharge/discharge areas, aquifers, headwater areas, Lake Simcoe, the Holland River, water courses, hazardous lands, Greenlands (as identified within the County of Simcoe Official Plan), significant woodlots (woodlots larger than 4 ha in size or that abut a stream or watercourse), fish and wildlife habitat, and the significant portions of the habitat of endangered and threatened species unless it can be demonstrated through the completion of an EIS (or other technical study) to the Town and other appropriate approval authorities that such development and/or site alteration will not negatively impact the ecological features or functions for which the area has been identified, or where the Town or appropriate approval authorities are satisfied that the potential hazards can be overcome in a manner consistent with accepted engineering practices and resource management techniques.

None of the natural areas or features listed above are identified on the subject property in the Town of Bradford West Gwillimbury Official Plan.

## **2.6 Lake Simcoe Region Conservation Authority**

### ***2.6.1 Ontario Regulation 179/06 (2006)***

The LSRCA regulates hazard lands, including watercourses, valleylands, shorelines, and wetlands through application of *Ontario Regulation 179/06 of the Conservation Authorities Act*. For any development proposals located within 30 m of a watercourse or unevaluated wetland or 120 m of a Provincially Significant Wetland the LSRCA can require that an EIS be prepared to the satisfaction of the Authority. The regulation requires the review and issuance of a permit from the Conservation Authority to allow “interference” with any hazard lands.

### ***2.6.2 Guidelines for the Implementation of Ontario Regulations 179/06 (2015)***

In general, LSRCA requires that all new development is setback (or buffer) a minimum of 30 m from the normal high watermark of the edge of low flow channels of all watercourses. Additionally, where there is a defined top of bank/slope, LSRCA requires that development shall generally be located no closer than 15 m from the top of bank/slope. Some exceptions may be permitted within existing settlement areas where lot sizes are restricted (LSRCA 2015).

The LSRCA also generally requires a 120 m minimum setback from all Provincially Significant Wetlands and a 30 m minimum setback from the boundary of all unevaluated wetlands for all new development unless it can be demonstrated that the development will have no negative impact on the hydrologic function of the wetland (LSRCA 2015).

## 2.7 Endangered Species Act (2007)

The MNRF provides oversight of the *Endangered Species Act* (ESA) for the regulation of Species at Risk (SAR) in Ontario. Under the ESA native species that are in danger of becoming extinct or extirpated from the province are identified as being Extirpated, Endangered, Threatened or Special Concern. These designations are defined as follows:

- *Extirpated* - a species that no longer exists in the wild in Ontario but still occurs elsewhere;
- *Endangered* – a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act;
- *Threatened* - a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed; and
- *Special Concern (formerly Vulnerable)* - a species with characteristics that make it sensitive to human activities or natural events.

Under the Act, protection is provided to Endangered or Threatened species and their habitat, as well as providing stewardship and recovery strategies for species. Permitting is required to conduct works within habitat regulated for Threatened or Endangered species. Species of Special Concern are not protected under the ESA.

## 3. Study Methodology

### 3.1 Background Review

Background information pertaining to the natural resources and physical setting of the subject property and environment was gathered and reviewed at the outset of the project. In addition, the following information sources were consulted:

- Aurora District MNRF;
- Lake Simcoe Conservation Authority (2015, 2016);
- Natural Heritage Information Centre (NHIC) database;
- The Ontario Breeding Bird Atlas;
- The Ontario Reptile and Amphibian Atlas;
- The Toronto Entomologist's Association Ontario Butterfly Atlas;
- The Atlas of Mammals of Ontario; and
- Bradford Capital Residential Subdivision EIS.

### 3.2 Feature Staking

The limits of regulated wetland and woodland features on the subject property were staked and surveyed with LSRCA staff, Ms. Lisa-Beth Bulford (Planner) and Ms. Kate Lillie (Natural Heritage Ecologist) on September 12, 2016. Ms. Leanne Penner, a Planner with the Town of Bradford West

Gwillimbury was invited however was not able to attend. LSRCA confirmed at this meeting that no other features (i.e. small wetland pockets) on the property would require staking.

The staked feature limit has been added to the final development plan.

### 3.3 Field Investigations

Beacon ecologists undertook field investigations on the subject property and adjacent lands in 2016 for the purposes of documenting natural heritage resources. A summary of the field visits and survey dates is presented in **Table 1**. More detailed survey descriptions are provided in the subsections that follow.

**Table 1. Dates of Field Investigations**

<b>Survey</b>	<b>Date of Survey(s)</b>
Ecological Land Classification & Floristic Inventory	February 2, August 17 and September 12 2016
Amphibian Surveys	April 20, May 26 and June 29 2016
Breeding Bird Surveys	May 30, June 16 and July 5, 2016
Drainage Feature Assessment	May 18, June 28, 2016

#### 3.3.1 Ecological Land Classification and Floristic Inventory

Vegetation communities on the subject property were mapped and described following the protocols of the Ecological Land Classification (ELC) System for Southern Ontario (Lee *et al.* 1998). This involved delineating vegetation communities on aerial photographs of the property. For each vegetation community, information on dominant species cover, community structure, level of disturbance, presence of indicator species, vascular plant species and other notable features was recorded.

The floristic inventory on the subject property were completed by surveying all of the vegetation communities identified during the ELC delineation. These communities were surveyed to document vascular plant species populations.

#### 3.3.2 Amphibian Breeding Surveys

Amphibian surveys were undertaken on the subject property during the spring of 2016 to record the presence or absence of early, mid and late season breeding frogs and toads. Surveys were conducted following the *Marsh Monitoring Protocol* (Bird Studies Canada, 2009). Survey locations are shown on **Figure 2**. On each occasion the subject property was visited after sunset to listen for calling frogs and toads in ponds and wetlands that could supporting potential breeding habitat. Survey details, including dates, times and weather conditions are summarized in **Table 2**.

**Table 2. Amphibian Survey Details**

	<b>Survey 1</b>	<b>Survey 2</b>	<b>Survey 3</b>
Date	April 20 2016	May 26 2016	June 29 2016
Start Time	9:30 PM	10:00 PM	10:30 PM
Temperature (°C)	8°C	17°C	17°C
Wind Speed (km/h)	Light	Light	Light
Cloud Cover (%)	0	30	0
Precipitation	None	None	None

### **3.3.3 Breeding Bird Surveys**

Surveys for breeding birds took place in the early morning on days with low winds (1 or less on the Beaufort scale), temperatures within 5°C of normal and no precipitation. The property was walked such that all singing birds could be heard or observed and recorded on an aerial photograph of the site. Survey details are presented in **Table 3**.

**Table 3. Breeding Bird Survey Details**

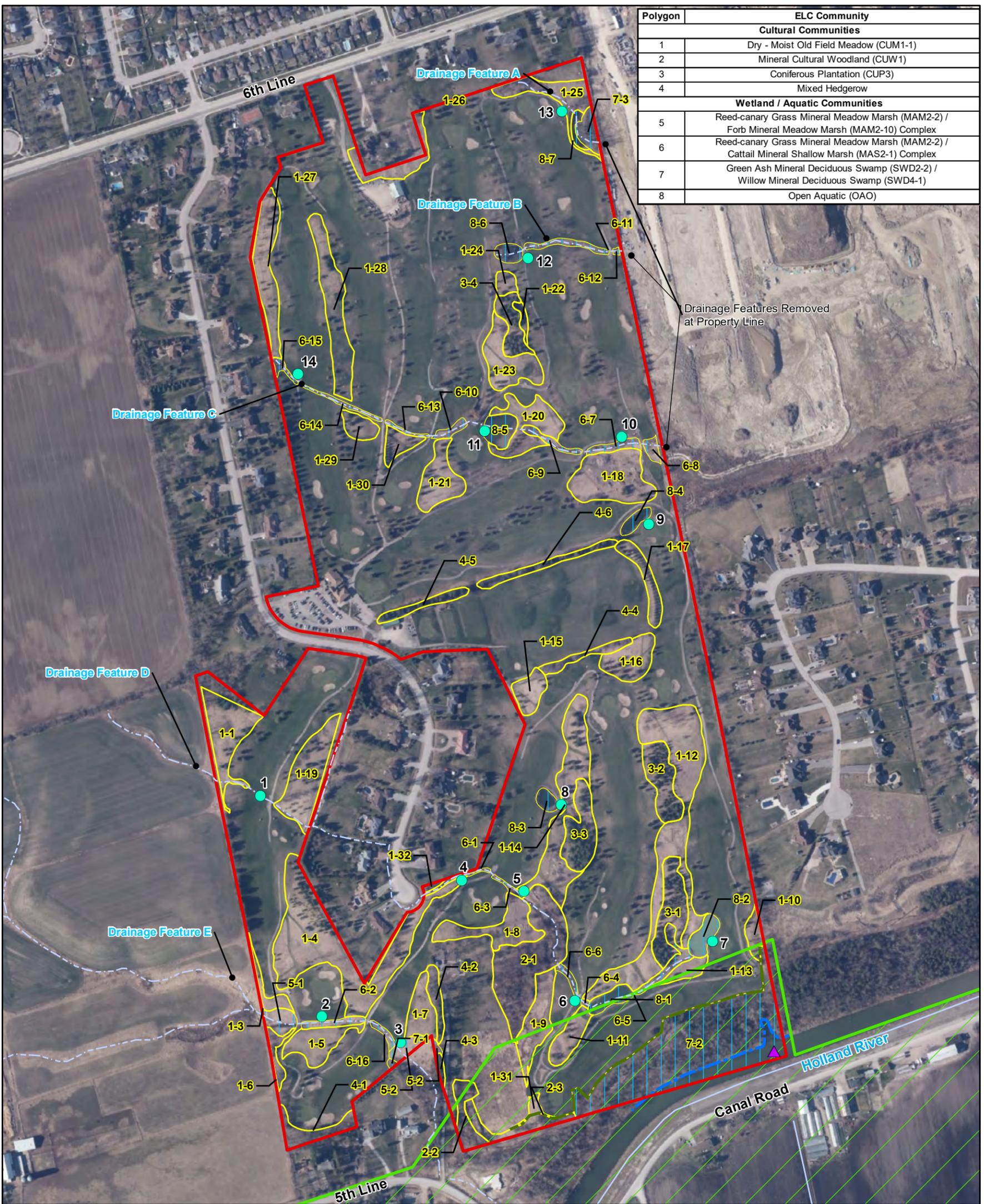
	<b>Survey 1</b>	<b>Survey 2</b>	<b>Survey 3</b>
Date	May 30 2016	June 16 2016	July 5 2016
Start Time	5:30 AM	7:00 AM	5:30 AM
End Time	8:30 AM	10:00 AM	8:30 AM
Temperature (°C)	16	16	16
Wind (km/h)	Light	Light	Light
Cloud Cover (%)	0	0	0
Precipitation	None	None	None

### **3.3.4 Drainage Feature Assessments**

Headwater drainage features (HDF) were assessed following the Ontario Stream Assessment Protocol Headwater Drainage Feature Module (Stanfield et al. 2014). Five drainage features were identified and assessed on the property. During these assessments all drainage features were walked and assessed to document their form, features and functions. Aquatic habitat conditions were also assessed documented when present.

## **4. Existing Conditions**

The following sections detail the existing natural heritage conditions on an immediately adjacent to the subject property based on background data and seasonal field investigations.



ELC Community	
<b>Cultural Communities</b>	
1	Dry - Moist Old Field Meadow (CUM1-1)
2	Mineral Cultural Woodland (CUW1)
3	Coniferous Plantation (CUP3)
4	Mixed Hedgerow
<b>Wetland / Aquatic Communities</b>	
5	Reed-canary Grass Mineral Meadow Marsh (MAM2-2) / Forb Mineral Meadow Marsh (MAM2-10) Complex
6	Reed-canary Grass Mineral Meadow Marsh (MAM2-2) / Cattail Mineral Shallow Marsh (MAS2-1) Complex
7	Green Ash Mineral Deciduous Swamp (SWD2-2) / Willow Mineral Deciduous Swamp (SWD4-1)
8	Open Aquatic (OAO)

<h3>Legend</h3> <ul style="list-style-type: none"> <li><span style="color: red;">—</span> Subject Property</li> <li><span style="color: blue;">- - -</span> Flood Line</li> <li><span style="color: green;">- - -</span> Drip Line</li> <li><span style="color: blue;">—</span> Permanent Watercourse</li> <li><span style="color: blue;">- - -</span> Intermittent / Ephemeral Watercourse</li> <li><span style="color: green;">●</span> Amphibian Survey Locations</li> </ul>	<p><b>ELC Communities (Beacon, 2016)</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid yellow; display: inline-block; width: 20px; height: 10px;"></span> Upland Community</li> <li><span style="border: 1px solid blue; background: repeating-linear-gradient(45deg, transparent, transparent 2px, blue 2px, blue 4px); display: inline-block; width: 20px; height: 10px;"></span> Wetland / Aquatic</li> <li><span style="border: 1px solid green; background: repeating-linear-gradient(45deg, transparent, transparent 2px, green 2px, green 4px); display: inline-block; width: 20px; height: 10px;"></span> Greenbelt</li> </ul>	<h2>Existing Conditions</h2> <h2>Figure 2</h2>	
	<p><b>Species at Risk</b></p> <ul style="list-style-type: none"> <li><span style="color: purple;">▲</span> Eastern Wood-Pewee (Special Concern)</li> </ul>	<p>Bradford Highlands Joint Venture</p> <p>UTM Zone 17 N, NAD 83</p> <p>First Base Solutions Web Mapping Service 2016</p>	
		<p>0 62.5 125 250 Metres</p>	
		<p>1:5,000</p>	
		<p><b>BEACON ENVIRONMENTAL</b></p> <p>Project 220036 May 2020</p>	

## 4.1 Landform, Topography, Drainage and Soils

The subject property is located within the Schomberg Clay Plains physiographic region (Chapman and Putnam 2007). The topography of the property can generally be described as gently rolling table lands that descend gradually to the south towards the Holland River.

Soils on the property generally consist of Schomberg Silty Clay Loam and Bondhead Loam. Some muck (organics) was also identified along the southern edge of the property (LIO 2014). The Schomberg soils series developed from deep deposits of stratified clay and silt loam, underlain by a drumlinized till plan. The average depth of clay is 4.5 m but there are areas with much deeper deposits. These areas have been separated by historical and recent watercourses over time. This has resulted in moderately to steeply rolling topography with short slopes. The Schomberg soil series is well drained and has low to moderate stoniness (Hoffman, Wicklund and Richards, 1962).

The Bondhead soil series contains light grey, calcareous, loam and sandy loam till materials. The surface soil is slightly stoney and porous and has good drainage. The potential for erosion is moderate to high, particularly on steep slopes with no vegetation. In West Gwillimbury, Bondhead soils occur on the top of some hills and ridges but no along the lower slopes, where Schomberg series soils are present (Hoffman, Wicklund and Richards 1962).

Muck soils are typically found in low lying areas where water collects. These areas are saturated with water for much of the year and accumulate organic debris (Hoffman, Wicklund and Richards, 1962).

## 4.2 Aquatic Habitat Assessment

Several drainage features are present on the subject property, many of which are associated with small drainage features and man-made ponds. Features A, B & C, which are located on the northern half of the property, (**Figure 2**) drain into a series of catch basins that were constructed as part of the development to the east of the subject property. Correspondence with the LSRCA, dated June 12, 2017, confirmed that these features are ephemeral in nature and do not meet the definition of a KNHF under the LSPP (**Appendix A**).

Representative Photographs of some of the headwaters on the subject property are included in **Appendix B**.

### **Drainage Feature A**

This feature originates in the northernmost portion of the subject property and receives drainage from the rear yards of some of the houses located along Concession Road 6. There was no water present in the swale located behind the houses during either investigation. There is a shallow ponded area approximately 60 m from the eastern boundary of the subject property. Grass clippings and other debris are also present in this area. The feature appears to convey seasonal drainage via a narrow, 1 m wide, channel to an online pond located at the eastern boundary of the subject property. A portion of this pond was removed as part of the development to the east of the subject property redirecting flow from this feature into a catch basin.

Flowing water was present within Drainage Feature A April 2017 at the time of the installation of MP-01. No groundwater discharge conditions were documented at MP-01 throughout the duration of the Hydrogeological Investigation (Golder 2018). In June 2017 the LSRCA confirmed that Drainage Feature A is considered ephemeral and does not meet the definition of a 'key natural heritage feature' but that surface water conveyance should be addressed through stormwater management planning.

### **Drainage Feature B**

This feature originates immediately upstream of an online pond where a pipe outlets onto the fairway. Downstream of the pond it consists of a 3-4 m wide cattail corridor, which had minimal standing water during the site visit in May, and was damp to dry during the site visit in June. In this area golf cart paths cross the feature twice. At these locations the flow from the features is conveyed beneath the paths via a small Corrugated Steel Pipe (CSP) culvert. This feature ends at a catch basin located at the eastern boundary of the subject property.

In June 2017 the LSRCA confirmed that Drainage Feature B is considered ephemeral and does not meet the definition of a 'key natural heritage feature' but that surface water conveyance should be addressed through stormwater management planning.

### **Drainage Feature C**

This feature enters the subject property from the west through a side yard swale within the existing subdivision, where drainage is conveyed into a deep ponded area before continuing within a narrow cattail corridor. Cattails are not present within the fairway areas where periodic mowing occurs. In these areas the vegetation consists of low lying riparian vegetation or cut grass. There are several small CSP or bridge crossings beneath golf cart paths along this feature.

Tributary C flows through a large online pond that is located near the middle of the subject property, which contains habitat for breeding amphibians and cyprinids. Flow exits the pond via an overflow pipe and continues down a slight incline to another narrow cattail corridor, adjacent to a larger wetland area (MAM 2-2 / MAS2-1 Complex). The feature had minimal flow in May, and some standing water immediately at the culvert crossings, with damp substrate throughout the downstream reaches. Downstream of the property, this feature had been contained within a large rip-rap channel and flowed along the rear yards of the neighbouring subdivision to the east. In June 2016, this feature was removed downstream of the subject property.

In June 2017 the LSRCA confirmed that Drainage Feature C is considered ephemeral and does not meet the definition of a 'key natural heritage feature' but that surface water conveyance should be addressed through stormwater management planning.

### **Drainage Feature D**

This feature enters the subject property from the west, through an agricultural field within a vegetated corridor. The channel is contained within the fairway in a narrow (1 m wide) vegetated corridor which is mowed on either side. It then flows through a grassed swale between two houses on Brownlee Drive. This feature picks up both ditches on either side of Brownlee Drive, before re-entering the golf course

lands adjacent to a backyard pond. This pond is not online, however it does overflow to the channel if water levels are high enough. This feature was dry during both assessments.

Downstream of Brownlee Drive, the channel is about 4 m wide, and had minimal flow in May with a depth of less than 10 cm, and was damp in June with no flow or standing water. Substrate is comprised mainly of sand with some silt. The channel enters a small wooded area with riparian wetland where it has steep banks (approximately 1 m high), before entering another fairway area and draining into one of two large online ponds at the southern portion of the property.

These ponds were used for golf course irrigation and support breeding amphibians. No fish were observed during habitat assessments.

MP-05, MP-6 and MP-07 were installed in Drainage Feature D by Golder as part of their Hydrological Report (2018). Flowing water was documented at all locations in April 2017 and at MP-05 in May 2017. No flowing water was documented at any of the monitoring locations during the October 2017 monitoring event. Measurements collected in May 2017 indicated that the depth to groundwater was above the measured water level in the drainage feature at MP-06, which indicates the potential for groundwater discharge at that time. Groundwater was not measured above the surface, or surface water level, during any of the other monitoring events. These results indicate that recharging groundwater conditions occur at most of the monitored location along Drainage Feature D throughout most of the year (Golder 2018).

### **Drainage Feature E**

This feature has been altered upstream of the property within the adjacent agricultural field. It enters the property within a wide shallow valley, and its flow is concentrated within a narrow (3-4 m wide), densely vegetated corridor. Some standing water and minimal flow was present in May, and soils were damp to dry in June. There are two golf cart path crossings within this area, one of which consists of a small wooden bridge. The feature flows south through a small wetland pocket (MAM2-2 / MAM2-10 Complex) to the large wetland complex south of the subject property.

MP-08 and MP-09 were installed in Drainage Feature E by Golder as part of their Hydrological Report (2018). Flowing water was documented at both locations on Drainage Feature E in April 2017. It was not observed at either location during the other monitoring events in May and October 2017. Groundwater was not measured above the surface, or surface water level, during any of the monitoring events in Drainage Feature E. These results indicate that recharging groundwater conditions do not occur in Drainage Feature E (Golder 2018).

## **4.3 Vegetation Communities**

The majority of the subject property consists of manicured tees, greens and fairways or grassy areas with planted trees. Some naturalized woodland and wetland features were also identified on the southern half of the subject property. Several buildings associated with the golf course operation are also present on the subject property. Vegetation communities and drainage features on the subject property are illustrated on **Figure 2**. Where a community has multiple separated units they are shown with sub- numbers (e.g. 1-1, 1-2 etc), in order to distinguish separate units. Representative photographs of these communities are included in **Appendix B**.

## **Cultural Communities**

### **ELC Unit 1: Dry – Moist Old Field Meadow (CUM1-1)**

These meadow communities are located between the actively manicured golf fairways. They are grassed areas that consist primarily of a variety of typical old field grasses that appear to be periodically mowed with sporadic groupings of planted conifer trees.

### **ELC Unit 2: Mineral Cultural Woodland (CUW1)**

This community is located on the southern half of the subject property. Dominant species within the canopy and sub-canopy include Manitoba Maple (*Acer negundo*), Green Ash (*Fraxinus americana*), with the occasional American Elm (*Ulmus americana*) and Basswood (*Tilia americana*). Species within the shrub layer included Common Buckthorn (*Rhamnus cathartica*), hawthorn species (*Crataegus* spp.) with the occasional Riverbank Grape (*Vitis riparia*) and Thicket Creeper (*Parthenocissus vitacea*). The ground layer contained a variety of grass and flower species.

### **ELC Unit 3: Coniferous Plantation (CUP3)**

These communities are located between the actively manicured golf course areas throughout the subject property. They generally consist of immature, planted White Spruce (*Picea glauca*) and Norway Spruce (*Picea abies*). The ground layer generally consists of a variety of typical old field grass species.

### **ELC Unit 4: Mixed Hedgerow**

These hedgerow communities are located sporadically around the property and vary in age, maturity and species composition. Species that are most commonly associated with them include Norway Spruce, White Spruce, Manitoba Maple and ash species (*Fraxinus* spp.).

## **Wetland / Aquatic Communities**

### **ELC Unit 5: Reed-canary Grass Mineral Meadow Marsh (MAM2-2) / Forb Mineral Meadow Marsh (MAM2-10) Complex**

These meadow marsh communities are located on the southern half of the subject property. They are dominated by a variety of wetland grass such as Reed-canary Grass, and forb species such as Lance-leaved Aster (*Symphotrichum lanceolatum*) and Tall Goldenrod (*Solidago altissima*).

### **ELC Unit 6: Reed-canary Grass Mineral Meadow Marsh (MAM2-2) / Cattail Mineral Shallow Marsh (MAS2-1) Complex**

These wetland communities are generally located along the edge of the drainage features that flow across the property. They generally consist of a mixture of Reed-canary Grass and cattails (*Typha* spp.).

### ELC Unit 7: Green Ash Mineral Deciduous Swamp (SWD2-2) / Willow Mineral Deciduous Swamp (SWD4-1) Complex

Two small pockets of this habitat type have been identified adjacent the drainage features that bisect the subject property; one near the northern property boundary (ELC Unit 7-1 (0.10 ha)); and the second near the southern property boundary (ELC Unit 7-3 (0.15 ha)). The third swamp forest community (ELC Unit 7-2), which is the largest, at 2.12 ha, is located along the southern property boundary adjacent the Holland River. The canopy and sub-canopy contain a variety of deciduous trees including Green Ash, Manitoba Maple and a willow species (*Salix* spp.). The shrub layer consists of a variety of immature trees and shrubs including Green Ash, Manitoba Maple and Common Buckthorn.

### ELC Unit 8: Open Aquatic (OAO)

There are several ponds located throughout the subject property. These features are man made and are generally consist of areas of open water fringed with little to no wetland vegetation.

## 4.4 Flora

A total of 79 vascular plant species have been recorded from the subject property, this included 47 (59%) native species and 28 (35%) non-native species. A list of all species recorded from the subject property is presented in **Appendix C**.

All of the species are common species that are relatively abundant. The provincial conservation status ranks (S Ranks) of the species documented on the subject property are as follows:

- S5 (Common, secure): 44;
- S4 (Uncommon, apparently secure): 3;
- SU (Unknown, not enough information to assign rank): 1; and
- SNA (Not applicable, species not a target for conservation (exotic/introduced): 31.

One species, Black Walnut (*Juglans nigra*), is considered rare within the Lake Simcoe watershed. Despite this ranking this species is relatively common in urban and agricultural settings where it has been planted fairly extensively in the past. The Black Walnut on the site was associated with the Mixed Hedgerows and Cultural Meadows and likely originated from an anthropogenic source.

No Species at Risk plants were documented on the subject property.

## 4.5 Amphibians

The results of the nocturnal amphibian call surveys are summarized in **Table 4**. Amphibian vocalizations were studied at fourteen locations throughout the subject property illustrated on **Figure 2**. Only two species, Green Frog (*Rana clamitans melanota*) and American Toad (*Anaxyrus americanus*), were documented within the ponds and wetlands on the subject property. A full chorus of Gray Treefrog (*Hyla versicolor*) was also heard calling from a wetland to the south of the subject property during the second survey.

**Table 4. Amphibian Call Survey Findings**

Location	Survey 1	Survey 2	Survey 3
1	None heard	None heard	None heard
2	None heard	None heard	None heard
3	None heard	None heard	None heard
4	None heard	None heard	None heard
5	None heard	None heard	None heard
6	None heard	Green Frog (3 individuals) ----- American Toad (2 individuals)	Green Frog (2 individuals)
7	None heard	Green Frog (2 individuals)	None heard
8	None heard	None heard	None heard
9	None heard	Green Frog (8 individuals)	Green Frog (9 individuals)
10	None heard	None heard	None heard
11	None heard	Green Frog (10 individuals) ----- American Toad (2 individuals)	Green Frog (8 individuals) ----- American Toad (1 individuals)
12	None heard	None heard	Green Frog (2 individuals)
13	None heard	None heard	None heard
14	None heard	None heard	None heard

## 4.6 Breeding Birds

The majority of the 46 bird species that were recorded on or adjacent the subject property were breeding or suspected to be breeding. This is a relatively high species diversity given the property's current use as a golf course, although numbers of pairs were generally low. A variety of habitat types occur at this location including woodland, wetland, meadow, pond and swamp, which contribute to the observed range of avian assemblages. A list of these species and their abundance is provided in **Appendix D**.

Several of the breeding records were common species regularly found in disturbed urban or urbanizing habitats including the most abundant species, in descending order: American Robin (*Turdus migratorius*), Red-winged Blackbird (*Agelaius phoeniceus*), Common Grackle (*Quiscalus quiscula*) and Song Sparrow (*Melospiza melodia*).

Species that were observed flying or foraging on or over the property that were not believed to be breeding were noted and included Great Blue Heron (*Ardea Herodias*), American Crow (*corvus brachyrhynchos*) and Barn Swallow (*Hirundo rustica*), which is listed as Threatened under the provincial ESA.

No species ranked as S1 through S3 (Critically Imperiled through Vulnerable) by the province were present, however one breeding avian Species at Risk were recorded. Eastern Wood-pewee (*Contopus virens*), is treated as a species of Special Concern both provincially and nationally. This species is an aerial insectivore, a group of birds that may have been declining rapidly in the past few decades to a variety of factors including potential changes in insect populations and loss of habitat on their wintering grounds in Latin America. Though pewee numbers may have declined by about 25% in the past decade, they are still common in forests throughout eastern North America and seem to be able to breed in

relatively small forest patches and woodlots. One Eastern Wood-pewee pair was recorded in the southern woodland (ELC unit 7-2) during the first breeding bird survey.

As discussed, Barn Swallow was observed foraging on and adjacent to the site. A search for Barn Swallow nests was undertaken on the buildings and structures located on the subject property and none were observed. Further discussions of SAR are provided in **Section 4.7**.

Birds that require larger tracts of suitable habitat in which to breed, or those that have a higher breeding success in larger areas of suitable habitat, as “area-sensitive” species. Five such species were recorded on the subject property and can be further broken down into woodland and grassland specialists, which require their respective habitat types to breed and rear young successfully. Forest area-sensitive species include Sharp-shinned Hawk (*Accipiter striatus*), Hairy Woodpecker (*Picoides villosus*) and American Redstart (*Setophaga ruticilla*). These species were recorded in the southern woodland (ELC unit 7-2). Given that only a small portion of southern woodland extends onto the subject property, it is likely that the majority of these birds’ territories fall beyond the property limits. The only grassland specialist that was recorded on the subject property was Savannah Sparrow (*Passerculus sandwichensis*). Despite being classified as an area sensitive species, this species is commonly observed in and along fence lines and hedgerows in rural environments.

#### **4.7 Landscape Connectivity**

Landscape connectivity, including the concept of wildlife corridors, has become recognized as an important part of natural heritage planning. The southern portion of the property is located within the Greenbelt Plan area. The Holland River is located to the south of the property provides connectivity in the local landscape for both terrestrial and aquatic species. The wetland and woodland community that extends east and west along the Holland River and extends north onto the subject property also likely provides connectivity at the local level. This connectivity will be maintained.

#### **4.8 Threatened and Endangered Species**

The only species that the ESA applies to on the subject property is the: Barn Swallow.

Barn Swallow were observed foraging over the subject property during both breeding bird surveys. This species often lives in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces. On-site structures were searched for nests and nesting Barn Swallow were not identified on the subject property.

**Table 5. Potential ESA Regulated Species Which May Occur on the Subject Property**

Species	ESA <sup>1</sup> Status	SARA <sup>2</sup> Status	COSEWIC <sup>3</sup> Status	Habitat Present on the Subject Property
Little Brown Myotis <i>Myotis lucifugus</i>	Endangered	Endangered Schedule 1	Endangered	This species could potentially be associated with the woodlands located along the southern property boundary.
Northern Myotis <i>Myotis septentrionalis</i>	Endangered	Endangered Schedule 1	Endangered	This species could potentially be associated with the woodlands located along the southern property boundary.

1- ESA – Endangered Species Act

2- SARA – Species at Risk Act

3- COSEWIC – Committee on the Status of Endangered Wildlife in Canada

### **Little Brown Myotis / Northern Myotis**

Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings and barns as habitats for summer colonies where they can raise their young. Bats can squeeze through very tiny spaces (as small as six millimetres across) and this is how they access many roosting areas. Bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing. One or both of these species can typically be associated with any area where suitable roosting (i.e. groupings of cavity trees, houses, abandoned buildings, barns, etc.) habitat is available. Potentially suitable habitat for these species may be present within the woodland located along the southern property boundary. There are no old buildings on the subject property.

## **4.9 Other Wildlife**

No other specific wildlife surveys were conducted on subject property which is currently an active golf course with residential development to the north and east and agricultural lands to the west.

Based on the existing habitat conditions on the property the potential for wildlife habitat was assessed. The property likely provides habitat for a limited number of common disturbance-tolerant wildlife species. Some mammals common to southern Ontario are also likely present in limited numbers. For example, Grey Squirrel (*Sciurus carolinensis*), Raccoon (*Procyon lotor*), Striped Skunk (*Mephitis mephitis*) and several other common species are likely to occur.

There are several species that have occurred or that could occur that are considered to be of Special Concern either federally, provincially or both. These are discussed in the following paragraphs.

### **Red-headed Woodpecker**

The Red-headed Woodpecker (*Melanerpes erythrocephalus*) lives in open woodland and woodland edges, and is can be found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching. This woodpecker regularly winters in the

United States, moving to locations where it can find sufficient acorns and beechnuts to eat. Potentially suitable habitat for this species may be present within the woodlands located along the southern property boundary, along with adjacent open areas on the golf course. However, the species is now quite rare and was not observed during three breeding bird surveys and therefore it is not considered to be present.

### **Eastern Wood-Pewee**

Eastern Wood-pewee was documented breeding within the southern woodland (ELC unit 7-2) along the southern edge of the property. The Eastern Wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age to mature forest stands with little understory vegetation.

### **Monarch**

Throughout their life cycle, Monarch butterflies (*Danaus plexippus*) use three different types of habitat. Only the caterpillars feed on milkweed plants (*Asclepias sp.*) and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers. This species is threatened by the loss of overwintering habitat in central Mexico and southern California. Sources of food and locations for nesting are abundant in southern Ontario. This species may occasionally use the subject property, especially meadow areas where milkweed occurs.

### **Snapping Turtle**

Snapping Turtles (*Chelydra serpentina*) spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid-summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits. Potentially suitable habitat for this species may be present within the ponds on the subject property or in the nearby Holland River.

#### ***4.9.1 Significant Wildlife Habitat***

The planning authority is responsible for the designation of SWH. In this area such designations have not been made. Candidate SWH were identified using the suggested criteria established by the MNRF in the Significant Wildlife Habitat Technical Guide (MNRF 2000) and Significant Wildlife Habitat Criteria Schedules for Ecoregion 6e (MNRF, 2015). This document is intended to provide “*guidance for SWH designation*”.

Discussion of the SWH that could potentially occur on the subject property is provided in **Table 6**.

**Table 6. Potential SWH which May Occur on Subject Property**

<b>Type</b>	<b>Description</b>	<b>Habitat Present on the Subject Property</b>
Seeps and Springs	Seeps/springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats.	Surface Water Features Assessment completed by Golder as part of the Hydrogeological Report (2018) documented groundwater discharge conditions and no seeps or springs were identified.
Amphibian Breeding Habitat	Significant Wildlife Habitat (SWH) Ecoregion 6E Criterion Schedule (MNR 2015) identifies significant amphibian breeding habitat (wetlands) as Thicket Swamp, Marsh, Fen, Bog, Open Water and Shallow Water habitats that are greater than 500 m <sup>2</sup> in size that provide habitat for one or more salamander species or three or more listed frog species with at least 20 breeding individuals. Wetlands with confirmed breeding Bullfrogs are also significant.	Surveys for breeding amphibians were completed for all wetlands and water bodies on the property.  Based on the abundance and species recorded on the subject property, amphibian breeding habitat on the subject property does not represent significant wildlife habitat.
Terrestrial Crayfish	Wet meadow and edges of shallow marshes (no minimum size) where 1 or more terrestrial crayfish chimney (burrow) is present.	Terrestrial Crayfish burrows were identified within the ditch (Tributary D) between ELC Polygons 8-1 and 8-2. The classification of this feature as SWH due to the presence of crayfish “chimneys” is not appropriate due to the anthropogenic community and small number of burrows
Special Concern and Rare Wildlife Species	This type of habitat can occur wherever special concern and provincially rare (S1, S2, S3 and SH) plant and animal species occur.	Eastern Wood-Pewee, was documented breeding within the woodlands along the southern boundary of the subject property. While SC species can be used to determine SWH this is a common and widespread species and two pairs should not be used as a threshold for SWH

Based on this assessment there are no areas on the subject property which represent Significant Wildlife Habitat furthermore no SWH has been identified by the Planning Authority on the subject property.

## 5. Proposed Development

This EIS has been triggered by an Official Plan Amendment (“OPA”) application by the BHJV to redevelop the subject site for residential land use.

The preliminary development concept proposes an estimated total unit yield of 800 residential units with an estimated 608 units of Neighbourhood Singles (38' - 42') and 192 units of Neighbourhood Towns (20').

**Figure 3** provides an illustration of the conceptual plan.

A Servicing Brief for BHJV Proposed Bradford Highlands Residential Subdivision was prepared by Urban Ecosystems (2017) and provides the following with respect to servicing for the proposed development.

*A 300 mm diameter municipal watermain currently exists within the 6th Line road allowance and a 250 mm diameter municipal watermain exists within the Inverness Way road allowance of the Bradford Capital Subdivision to service this development.*

*A 300 mm diameter municipal sanitary sewer currently exists within the Inverness Way road allowance of the Bradford Capital Subdivision to service this development.*

*The downstream municipal infrastructure 1s currently existing to accommodate the development of the subject lands.*

*The storm sewer system will be designed to convey the 10 year minor design storm in an underground piped network system. Surface runoff along the street will be conveyed via a roadside curb and gutter system and captured by a series of street catchbasins that are directed into an underground piped sewer system. External surface runoff along the west limit of the subject lands will be conveyed via drainage side yard swales and captured by a series of rear yard catchbasins that are directed into an underground piped system. The proposed road layout and grading design preserves the existing drainage patterns and minimizes the amount of earthworks and disturbances to the adjacent properties.*

*It is anticipated that the storm sewer system will be divided into north and south drainage catchment areas with inlets into two Stormwater management facility blocks.*

*The North SWM Pond will accommodate approximately 49 ha of the northerly part of the proposed subdivision including an external drainage area to the west. The controlled northerly SWM pond flows will then discharge into the existing Inverness Way storm sewer within the Bradford Capital Subdivision and ultimately outletting via a Simcoe Road culvert crossing to existing Tributary No. 1 watercourse located on the east side of Simcoe Road. The South SWM Pond will accommodate approximately 40 ha of the southerly part of the proposed subdivision including an external drainage area to the west. The controlled southerly SWM pond flows will discharge into the existing valley land area to the south of this development and ultimately outletting to the existing Canal watercourse.*

*Flows exceeding the capacity of the minor drainage piped underground system, up to the 100 year storm event, will be conveyed overland. These flows will be contained within side yard swale easements and road allowance and will generally follow the minor storm sewer system to the SWM pond. The minor drainage and major drainage system flows*

*will ultimately outlet into the SWM pond where they will be controlled to pre-development levels.*

*Stormwater management ponds are proposed to provide level 1 water quality treatment and erosion control for the stormwater run-off contributing from the subject lands. In addition to quality control, the stormwater management facilities will also control post development drainage flows to predevelopment levels.*

Additional details about the servicing of the proposed development are available in the Servicing Brief for the proposed Bradford Highland Residential Subdivision (Urban Ecosystems 2017).

## 6. Effects and Mitigation

The following sections present some of the potential negative effects of the proposed development and identifies mitigation opportunities and compensation measures to be utilized to minimize the net negative effects of the project.

### 6.1 Effects Assessment

Under existing conditions the subject property is primarily comprised of mowed grass with some cultural meadow and cultural plantation communities. Natural or naturalized habitats on the subject property are generally associated with the drainage features that bisect the property and the lowland forest / swamp that is located along its southern edge.

There is a swamp forest community located in the southern portion of the subject property (Unit 7-2 on **Figure 2**) which meets the criteria to be considered a KNHF/KHF. The limits of this feature have been staked and surveyed with the LSRCA. This feature will be maintained within the Greenbelt lands and no negative effects are anticipated.

Given the proposed land use, potential impacts typical of golf course landscapes undergoing urban development could include the following:

- Changes to drainage features;
- Loss of cultural meadow and treed habitats;
- Noise and light effects on the wetland/woodland;
- Intrusion of people and pets into the wetland/woodland;
- Removal of vegetation including wetland communities; and
- Associated loss of wildlife habitat.

#### **Drainage Features – Contributing Hydrological Functions**

As described in Section 4.2 Drainage Features A, B and C have all been truncated at the eastern property boundary and are now directed to catch basins. In June 2017 the LSRCA confirmed that these features are considered ephemeral and do not meet the definition of a 'key natural heritage feature'.



**Legend**

- Subject Property
- Proposed Development
- Future Road Extension Subject to Detailed Design
- Staked Feature Limit
- 30 m MVPZ / 10 m Woodland Buffer
- Greenbelt

**Proposed Development**

**Figure 3**

Bradford Highlands Golf Club  
Environmental Impact Study



Project: 220036  
Last Revised: May 2020

Client: Bradford Highlands  
Joint Venture

Prepared by: DU  
Checked by: RA



1:4,500



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Ontario Orthoimagery Baselayer: FBS Simcoe County 2016

The Surface Water Features Assessment completed by Golder as part of the Hydrogeological Report (2018) documented that groundwater discharge conditions were documented in Drainage Feature D at MP-06 in May 2017. Aside from this, no other groundwater discharge conditions were documented in Drainage Feature D and E. Overall the findings of the surface water feature assessment indicate that recharge groundwater conditions occur at nearly all monitored locations throughout the majority of the year. The drainage features were found to be dry over much of the year, aside from the single observation at MP-06 in Drainage Feature D.

Each of these features is proposed for removal as part of the proposed development. It is our understanding that the LSRCA will require that a permit for their removal.

### **Loss of Cultural Meadow and Treed Habitats**

Some common wildlife species use the vegetation communities associated with the golf course, so the conversion of these into a residential development does reduce the amount of available habitat. In this case the vegetation communities are fragmented by the mowed lawn. Post-development there will be a loss of habitat for wildlife species that utilize this type of habitat, in this case none of these species are uncommon or are protected by the *Endangered Species Act*.

### **Removal of Wetland Communities**

There are a number of small wetland pockets on the property which are proposed for removal within the existing golf course play area. These communities range in area from 0.01 ha to 0.14 ha. Communities proposed for removal include: Swamp (0.11 ha), Marsh (0.97 ha) and Open Water Golf Course Ponds (0.6 ha). The total area of wetland and pond to be removed is approximately 1.7ha. These features contain common species. A permit will be required for removal as all wetlands are regulated by the LSRCA.

## **6.2 Recommendation Mitigation Measures**

The following section recommends mitigation and compensation measures to be utilized to minimize the effects of the proposed development. These measures will be refined in further detail as the project moves forward to detail design. It is recognized that this report is prepared in support of an OPA and additional works will be required following this initial submission.

The proposed development is situated within an area that is transforming from a rural landscape to a residential landscape, which inevitably reduces natural heritage functions of any particular site within the larger landscape area.

### **Buffer to the Natural Heritage System**

An enhancement planting plan will be prepared for the buffer to ELC Unit 7-2, which has been determined to be a KNHF and KHF. The plan will provide a 30m Minimum Vegetation Protection Zone (MVPZ) to this feature within the Greenbelt Plan Area. The remaining 1.53 ha within the Greenbelt Plan Area is also to be naturalized as part of the proposed development of the subject property. The potential

for a future road connection to from the subject property to Fifth Line through Greenbelt lands will be assessed through the completion of further studies.

A detailed restoration plan will be prepared for the MVPZ and restoration area. The Planting Plan will provide mass planting of native trees, shrubs, and groundcovers within the designated areas in order to augment and enhance habitat cover and function. Species selected for the plantings will be native to the eco-region, well-adapted to site conditions, and primarily present and complementary to those present in the adjacent woodland habitat. This approach will provide an opportunity to enhance overall species diversity and cover, as well as provide visual buffers between the existing natural feature and the limits of development this will serve to minimize potential effects of noise and light.

### **Wetland Removal**

A permit will be required from the LSRCA to allow for the removal of a number of wetland pockets (each less than 0.5 ha in area) on the subject property. These units provide limited function given their location in the landscape and the removal of most of these features on the adjacent property.

There is opportunity to expand the wetland areas immediately adjacent to the existing feature within the Greenbelt Plan Area as part of the buffer planting that is proposed in the southern portion of the subject property. The newly created wetlands will then be provided with a naturalized buffer area as detailed above. This additional wetland area would help to mitigate the loss of the small (1.7 ha) wetland pockets on the golf course lands by expanding the existing wetland by up to 1.6 ha. A detailed planting plan for the lands within the Greenbelt Plan Area will be prepared as a Condition of Approval.

### **Drainage Features – Hydrology**

Mitigation measures for the drainage features on the subject property will require that the function of these features will be replicated through Low Impact Development (LID) measures and lot level controls. It is recognized that a permit will be required from LSRCA to allow the removal of these features.

Subject to the findings of ongoing hydrological investigations and further consultation with the LSRCA, general recommendations for the mitigation of contributing functions are:

- Replicate or enhance functions through enhanced lot level conveyance measures, such as well-vegetated swales (herbaceous, shrub and tree material) to mimic on-line wet vegetation pockets, or through constructed wetland features that are connected to drainage features downstream of the subject property;
- Replicate on-site flow and outlet flows at the top end of the system to maintain feature functions with vegetated swales, bioswales, etc. If catchment drainage has been previously removed due to diversion of stormwater flows, restore lost functions through enhanced lot level controls (i.e., restore original catchment using clean roof drainage); and
- Replicate functions by lot level conveyance measures (e.g., vegetated swales) connected to the natural heritage system, as feasible and/or Low Impact Development (LID) stormwater options (refer to Conservation Authority Water Management Guidelines for details).

Details on the site-specific application of these mitigation measures for the proposed development will be determined and finalized in consultation with the LSRCA and addressed in the Functional Servicing Report (Urban Ecosystems 2017).

### **Timing – Breeding Birds**

The federal *Migratory Bird Convention Act* (1994) protects the nests, eggs and young of most bird species from harm or destruction. Environment Canada considers the ‘general nesting period’ of breeding birds in southern Ontario to be between late March and the end of August. This includes times at the beginning and end of the season when only a few species might be nesting. In light of this we recommend that during the peak period of bird nesting, no vegetation clearing or disturbance to nesting bird habitat occur between May 01 and mid-July. In the ‘shoulder’ seasons of April 1 to 30, and July 16 to August 31, we suggest that vegetation clearing could occur, but only after an ecologist with appropriate avian knowledge has surveyed the area to confirm lack of nesting. If a nest is found then vegetation clearing (in an area around the nest) has to wait until nesting has concluded. Generally speaking, the smaller and simpler the habitat is, the easier it is to confirm that no nesting is occurring. Likelihood of nesting birds being present in the ‘shoulder’ seasons also depends on the habitat type. From September 1 through to March 31, of any year, vegetation clearing can occur without nest surveys, but the law for nest protection still holds (i.e. if an active nest is known it should be protected).

## **7. Policy Conformity**

Beacon has reviewed the existing policy documents pertaining to the subject property in order to address the applicable provisions of the natural heritage policies and regulations of the Provincial Policy Statement, Greenbelt Plan, Lake Simcoe Protection Plan, County of Simcoe Official Plan, Town of Bradford West Gwillimbury Official Plan, LSRCA and the *Endangered Species Act*.

These lands are located outside of, but immediately adjacent to, the Town of Bradford West Gwillimbury Urban Planning Area (Schedule A, Bradford West Gwillimbury Official Plan) and are designated as part of a Rural Area. These lands may be planned for urban uses following an Urban Area boundary expansion as part of a municipal comprehensive review following allocation from the County. This EIS has been prepared in support of an Official Plan Amendment (“OPA”) on behalf of the BHJV to redevelop the subject site for residential land use (MGP, 2020). The OPA application is being filed on the basis that there is an opportunity for certain growth in the Town to be located within the subject site as it represents the most logical area for residential use.

For the purposes of this study we have assumed that the subject property will be reclassified to bring it into the Settlement area and allow for Residential development.

A portion of the southern half of the subject property falls within the *Greenbelt Plan Area*, Protected Countryside (**Figure 2**).

Development is not proposed within the Greenbelt Plan area and the OPA does not propose land use change within this portion of the property. Feasibility for a future road connection to from the subject property to Fifth Line on Greenbelt lands will be assessed through the completion of further studies.

Background review and field investigations have confirmed that the lowland woodland / swamp (ELC unit 7-2) in the southern portion of the property meets the criteria to be considered a KNHF or KHF (per the Greenbelt Plan) and as a natural heritage features as defined in the PPS, County and Town Official Plans. This feature extends north from the adjacent the Holland River and includes both wetland and woodland communities. Given the size, function, potential habitat for Threatened or Endangered species and proximity to the Holland River, this feature was staked and surveyed with the LSRCA. In accordance with the Greenbelt Plan and the Lake Simcoe Protection Plan this feature has been provided a 30m MVPZ. The MVPZ will be restored with native, self sustaining vegetation.

Outside of the Greenbelt Plan area there are a number of a small, isolated cultural plantations and woodlands on the subject property. None of these smaller units have been identified by the Municipality to be significant.

The pockets of wetland vegetation adjacent to the headwater drainage features that bisect the property are all < 0.5 ha in area and total approximately 1.7 ha. They are located within the golf course play area. Due to their small area and limited function, these features have not been identified as KNHFs. A site visit with LSRCA was conducted and it was determined that it was not necessary to stake either the limits of the small wetland features, nor the constructed golf course ponds. The proposed removal of these small pocket wetlands will be compensated for through the creation of wetlands within the Greenbelt Plan area.

The drainage features were reviewed in the field with the LSRCA and the removal of features A-C at the eastern boundary of the subject property limit was observed in the field. Correspondence from LSRCA Planner, Lisa- Beth Bulford, dated June 12, 2017 indicates that Drainage Features A, B and C are ephemeral and do not meet the definition of a Key Natural Heritage feature in the Lake Simcoe Protection Plan. The conveyance of water should be maintained in a similar matter post-development (**Appendix A**). Given the ephemeral nature of these features they are not regulated by the LSRCA.

The Surface Water Features Assessment completed by Golder as part of the Hydrogeological Report (2018) documented that groundwater discharge conditions were documented in Drainage Feature D at MP-06 in May 2017. Aside from this, no other groundwater discharge conditions were documented in Drainage Feature D and E. Overall the findings of the surface water feature assessment indicate that recharge groundwater conditions occur at nearly all monitored locations throughout the majority of the year.

There are no other features on the subject property that meet the criteria to be considered KNHFs or KHFs. No threatened or endangered species were recorded on the property, except Barn Swallow which is not breeding on the subject property species and Eastern Wood-pewee which occurred in an area to be protected. Potentially suitable habitat for SAR bats may be present within the woodland located along the southern property boundary.

A permit for wetland removal and alteration to drainage features will be required from the LSRCA.

## 8. Summary

The subject property is comprised of two discrete parcels: the Bradford Highlands Golf Club and a residential property south of the golf course. Natural features that are present on the subject property include a number of ponds, drainage features and wetlands.

Beacon has reviewed the existing policy documents pertaining to the subject property and have determined that the lowland woodland / swamp (ELC Unit 7) meets the criteria to be considered a KNHF or KHF (as defined in the LSPP), natural heritage features (as defined in the PPS, County and Town Official Plans). This feature has been staked with the agencies and a 30 m MVPZ has been provided to this feature. The MVPZ, currently an active golf course, will be restored with native species through the preparation of a restoration plan. Therefore, no negative effects are anticipated to this feature as a result of the proposed development.

Five drainage features are located on the property and are proposed to be removed to accommodate the proposed residential development of the lands. Three of these features have been removed downstream of the subject property boundary through LSRCA approvals for the adjacent subdivision. Hydrogeological monitoring has been conducted and the overall the findings of the surface water feature assessment indicate that recharge groundwater conditions occur at nearly all monitored locations throughout the majority of the year (Golder 2018)The contributing functions of these drainage features will be replicated through stormwater management and mitigation measures subject to the findings of ongoing monitoring and agency consultation. The narrow bands of wetland vegetation present along the boundaries of these features will also be removed. These features do not constitute key natural heritage features, but a permit will be required from the LSRCA for their removal.

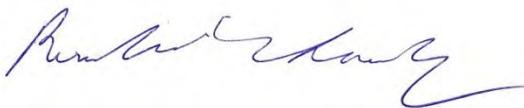
Mitigation measures have been recommended to offset potential adverse effects.

Report prepared by:  
**Beacon Environmental**



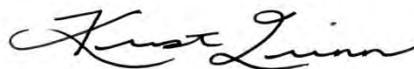
Rob Aitken, B.Sc.  
Ecologist, GIS Analyst

Report reviewed by:  
**Beacon Environmental**



Rosalind Chaundy, B.Sc., M.Sc.F  
Senior Ecologist

Report prepared by:  
**Beacon Environmental**



Kristi Quinn, B.E.S., Cert. Env. Assessment  
Principal, Senior Environmental Planner

Report reviewed by:  
**Beacon Environmental**



Brian E. Henshaw  
CEO, Senior Ecologist

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# Appendix A

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## LSRCA Correspondence



*E-mailed to: kquinn@beaconenviro.com*

June 12, 2017

File # : Pre-con  
IMS #: PCPC3C1

Ms. Kristi Quinn, BES  
Senior Planning Ecologist  
Beacon Environmental  
144 Main St. North, Suite 206  
Markham, ON L3P 5T3

Dear Ms. Quinn:

Re: Natural Heritage Feature Identification  
Proposed Re-Development  
Bradford Highlands Joint Venture  
23 Brownlee Drive  
Block 36, Registered Plan 51-221  
Town of Bradford West Gwillimbury, County of Simcoe

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Further to our email dated October 4, 2016, we understand that your client is preparing to proceed with an application related to the re-development of these lands. As such, based on current information, the following direction should be followed in the evaluation of the key natural heritage features found on this site:

1. We acknowledge that in the past the northern 3 tributaries that outlet into the adjacent plan of subdivision (S-10-01 Bradford Capital) were identified as ephemeral and as such we agree that the upstream parts of these features, on the subject lands, would also be considered ephemeral and not meet the definition of a key natural heritage feature in the Lake Simcoe Protection Plan.
2. As observed during our site meeting on September 12, 2016, the drainage features mentioned in comment #1 do convey water across the subject lands and are associated with wetland features. As such, conveyance of this water should be maintained in a similar manner as it is today and the role these features have in the function of the associated wetlands must be addressed to determine the appropriate protection and enhancement required.
3. All other natural heritage and hydrologic features on this site should be identified and addressed using the current technical guidelines associated with the appropriate Provincial Plans and other applicable policies.

Please note that new versions of the Greenbelt Plan and Growth Plan will be in effect as of July 1, 2017 and applicable policies therein should be addressed as part of any Planning Act applications.

June 12, 2017  
File # : Pre-con  
IMS #: PCPC3C1  
Ms. Kristi Quinn

If you have any questions related to these comments, do not hesitate to contact our office. For future correspondence please reference the above file numbers.

Sincerely,



Lisa-Beth Bulford, M.Sc.  
Development Planner

LBB/ph

- c. Ryan Windle, Town of Bradford West Gwillimbury (email only)  
Charles Burgess, Manager of Planning, LSRCA  
Taylor Knapp, Development Planner, LSRCA  
Kate Lillie, Natural Heritage Ecologist, LSRCA

# Appendix B

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## Photographic Reference

# Appendix B

## Photographic Reference



**Photograph 1. Golf Course**



**Photograph 2. ELC Unit 1 –Dry – Moist Old Field Meadow (CUM1-1)**



**Photograph 3. ELC Unit 2 – Mineral Cultural Woodland (CUW1)**



**Photograph 4. ELC Unit 3 – Coniferous Plantation (CUP3)**



**Photograph 5. ELC Unit 5 – Reed-canary Grass Mineral Meadow Marsh (MAM2-2) / Forb Mineral Meadow Marsh (MAM2-10) Complex**



**Photograph 6. ELC Unit 6 – Reed-canary Grass Mineral Meadow Marsh (MAM2-2) / Cattail Mineral Shallow Marsh (MAS2-1) Complex**



**Photograph 7. ELC Unit 7 – Green Ash Mineral Deciduous Swamp (SWD2-2) / Willow Mineral Deciduous Swamp (SWD4-1) Complex**



**Photograph 8. ELC Unit 9 – Open Aquatic (OAO)**



**Photograph 9. Drainage Feature B**



**Photograph 10. Drainage Feature C**



**Photograph 11. Drainage Feature D**



**Photograph 12. Drainage Feature E**



**Photograph 13. Offsite catchment at end of Drainage Feature C and offsite works**



**Photograph 14. Offsite temporary SWM Pond at end of Drainage Feature C and offsite works**



**Photograph 15. Offsite catchment at end of Drainage Feature B and offsite works**

# Appendix C

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## Vascular Plant List

## Appendix C

### Vascular Plant List

New Scientific Name (FOIBIS 2008)	Common Name (FOIBIS)	1 CUM1-1	2 CUW1	3 CUP3	4 MH	5 MAM2-2 / MAM2-10	6 MAM2-2 / MAS2-1	7 FOD7-2 / FOD7-3	8 OAO/ SA
<i>Acer negundo</i>	Manitoba Maple		x		x				
<i>Acer saccharum</i> var. <i>saccharum</i>	Sugar Maple				x				
<i>Acer x freemanii</i>	Freeman's Maple							x	
<i>Daucus carota</i>	Queen Anne's Lace	x		x	x				
<i>Asclepias syriaca</i>	Common Milkweed	x		x	x				
<i>Ambrosia artemisiifolia</i>	Annual Ragweed		x						
<i>Arctium minus</i>	Lesser Burdock							x	
<i>Cirsium arvense</i>	Creeping Thistle	x	x	x					
<i>Cirsium discolor</i>	Field Thistle	x		x					
<i>Cirsium vulgare</i>	Bull Thistle		x						
<i>Eupatorium maculatum</i>	Spotted Joe-pye-weed					x			
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod							x	
<i>Inula helenium</i>	Elecampane					x			
<i>Solidago canadensis</i> var. <i>scabra</i>	Tall Goldenrod	x	x	x	x	x		x	
<i>Sonchus arvensis</i> ssp. <i>arvensis</i>	Field Sowthistle		x						
<i>Symphotrichum lanceolatum</i> ssp. <i>lanceolatum</i>	Panicled Aster					x		x	
<i>Symphotrichum lateriflorum</i> var. <i>lateriflorum</i>	Calico Aster							x	
<i>Symphotrichum novae-angliae</i>	New England Aster	x							
<i>Symphotrichum puniceum</i> var. <i>puniceum</i>	Purple-stemmed Aster					x	x		
<i>Taraxacum officinale</i>	Common Dandelion	x	x	X	x			x	
<i>Tussilago farfara</i>	Colt's Foot		x					x	
<i>Impatiens capensis</i>	Spotted Jewel-weed					x	x		

New Scientific Name (FOIBIS 2008)	Common Name (FOIBIS)	1 CUM1-1	2 CUW1	3 CUP3	4 MH	5 MAM2-2 / MAM2- 10	6 MAM2-2 / MAS2-1	7 FOD7-2 / FOD7-3	8 OAO/ SA
<i>Impatiens glandulifera</i>	Policeman's Helmet		x						
<i>Catalpa speciosa</i>	Northern Catalpa				x				
<i>Nasturtium sp.</i>	Watercress sp.								x
<i>Hypericum perforatum</i>	St. John's-wort		x						
<i>Cornus alternifolia</i>	Alternate-leaf Dogwood				x			x	
<i>Cornus sericea ssp. sericea</i>	Red-osier Dogwood	x	x			x	x	x	
<i>Echinocystis lobata</i>	Wild Mock-cucumber		x		x	x			
<i>Thuja occidentalis</i>	Northern White Cedar	x			x			x	
<i>Carex bebbii</i>	Bebb's Sedge					x			
<i>Carex stipata</i>	Stalk-grain Sedge					x	x		
<i>Carex vulpinoidea</i>	Fox Sedge					x			
<i>Dipsacus fullonum ssp. sylvestris</i>	Common Teasel					x			
<i>Equisetum arvense</i>	Field Horsetail				x	x			
<i>Melilotus alba</i>	White Sweet Clover	x		x					
<i>Trifolium pratense</i>	Red Clover	x		x					
<i>Vicia cracca</i>	Tufted Vetch	x		x					
<i>Ribes americanum</i>	Wild Black Currant							x	
<i>Juglans nigra</i>	Black Walnut	x			x				
<i>Mentha arvensis</i>	Corn Mint					x	x		
<i>Lemna sp.</i>	Duckweed								x
<i>Lythrum salicaria</i>	Slender-spike Loosestrife					x	x		
<i>Fraxinus americana</i>	White Ash		x		x				
<i>Fraxinus pennsylvanica</i>	Green Ash				x			x	
<i>Circaea alpina</i>	Small Enchanter's Nightshade							x	
<i>Oxalis stricta</i>	Upright Yellow Wood Sorrel		x						
<i>Picea glauca</i>	White Spruce	x		x					
<i>Pinus strobus</i>	Eastern White Pine	x		x					
<i>Pinus sylvestris</i>	Scotch Pine	x							
<i>Plantago lanceolata</i>	English Plantain	x							

New Scientific Name (FOIBIS 2008)	Common Name (FOIBIS)	1 CUM1-1	2 CUW1	3 CUP3	4 MH	5 MAM2-2 / MAM2- 10	6 MAM2-2 / MAS2-1	7 FOD7-2 / FOD7-3	8 OAO/ SA
<i>Bromus inermis</i> ssp. <i>inermis</i>	Smooth Brome	x	x	x	x				
<i>Dactylis glomerata</i>	Orchard Grass	x							
<i>Leersia oryzoides</i>	Rice Cutgrass					x	x		
<i>Phalaris arundinacea</i>	Reed Canary Grass	x				x	x	x	
<i>Pheum pratense</i>	Timothy	x							
<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky Bluegrass	x		x	x				
<i>Rumex crispus</i>	Curly Dock					x			
<i>Ranunculus acris</i>	Tall Buttercup							x	
<i>Rhamnus cathartica</i>	Buckthorn	x			x			x	
<i>Crataegus</i> sp.	Hawthorn sp.		x		x				
<i>Fragaria virginiana</i>	Wild Strawberry							x	
<i>Geum aleppicum</i>	Yellow Avens		x					x	
<i>Malus pumila</i>	Common Apple	x	x		x				
<i>Rubus idaeus</i> ssp. <i>idaeus</i>	Red Raspberry		x					x	
<i>Spiraea alba</i>	Narrow-leaved Meadow-sweet						x		
<i>Populus balsamifera</i> ssp. <i>balsamifera</i>	Balsam Poplar		x					x	
<i>Populus tremuloides</i>	Quaking Aspen		x					x	
<i>Salix eriocephala</i>	Heart-leaved Willow		x			x	x		
<i>Salix exigua</i>	Sandbar Willow		x			x			
<i>Salix x rubens</i>	Reddish Willow		x						
<i>Solanum dulcamara</i>	Climbing Nightshade		x			x	x		
<i>Typha angustifolia</i>	Narrow-leaved Cattail					x	x		x
<i>Typha latifolia</i>	Broad-leaf Cattail					x	x		x
<i>Ulmus americana</i>	American Elm							x	
<i>Verbena hastata</i>	Blue Vervain					x		x	
<i>Parthenocissus quinquefolia</i>	Virginia Creeper		x		x	x		x	
<i>Vitis riparia</i>	Riverbank Grape		x			x		x	

# Appendix D

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## Breeding Bird Species Checklist

## Appendix D

### Breeding Bird Species Checklist

Common Name	Scientific Name	Status				Number of Estimated Pairs or Territories <sup>e</sup>
		National Species at Risk COSEWIC <sup>a</sup>	Species at Risk in Ontario Listing <sup>b</sup>	Provincial breeding season SRANK <sup>c</sup>	Area-sensitive (OMNR) <sup>d</sup>	
Great Blue Heron	<i>Ardea Herodias</i>			S4		F
Mallard	<i>Anas platyrhynchos</i>			S5		2
Sharp-shinned Hawk	<i>Accipiter striatus</i>			S5	A	1
Killdeer	<i>Charadrius vociferus</i>			S5		3
Spotted Sandpiper	<i>Actitis macularia</i>			S5		1
Ring-billed Gull	<i>Larus delawarensis</i>			S5		F
Mourning Dove	<i>Zenaida macroura</i>			S5		5
Belted Kingfisher	<i>Ceryle alcyon</i>			S4		1
Downy Woodpecker	<i>Picoides pubescens</i>			S5		1
Hairy Woodpecker	<i>Picoides villosus</i>			S5	A	1
Northern Flicker	<i>Colaptes auratus</i>			S4		2
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4		2
Willow Flycatcher	<i>Empidonax traillii</i>			S5		3
Great Crested Flycatcher	<i>Myiarchus crinitus</i>			S4		3
Eastern Kingbird	<i>Tyrannus tyrannus</i>			S4		3
Tree Swallow	<i>Tachycineta bicolor</i>			S4		3
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	S4		F
Blue Jay	<i>Cyanocitta cristata</i>			S5		1
American Crow	<i>Corvus brachyrhynchos</i>			S5		F
Black-capped Chickadee	<i>Poecile atricapillus</i>			S5		4
House Wren	<i>Troglodytes aedon</i>			S5		1
American Robin	<i>Turdus migratorius</i>			S5		25
Gray Catbird	<i>Dumetella carolinensis</i>			S4		3
Brown Thrasher	<i>Toxostoma rufum</i>			S4		1
Cedar Waxwing	<i>Bombycilla cedrorum</i>			S5		2

Common Name	Scientific Name	Status				Number of Estimated Pairs or Territories <sup>e</sup>
		National Species at Risk COSEWIC <sup>a</sup>	Species at Risk in Ontario Listing <sup>b</sup>	Provincial breeding season SRANK <sup>c</sup>	Area-sensitive (OMNR) <sup>d</sup>	
European Starling	<i>Sturnus vulgaris</i>			SE		3
Warbling Vireo	<i>Vireo gilvus</i>			S5		3
Red-eyed Vireo	<i>Vireo olivaceus</i>			S5		1
Yellow Warbler	<i>Setophaga petechia</i>			S5		4
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>			S5		1
American Redstart	<i>Setophaga ruticilla</i>			S5	A	2
Common Yellowthroat	<i>Geothlypis trichas</i>			S5		2
Northern Cardinal	<i>Cardinalis cardinalis</i>			S5		3
Chipping Sparrow	<i>Spizella passerina</i>			S5		1
Savannah Sparrow	<i>Passerculus sandwichensis</i>			S4	A	3
Song Sparrow	<i>Melospiza melodia</i>			S5		6
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			S4		20
Common Grackle	<i>Quiscalus quiscula</i>			S5		7
Brown-headed Cowbird	<i>Molothrus ater</i>			S4		3
Orchard Oriole	<i>Icterus spurius</i>			S4		1
Baltimore Oriole	<i>Icterus galbula</i>			S4		2
House Finch	<i>Haemorhous mexicanus</i>			SNA		2
Purple Finch	<i>Haemorhous purpureus</i>			S4		1
American Goldfinch	<i>Spinus tristis</i>			S5		4
House Sparrow	<i>Passer domesticus</i>			SNA		1

## Legend:

a - COSEWIC = Committee on the Status of Endangered Wildlife in Canada. END = Endangered, THR = Threatened, SC = Special Concern.

b - 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.

c- SRANK (from Natural Heritage Information Centre) for breeding status if: S1 (Critically Imperilled), S2 (Imperilled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), SNA (Not applicable... 'because the species is not a suitable target for conservation activities'; includes non-native species).

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

F – species observed flying or foraging over the subject property

# Appendix E

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## Significant Wildlife Habitat Assessment

**Appendix E. Bradford Highlands Golf Course  
Significant Wildlife Habitat Screening**



Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Seasonal Concentration Areas of Animals		
Waterfowl Stopover and Staging Areas (Terrestrial)	Cultural meadows and thickets that flood annually in the spring (mid March to May). Agricultural fields with waste grains that are used by waterfowl are not considered Significant Wildlife Habitat	No Suitable habitat not present on the subject property.
Waterfowl Stopover and Staging Areas (Aquatic)	Ponds, marshes, lakes, bays, costal inlets and watercourses that are used as stopover areas during migration. These habitat typically have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water).	No Suitable habitat not present on the subject property.
Shorebird Migratory Stopover Area	Shorelines of lakes, river and wetlands, including beach areas, bare and seasonally flooded, muddy and un-vegetation shoreline habitats.	No Suitable habitat not present on the subject property.
Raptor Winter Area	A combination of fields and woodlands that provide roosting, foraging and resting habitat for wintering raptors. These sites need to be larger than 20 ha in size, of which at least 15 ha needs to be comprised of idle/fallow or lightly grazed field/meadow.	No Suitable habitat not present on the subject property.
Bat Hibernacula	Hibernacuals may be found in caves, mine shafts, underground foundations and karsts.	No Suitable habitat not present on the subject property.
Bat Maternity Colonies	Maternity colonies can be found in tree cavities, vegetation and buildings. Deciduous and mixed forest communities with greater than 10 ha of large diameter (> 25 cm dbh) wildlife trees.	No Suitable habitat not present on the subject property.
Turtle Wintering Areas	Over-wintering sites for turtles are typically in the same area as their core habitat. Waterbodies have to be deep enough to not freeze and have soft mud substrates.	No Suitable habitat not present on the subject property.
Reptile Hibernaculum	Reptile hibernate in sites located below frost lines in burrows, rock crevices and other natural locations. Rock piles, slopes, stones fences and crumbling foundations can also be used by hibernating snakes. Areas of broken and fissures rocks can also provides access to sites below the frost line.	No Suitable habitat not present on the subject property.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area.	No Suitable habitat not present on the subject property.
Colonially - Nesting Bird Breeding Habitat Breeding Habitat (Tree/Shrubs)	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and occasionally emergent vegetation may also be used.	No Suitable habitat not present on the subject property.
Colonially - Nesting Bird Breeding Habitat (Ground)	Nesting colonies of gulls and terns occur on rocky islands or peninsulas within a lake or larger river	No Suitable habitat not present on the subject property.
Migratory Butterfly Stopover Areas	Cultural meadow, savannah and thicket communities that are within 5 km of Lake Ontario, at least 10 ha in size and contain a combination of field and forest habitat	No Suitable habitat not present on the subject property.

**Appendix E. Bradford Highlands Golf Course  
Significant Wildlife Habitat Screening**



Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Landbird Migratory Stopover Areas	Woodlands that are at least 10 ha in size and within 5 km of lake Ontario.	No Suitable habitat not present on the subject property.
Deer Yarding Areas	Deer yarding areas or winter concentration within a mixed or coniferous forest and swamp communities.	No Suitable habitat not present on the subject property.
Deer Winter Congregation Areas	Deer movement in winter months within eco-region 6E are not constrained by snow depth, however they still congregate in suitable woodlands. These woodlands will typically be larger than 100 ha in size, however woodlands smaller than 100 ha may be considered significant based on MNR assessments.	No Suitable habitat not present on the subject property.
<b>Rare Vegetation Communities</b>		
Cliffs and Talus Slops	A cliff is a vertical to near vertical bedrock that is greater than 3 m in height. A talus slope is rock rubble at the base of a cliff made up of coarse rocky debris.	No Suitable habitat not present on the subject property.
Sand Barren	Sand barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little to no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah.	No Suitable habitat not present on the subject property.
Alvar	Alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil.	No Suitable habitat not present on the subject property.
Old Growth Forest	Old growth forests are characterized by heavy mortality or turnover of over story trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris. Stands must be 30 ha or greater in size with a minimum of 10 ha of interior habitat (interior habitat determined with a 100 m buffer).	No Suitable habitat not present on the subject property.
Savannah	Savannah is a tallgrass prairie habitat that has tree cover between 20 - 60%.	No Suitable habitat not present on the subject property.
Tallgrass Prairie	Tallgrass Prairie has ground cover that is dominated by prairie grasses. An open tallgrass prairie has less than 25% tree cover.	No Suitable habitat not present on the subject property.
Other Rare Vegetation Communities	Rare vegetation communities may include beaches, fens, forests, marsh, barrens, dunes and swamps, as identified in Appendix M of the Significant Wildlife Habitat Technical Guide.	No Suitable habitat not present on the subject property.
<b>Specialized Habitat for Wildlife</b>		
Waterfowl Nesting Area	Waterfowl nesting areas are upland areas adjacent to marsh, shallow aquatic and swamp habitat. In order to be considered significant these features must extend 120 m from of a wetland in order to deter predators	No Suitable habitat not present on the subject property.

**Appendix E. Bradford Highlands Golf Course  
Significant Wildlife Habitat Screening**



Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Nests for these species are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands or on structures over water. Osprey nests are usually at the top of a tree, while Bald Eagle nests are typically in super canopy trees.	No Suitable habitat not present on the subject property.
Woodland Raptor Nesting Habitat	Woodland raptor habitat can be found in all natural or conifer plantation woodland/forest stands that are greater than 30 ha in size with more than 10 ha of interior forest habitat (interior habitat determined with a 200 m buffer).	No Suitable habitat not present on the subject property.
Turtle Nesting Areas	Ideal nesting habitat for turtles are close to water and away from roads and sites that are less prone to loos of eggs by predation. These areas are often associated with exposed mineral soil (sand or gravel) areas within 100 m of a marsh, shallow aquatic, bog or fen habitat.	No Suitable habitat likely not present within the developable areas.
Seeps and Springs	Seeps/springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats.	No Monitoring concluded that no seeps or springs are present on the subject property.
Amphibian Breeding Habitat (Woodland)	This type of habitat is associated with the presence of a wetland, lake or pond that is within or adjacent (within 120m) of a woodland. Woodlands with permanent ponds or those contain water until mid-July are more likely to be used as breeding habitat.	No Suitable habitat not present on the subject property.
Amphibian Breeding Habitat (Wetlands)	Wetlands and pools that are greater than 500 m <sup>2</sup> and are isolated from woodlands (greater than 120 m)	No Suitable habitat not present on the subject property. Insufficient amphibian populations to be considered significant.
Woodland Area-Sensitive Bird Breeding Habitat	Habitats where interior forest breeding birds are breeding. These forests are typically larger mature forest stands or woodlands that are greater than 30 ha in size (interior habitat determined with a 200 m buffer).	No Suitable habitat not present on the subject property.
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)		
Marsh Bird Breeding Habitat	This type of habitat occurs in wetlands with shallow water and emergent aquatic vegetation present	No Suitable habitat not present on the subject property.
Open Country Bird Breeding Habitat	This type of habitat occurs in larger grassland areas (including natural and cultural fields and meadows) that are greater than 30 ha in size. Grasslands that are being actively used for farming (i.e. row cropping, intensive hay, livestock pasturing in the last 5 years) typically do not provide ideal habitat for open country bird species.	No Suitable habitat not present on the subject property.
Shrub/Early Successional Bird Breeding Habitat	This type of habitat occurs in large field areas succeeding to shrub and thicket habitats that are greater than 10 ha in size.	No Suitable habitat not present on the subject property.

**Appendix E. Bradford Highlands Golf Course  
Significant Wildlife Habitat Screening**



Significant Wildlife Habitat Type	Habitat Description	Habitat Assessment
Terrestrial Crayfish	Wetlands and pools that are greater than 500 m <sup>2</sup> and are isolated from woodlands (greater than 120 m)	No Suitable habitat for this species was identified on the subject property. However an assessment of it determined that a designation of significant was not appropriate due to the anthropogenic nature of the feature.
Special Concern and Rare Wildlife Species	This type of habitat occurs wherever special concern and provincially rare (S1, S2, S3 and SH) plant and animal species occur.	Yes Suitable habitat for these species was identified within ELC Unit 7-2 on the subject property.
Animal Movement Corridors		
Amphibian Movement Corridors	This habitat consists of movement corridors between breeding habitat and summer habitat. Corridors may be found in all ecosystems associated with water. Movement	No Suitable habitat not present on the subject property.
Deer Movement Corridors	This habitat consists of corridors in forested ecosties. Corridors typically follow riparian areas, woodlots and areas of physical geography (ravines or ridges).	No Suitable habitat not present on the subject property.