BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Environmental Impact Study
Fergus Golf Club
Township of Centre Wellington, Wellington County

Prepared For:

883890 Ontario Limited c/o Fergus Development Inc.

Prepared By:

Beacon Environmental Limited

Date: *Project:*

February 2022 **221111**

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1. Introduction

Beacon Environmental Limited (Beacon) has been retained by 883890 Ontario Limited c/o Fergus Development Inc. to prepare an Environmental Impact Study (EIS) for the proposed redevelopment of a portion of Fergus Golf Club, located at 8282 and 8243 Wellington Road 19, Centre Wellington, County of Wellington (hereafter referred to as the "subject property").

The subject property consists of two parcels; the northwest parcel, which is 42.35 ha, situated on the north side of Wellington Road 19, and the southeast parcel, which is 39.85 ha, situated on the south side of Wellington Road 19. The proposed residential redevelopment is located on the southeast parcel and the communal water and wastewater services are integrated into the existing golf course, which will remain, on the northwest parcel of the subject property.

The southeast parcel (hereafter referred to as the "study area"),is subject to redevelopment and is the focus of this report It is in a rural area immediately surrounded by agricultural lands, a residential area and a golf course (**Figure 1**).

The study area is currently developed as an existing golf course with anthropogenic structures. In addition, the study area contains undeveloped lands including agricultural fields, a municipal drain, and natural heritage features such as woodlands, ponds, and unevaluated wetlands. The wetlands and municipal drain are both regulated by the Grand River Conservation Authority (GRCA) and are designated as "Core Greenlands" in the County of Wellington Official Plan (2021).

Given this geographical setting, development applications concerning the study area are subject to policies including, but not limited to, those outlined in: Provincial Policy Statement (PPS), County of Wellington Official Plan, as well as GRCA's policies and regulations.

An EIS is required by the County and GRCA as part of the *Planning Act* applications to redevelop the study area as it is within 120 m of natural features and within the regulated area of GRCA. The proposed redevelopment plan includes recreation-based residential lots and a natural open space area in the central portion of the study area.

The purpose of this EIS is to:

- Describe the existing natural heritage conditions and features both on and immediately adjacent to the study area;
- Identify applicable environmental polices and evaluate project conformance with relevant provincial and municipal planning documents, and GRCA policies and regulations;
- Identify potential development impacts to natural heritage features and ecological functions; and
- Identify appropriate mitigation recommendations.

2. Methodology

The following methodology was applied to assess the impact of the proposed redevelopment on the natural environment.

2.1 Background and Policy Review

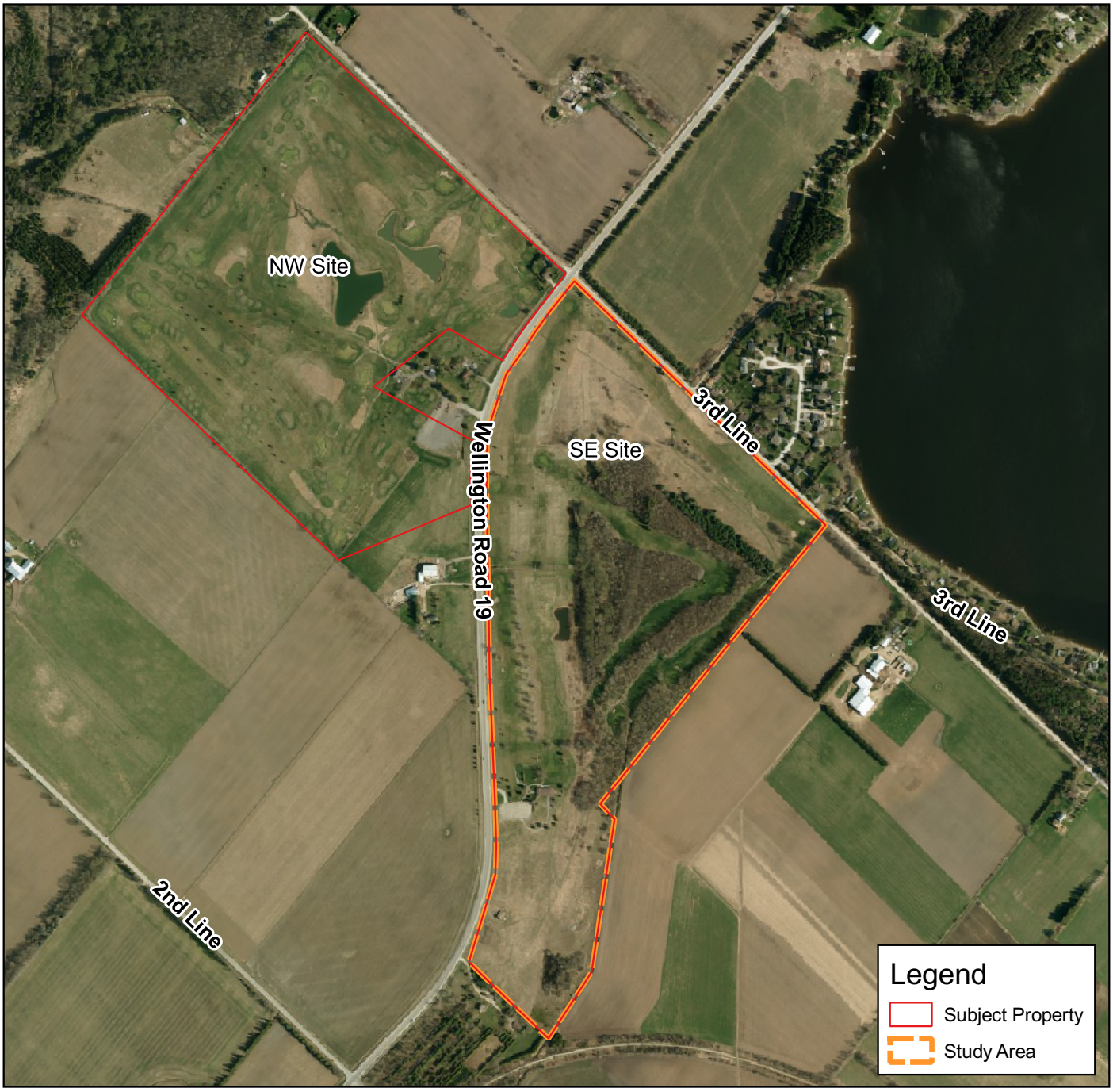
Background information was gathered and reviewed at the outset of the project. This involved consideration of the following documents and information sources, as relevant to the study area:

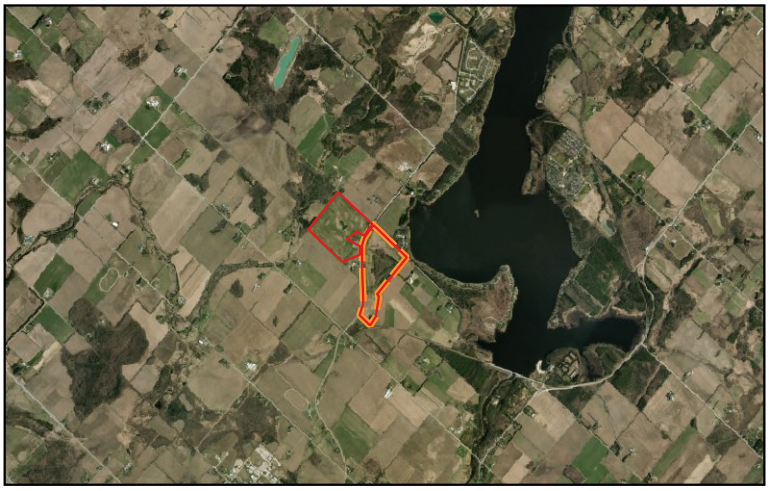
- PPS (2020);
- The Growth Plan for the Greater Golden Horseshoe (August 2020);
- County of Wellington Official Plan (July 2021 Office Consolidation);
- Township of Centre Wellington Official Plan (January 2013 Office Consolidation);
- GRCA policies (2015) and regulations (2006);
- Land Information Ontario (LIO) and Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) resource information;
- *Endangered Species Act* (ESA; 2007); and
- Federal *Fisheries Act (1985).*

Other sources of information such as current and historical aerial photographs and local topographic survey data, were also reviewed prior to commencing field investigations. Further, Beacon's background review also includes analysis of numerous information sources in a Geographic Information System (GIS) environment that facilitates an assessment of the likelihood that species at risk and other natural heritage features are present in an area of interest. This system allows Beacon to combine the most current information provided by the MNDMNRF through the LIO portal with GIS layers from other provincial and local datasets, including but not limited to, floral and faunal atlas data. This system enables the creation of a list of Species at Risk (SAR) for which there are records or which might be expected to occur within 5 km of a location. All relevant layers can then be overlaid on the most recent high resolution ortho-imagery. The screening process helps identify areas that can then be targeted (for example, potential habitat) during the field program to maximize the efficiency and effectiveness of on-site investigations.

Information sources reviewed included:

- Provincially tracked species layer (1 km grid LIO dataset);
- Ontario Reptile and Amphibian Atlas (ORAA);
- Ontario Breeding Bird Atlas (OBBA);
- Natural Heritage Information Centre (NHIC) Data via the Make-A-Map application;
- SAR range maps (Government of Ontario);
- High resolution aerial photography of the property;
- Natural and physical feature layers (e.g., topographic, wetland, waterbody, watercourse data), LIO and Aquatic Resource Area (ARA) datasets; and
- Ontario Geological Survey (OGS) and soil physiography (Chapman and Putnam) datasets.





Site Location	Figure 1
Fergus Golf Club EIS	
BEACON ENVIRONMENTAL	Project: 221111 Last Revised: February 2022
Client: Fergus Development Inc.	Prepared by: BD Checked by: CG
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2.2 Field Investigations

The following field investigations were undertaken by Beacon ecologists in the 2021 field season as part of this study to characterize the natural heritage features and functions associated with the study area.

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. Summary of Field Investigations

Field Investigation	Dates
Aquatic Habitat Assessment	March 24, 2021
Ecological Land Classification and Flora	May 17, June 23, July 9, 2021
Wetland Feature Staking by GRCA	September 27, 2021
Breeding Bird Surveys	June 1 and June 16, 2021
Amphibian Call Surveys	April 6, May 18, and June 10, 2021
Basking Turtle Surveys	April 23, May 12, and May 18, 2021
Bat Habitat Assessment	March 31, 2021
Bat Acoustic Monitoring	June 17 to July 5, 2021
Bat Exit Surveys	July 25 and 26, 2021

2.2.1 Aquatic Habitat Assessment

Headwater Drainage Assessment

The municipal drain within the study area was assessed following the *Ontario Stream Assessment Protocol Headwater Drainage Feature Module* (Stanfield *et al*. 2014) and generally followed the requirements as set out in the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* ("Guidelines"; TRCA and Credit Valley Conservation 2014) which is commonly used in areas outside of TRCA and CVC jurisdiction to assess drainage features.

The guidelines use an integrated approach for the evaluation of key attributes of drainage features including flow and feature form, riparian vegetation, fish and fish habitat and terrestrial habitat. The evaluation divides headwater drainage features into segments, with breaks between segments occurring where key attributes change. The Guidelines are meant to address ephemeral, intermittent and permanent watercourses in the early spring so as to capture characteristics of watercourses which may not persist throughout the year.

Aquatic Assessment and Community Sampling

An aquatic habitat assessment was completed for the Black Drain on site, part of the Irvine Creek system. The assessment of aquatic habitat within the watercourses on the study area was completed on foot and involved a visual assessment of the following characteristics:

- Channel width and depth profile, bank height, bank stability;

- Substrate types and distribution;
- Fish barriers;
- Riparian vegetation type and cover; and
- In-stream cover type and extent.

The aquatic habitat assessment was conducted by Beacon Environmental field staff on March 24, 2021.

2.2.2 Ecological Land Classification and Floral Inventory

Vegetation surveys and community mapping was undertaken to describe and map the existing vegetation communities on current colour ortho-photography of the lands using the Ecological Land Classification (ELC) system for southern Ontario (Lee *et al*. 1998). This is the standard method used for describing vegetation communities in southern Ontario.

A flora inventory was completed, and a list of vascular plants was compiled for the study area.

2.2.3 Wetland Feature Staking

A feature staking of the wetlands present on the study area was completed on June 23 and July 9, 2021. The staking was reviewed and verified by GRCA on September 27, 2021. No other natural heritage features were staked during this visit.

2.2.4 Breeding Bird Surveys

Two breeding bird surveys were conducted on the mornings of June 1 and 16, 2021, on days with low to moderate winds, no precipitation and temperatures within 5°C of average seasonal temperatures. Start times were between 5:00 and 5:30 AM to capture the peak period of avian vocalization. The breeding bird community was surveyed using a roving type survey, in which all parts of the study area were walked to within 50 m and all birds heard or observed and showing some inclination toward breeding were recorded as breeding species. All birds heard and seen were recorded in the location observed on an aerial photograph of the site.

2.2.5 Amphibian Call Surveys

Anuran call surveys were undertaken during the spring of 2021 to determine if any features on the site support significant breeding habitat for frogs and toads. Surveys were conducted following the Marsh Monitoring Protocol (Bird Studies Canada 2009). The surveys consist of listening for calling males during the prime breeding period to determine presence and abundance.

The surveys involve visiting the site after dusk with minimum night-time air temperatures of at least 5°C for the first survey, 10°C for the second survey and 17°C for the third survey. Surveys were conducted at least 15 days apart. Areas that contained potential breeding amphibian habitat were surveyed from a distance that would enable calling amphibians to be heard. Survey details, including dates, times and weather conditions are summarized in **Table 2.**

Table 2. Breeding Amphibian Survey Details

	Survey 1	Survey 2	Survey 3
Date	April 6, 2021	May 18, 2021	June 10, 2021
Start Time	21:20	22:12	22:38
Temperature (°C)	8	16	17
Wind Speed (Beaufort)	0	0	1
Cloud Cover (%)	40	0	0
Precipitation	None	None	None

Calling amphibians, if present, were identified to species and calling activity was assigned a code from the following options, which indicate increasing abundance:

0 - No calls;
1 - Individuals of one species can be counted, calls not simultaneous;
2 - Some calls of one species simultaneous, numbers can be reliably estimated; or
3 - Full chorus, calls continuous and overlapping.

Using this code method, areas that support a Code 1 for a species indicate very low population numbers in the local area, and/or low-quality breeding habitat. Code 3 for species indicates a healthy population and high-quality breeding habitat with over 20 individuals. Code 2 indicates a moderate population and/or lower quality breeding habitat.

Species, calling locations and approximate numbers of calling individuals were recorded and mapped. The survey method provides an indication of amphibian abundance during the breeding season.

2.2.6 Basking Turtle Surveys

Beacon ecologists undertook basking turtle surveys within the wetlands and ponds on the study area in 2021 (**Figure 2**). These surveys consist of slowly walking along the outer edges of the wetlands and ponds using binoculars to scan the perimeter, the water surface and other potential basking sites within the wetland or pond. Surveys were completed between 8:00 am and 5:00 pm during sunny periods when the air temperature was greater than water temperature and after inclement weather.

Details of these surveys, including weather conditions, are included in **Table 3.**

Table 3. Basking Turtle Survey Details

	Survey 1	Survey 2	Survey 3
Date	April 23, 2021	May 12, 2021	May 18, 2021
Start time	3:30 pm	3:00 pm	3:30 pm
End time	4:15 pm	3:45 pm	4:00 pm
Air Temperature	15 °C	16 °C	24 °C
Wind (Beaufort Scale)	2	1	1
Cloud cover	0%	5%	40%
Precipitation	None	None	None

2.2.7 Bat Habitat Assessment

The assessment of wooded habitats on the study area was completed to determine if they provide habitat for endangered bats. The *Survey Protocol for Species at Risk Bats within Treed Habitats Little Brown Myotis, Northern Myotis & Tri-Colored Bat* (Guelph District Ministry of Natural Resources and Forestry [MNRF] 2017) was used for the assessment.

As per Phase 1 of this protocol, "Bat Habitat Suitability Assessment", ELC communities within the proposed redevelopment footprint were assessed. Any coniferous, deciduous or mixed wooded ecosites, including treed swamps, that included trees at least 10 cm diameter at breast height (DBH) was considered candidate maternity roost habitat. Areas that satisfied this criterion and were considered candidate maternity roost habitat are identified as ELC Units 4, 5, 8, and 9 (refer to Section 4.2.6).

Sections of the woodlands on the study area were further assessed using the methods described within "Phase 4: Snag Density Survey of the Survey Protocol for Species at Risk Bats within Treed Habitats Little Brown Myotis, Northern Myotis & Tri-Colored Bat". Ten circular plots with an area of 0.05 ha were randomly placed within these features. These surveys were completed on March 31, 2021 during the leaf off period and under suitable weather conditions (i.e., minimal precipitation, not immediately following heavy snowfall). Snag trees with characteristics favourable to Little Brown Myotis (*Myotis lucifugus*), Eastern Small-footed Myotis (*Myotis leibii*), Northern Myotis (*Myotis septentrionalis*) and Tri-coloured Bat (*Perimyotis subflavus*) were considered. Results of this plot survey and identified snag tree characteristics are presented in **Appendix A**.

All potential bat maternity roost trees observed within the selected plots were provided a unique code and the following parameters were documented:

- Species;
- Location;
- Approximate tree height;
- DBH;
- Number of cavities;
- Characteristics of cavity; and
- Tree condition.

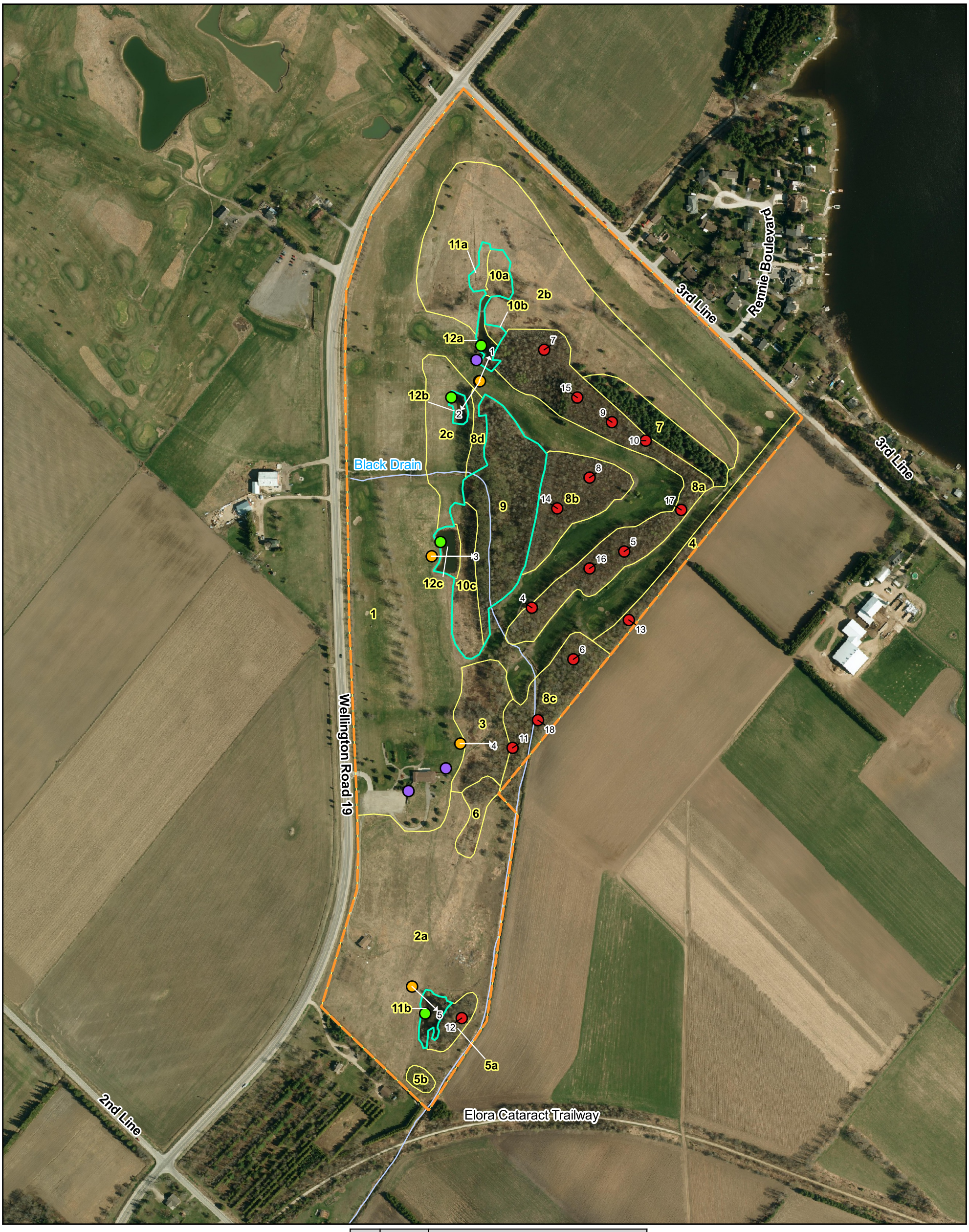
2.2.8 Bat Acoustic Monitoring

Acoustic monitoring on the study area was completed using the methods described within "Phase III: Acoustic Surveys of the Survey Protocol for Species at Risk Bats within Treed Habitats Little Brown Myotis, Northern Myotis & Tri-Colored Bat" (Guelph District MNRF 2017).

A total of 15 acoustic monitoring stations were established on the study area and were monitored between June 17 and July 5, 2021 (**Figure 2**). The locations of the stations were determined using data collected during habitat assessment surveys and the criteria provided in the MNRF protocol (2017).

At each of these stations an SM4BAT passive monitor equipped with an SMM-U2 ultrasonic microphone was deployed. Each monitor was programmed to record during triggered events each night for a period of six hours, beginning half an hour before sunset.

Recordings from the monitors were analyzed using KaleidoscopePro software. A combination of auto-identification and manual analysis was applied to call fields to make species determinations. All unclassified files (No ID Files) were manually reviewed for call frequency to determine if unclassified



Legend

- Study Area
- ELC
- Watercourse (MNRF 2021)

Wildlife Survey Stations

- Bat Exit Survey
- Turtle Survey
- Amphibian Survey
- Bat Detector Locations

Units	Code	Wetland Communities
10	SWT2-2	Willow Mineral Thicket Swamp
11	MAM2-10	Forb Mineral Meadow Marsh
9	SWD2-2	Green Ash Mineral Deciduous Swamp
		Aquatic Communities
12	SA	Shallow Water
		Forest Communities
8	FOD7	Fresh - Moist Lowland Deciduous Forest
		Cultural Communities
2	CUM1-1	Dry - Moist Old Field Meadow
3	CUM	Cultural Meadow
5	CUW	Cultural Woodland
6	CUT	Cultural Thicket
7	CUP3-2	White Pine Coniferous Plantation
		Other Communities
1	ANT	Anthropogenic
4	HE	Hedgerow

Existing Conditions

Figure 2

Fergus Golf Club EIS

BEACON ENVIRONMENTAL

Project: 221111

Last Revised: February 2022

Client: Fergus Development Inc.

Prepared by: SZ
Checked by: CG

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calls fell within the 40 kHz Myotis species and Tri-Coloured Bat range. If the call did not fall within the approximate 40 kHz range, it was not analyzed further as it was likely not a species at risk. Furthermore, a random selection of noise files was reviewed to ensure that the batch filters applied functioned as intended.

2.2.9 Bat Exit Surveys

In July 2021, exit surveys were conducted over two nights for two buildings on the study area: a shed located at the north end and a house located at the south end of the study area (**Figure 2**). Exit surveys were required to determine whether or not endangered bat species were present in the buildings proposed for removal.

Beacon staff completed bat exit surveys for the building using the methodology provided within the MNRF Guelph District *Use of Buildings and Isolated Trees by Species at Risk Bats: Survey Methodology* (2014). Surveys were conducted on warm clear nights with no precipitation or heavy winds a half hour before sunset and continued for an hour after sunset. One surveyor was stationed facing the shed in the north end and another two surveyors were stationed at opposite corners of the house in the south end to enable sightlines for surveying all sides of the building.

An EMTouch 2 Pro™ plug-in device for Tablets/iPads was used to record echolocations of local bat populations. The echolocation data recorded by the monitor was analyzed using KaleidoscopePro software. This specialized software analyzes the frequency and tones of the calls using algorithms which then are able to identify the species.

2.2.10 Endangered or Threatened Species

Beacon staff completed an in-house desktop screening for endangered and threatened species. The list of species was screened against potential habitat which was confirmed through field investigations and seasonal, species-specific surveys and will be verified with the Ministry of Environment, Conservation and Parks (MECP), as required.

2.2.11 Incidental Wildlife

Incidental observations of other wildlife, including reptiles, amphibians, mammals and/or migrant birds, were made during field investigations. This included sounds heard, scat, tracks and visual observations.

3. Policy Review

A policy review was undertaken to identify environmental planning considerations and requirements, as applicable to the study area and proposed redevelopment and site alteration activities.

3.1 Provincial Policy Statement (2020)

The PPS was issued under Section 3 of the *Planning Act*, RSO 1990, c P.13 and all decisions affecting land use planning matters "shall be consistent with" the PPS. The 2020 PPS released by the Ontario provincial government came into effect May 1, 2020.

Section 2.1 of the PPS provides direction to regional and local municipalities regarding planning policies specifically for the protection and management of defined natural heritage features and resources. The *Natural Heritage Reference Manual* (MNR 2010) is a technical document used to help assess the natural environment to identify natural heritage or significant features and areas, as defined by the PPS. The PPS provides planning policies for the following features:

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

Each of these features or defined areas are afforded varying levels of protection subject to guidelines, and in some cases, regulations. Of these features, significant wetlands and woodlands can be designated either by MNDMNRF and/or the municipality. Significant habitat of endangered or threatened species is regulated by 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). Ensuring the identification and regulation of the remaining features is the responsibility of the municipality or other planning authority.

There are no mapped provincially significant wetlands on the study area, but there are potential significant woodlands, potential fish habitat and potential habitat for threatened or endangered species on the study area.

3.2 A Place to Grow - Growth Plan for the Greater Golden Horseshoe (August, 2020)

The provincial growth plan is issued under the *Places to Grow Act*, 2005, SO 2005, c. 13. The 2020 provincial growth plan titled: "*A Place to Grow – Growth Plan for the Greater Golden Horseshoe*" (August 2020) came into effect on August 28, 2020. The study area is located within the Greater Golden Horseshoe Growth Plan Area.

The Growth Plan, together with the Greenbelt Plan, Oak Ridges Moraine Conservation Plan (ORMCP), and the Niagara Escarpment Plan (NEP), builds on the PPS to establish a land use planning framework for the Greater Golden Horseshoe (GGH) that supports the achievement of complete communities, a thriving economy, a clean and healthy environment, and social equity.

The 2020 Growth Plan provides for the identification and protection of a Natural Heritage System for the Growth Plan outside of the Greenbelt Area and settlement areas, and applies protections similar to those in the Greenbelt Plan to provide consistent and long-term protection throughout the GGH.

A review of the Growth Plan schedules has identified that the study area, in its entirety, is located within the Greater Golden Horseshoe Growth Plan Area, is located outside of the Greenbelt Area, and is not located within or directly adjacent to lands associated with the defined Natural Heritage System.

In accordance with Growth Plan Policy 2.2.8.1 and as per Schedule A1 (Centre Wellington) of the County of Wellington Official Plan (2021), the study area is designated as Recreational and within the rural system (as of 1999), has a municipal drain traversing the study area and has small patches of "Core Greenlands" which overlap with the wetlands, municipal drain and woodlands present on the study area; see Section 3.3 for details.

Under Section 4.2.2.1:

> *The Natural Heritage System for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017.*

Section 4.2.4.6 states that:

> *Beyond the Natural Heritage System for the Growth Plan, including within settlement areas, the municipality:*
> - *Will continue to protect any other natural heritage features and areas in a manner that is consistent with the PPS; and*
> - *May continue to protect any other natural heritage system or identify new systems in a manner that is consistent with the PPS.*

3.3 County of Wellington (2021)

Within its Official Plan, Wellington County has identified a Greenlands System, which is illustrated on Schedule A of the Official Plan. Schedule A1 shows that the study area is designated as Recreational and within the rural system, has a watercourse traversing the study area and has small patches of "Core Greenlands" which overlap with the wetlands, municipal drain and woodlands present on the study area.

The Greenlands System is comprised of various natural heritage features, flood prone areas, and hazard lands. The system is divided into two broad categories: Core Greenlands and Greenlands.

Core Greenlands include the following features:

- Provincially Significant Wetlands (PSW) and other wetlands;
- Habitat of endangered or threatened species;
- Fish habitat; and
- Floodway and hazardous lands.

Development and site alteration are not permitted in PSWs or habitat of endangered and threatened species, and is restricted in other wetlands, fish habitat, and floodways/hazard lands.

Section 5.4.2 states "Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements*".*

Section 5.4.3 states.

> *Development and site alterations will only be permitted in the flood-fringe portion of the floodplain in areas susceptible to other natural hazards if*:
>
> *a) The hazards can be safely addressed, and the development and site alteration is carried out in accordance with established standards and procedures;*
> *b) New hazards are not created and existing hazards are not aggravated;*
> *c) No adverse environmental impacts will result;*
> *d) Essential emergency services have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;*
> *e) The development does not include institutional uses or essential emergency services or the disposal, manufacturing, treatment or storage of hazardous substances; and*
> *f) No reasonable alternative is available.*

In addition to the Core Greenlands features, the Greenlands System includes other natural heritage features such as:

- Wildlife habitat;
- ANSI;
- Streams and valleylands;
- Woodlands;
- Environmentally sensitive areas;
- Ponds, lakes and reservoirs; and
- Natural links.

Within the Greenlands System (outside Core Greenlands) land uses that are consistent with the applicable adjacent or underlying designations may be permitted (section 5.6.1).

These natural heritage feature areas are often found within Core Greenlands (section 5.5). In particular, woodlands are present on the study area within a portion of the Core Greenlands area. Section 5.5.4 states:

> *In the Rural System, woodlands over 4 hectares and plantations over 10 hectares are considered to be significant by the County, and are included in the Greenlands system. Woodlands of this size are important due to their contribution to the amount of forest cover on the County landscape. Exceptions may include a plantation established and continuously managed for the sole purpose of complete removal at rotation without a reforestation objective, as demonstrated with documentation acceptable to the County.*
>
> *Detailed studies such as environmental impact assessments may be used to identify, delineate and evaluate the significance of woodlands based on other criteria such as: proximity to watercourses, wetlands, or other woodlands; linkage functions; age of the stand or individual trees; presence of endangered or threatened species; or overall species composition.*

Significant woodlands will be protected from development or site alterations which would negatively impact the woodlands or their ecological functions. Good forestry practices will be encouraged and tree removal shall be subject to the Wellington County Forest Conservation Bylaw.

Smaller woodlands may also have local significance and, where practical, these smaller woodlands should be protected.

3.3.1 Wellington County Forest Conservation Bylaw

The Wellington County Forest Conservation Bylaw Section 2.1 states:

No person shall cause or permit the injuring or destruction of a tree growing in a woodlands:
(a) unless exempted by Section 3 of this by-law; or
(b) except in accordance with a permit issued under Sections 4 and 5 of this by-law

The Bylaw details in Sections 4 and 5 the different types of permits available to injure or destroy trees and the application process to obtain these permits.

3.4 Township of Centre Wellington (2013)

The Township of Centre Wellington processes Zoning By-law Amendments and Minor Variance applications. Official Plan Amendments and Land Severances are handled through the County of Wellington. The County of Wellington's Official Plan is discussed in **Section 3.3**.

3.5 Grand River Conservation Authority Policies (2015) and Regulations (2006)

GRCA regulates hazard lands, watercourses, valleylands, shorelines, and wetlands, as well as land adjacent to these features under *Ontario Regulation 150/06* (2006). A watercourse traverses the study area and wetlands are present on the study area. These features, and the lands adjacent to them, are regulated by GRCA.

Grand River Conservation Authority Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation Ontario Regulation 150/06 (GRCA 2015) includes policies for watercourses and areas of interference and provides guidance on the permitted uses and EIS requirements.

Per Section 8.4.4,

> *Development within a naturally-occurring wetland may be permitted where the wetland is less than 0.5 hectares (1.24 acres), and it can be demonstrated that the wetland is not:*
>
> *a) part of a Provincially Significant Wetland,*
> *b) located within a floodplain or riparian community,*
> *c) part of a Provincially or municipally designated natural heritage feature, a significant woodland, or hazard land,*
> *d) a bog, fen,*
> *e) fish habitat,*
> *f) significant wildlife habitat,*
> *g) confirmed habitat for a Provincially or regionally significant species as determined by the Ministry of Natural Resources and Forestry or as determined by the municipality,*
> *h) part of an ecologically functional corridor or linkage between larger wetlands or natural areas,*
> *i) part of a groundwater recharge area, or*
> *j) a groundwater discharge area associated with any of the above.*

Regarding enclosure of watercourses, GRCA policy 9.1.17 states,

> *Enclosures of creeks, streams or watercourses may be permitted where there is a risk to public safety and/or potential property damage and where a site specific study demonstrates that:*
>
> *a. all feasible options and methods have been explored to address the hazard (s) and the enclosure is supported by the GRCA,*
> *b. the risk to public safety is reduced,*
> *c. susceptibility to natural hazards is reduced and no new hazards are created,*
> *d. there are no negative or adverse hydrologic impacts on wetlands,*
> *e. pollution, sedimentation and erosion during construction and post construction is minimized using best management practices including site and infrastructure design, construction controls, and appropriate remedial measures,*
> *f. intrusions within or adjacent to the river, creek, stream or watercourse are minimized and it can be demonstrated that best management practices including site design and appropriate remedial measures will adequately restore and enhance features and functions to the extent possible,*
> *g. there is no negative impact on the downstream thermal regime,*
> *h. there is no inhibition of fish passage, and*
> *i. works are constructed, repaired and/or maintained according to accepted engineering principles and approved engineering standards or to the satisfaction of the GRCA, whichever is applicable based on the scale and scope of the project.*

In addition to satisfying the necessary policies, a permit must be obtained for any development and/or site alteration within a regulated area.

3.6 *Endangered Species Act* (2007)

Ontario's ESA came into effect on June 30, 2008 and replaced the former 1971 Act. The ESA protects species listed as endangered and threatened by the Committee on the Status of Species at Risk in Ontario (COSSARO). The purposes of the ESA are:

- To identify species at risk based on the best available scientific information, including information obtained from community knowledge and aboriginal traditional knowledge;
- To protect species that are at risk and their habitats, and to promote the recovery of species that are at risk; and
- To promote stewardship activities to assist in the protection and recovery of species that is at risk.

Section 9 of the ESA prohibits the killing, harming, harassing, possession, collection, buying and selling of extirpated, endangered, and threatened species on the Species at Risk in Ontario (SARO) List; and Section 10 prohibits the damage or destruction of protected habitat of species listed as extirpated, endangered or threatened on the SARO List.

There are a number of species protected under the ESA that occur within the County of Wellington with some degree of regularity. Seasonally appropriate field studies are typically required to determine if these species are present or using the landscape to fulfill a part of their life cycle.

3.7 Federal *Fisheries Act* (1985)

Fish and fish habitat are protected under the Federal *Fisheries Act* (1985), which was last updated August 2019. In Ontario, Fisheries and Oceans Canada (DFO) manages fish habitat and the MNDMNRF manages fisheries. Section 35 (1) of the Federal *Fisheries Act* precludes "No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat".

The *Fisheries Act* defines habitat as "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas". Further DFO provides guidance regarding the need for their review of a project.

4. Existing Conditions

4.1 Aquatic Resources

Aquatic resources within the study area drain to Irvine Creek, which is associated with several tributaries that all drain into the Grand River within the Conestogo River and Grand River watersheds. The onsite aquatic systems are composed of a single drainage feature which is highly channelized and surrounded by agricultural lands, portions of woodland and the golf course (**Figure 2**). It is our understanding that

this feature was historically created (i.e., dug) to collect surface water runoff from surrounding agricultural lands.

The aquatic habitat assessment was completed within the municipal drain on the study area by Beacon field Ecologists on March 24, 2021. The findings of the aquatic habitat assessment are presented below. A single reach was assessed in the drain. The assessment was completed from the west side of Wellington Road 19 from the culvert and continues through the golf course on the study area and off the study area to the southeast.

The municipal drain within the study area is approximately 550 m in length, beginning east of Wellington Road 19 at the upstream culvert and underground pass. This portion of the channel is all part of the culvert drainage which connects to Irvine Creek and receives all flows from the tile drain across the street of Wellington Road 19 as well as roadside drainage. The culvert drains directly into Irvine Creek which is classified as a single run with an average wetted width of 3.6 m and an average water depth of 0.14 m. Average bank full width was 5.4 m with an average depth of 0.7 m. Substrate was predominantly sandy silt throughout the reach with significant organic leaf matter. The portion of the creek associated with the woodland was noted as slowly moving water with significant woody debris. The overall flow of the reach was slow with portions of standing water and no observed riffles or pools. Towards the downstream section of the reach where the culvert crosses the overground pass, flow is improved. Numerous flowing steel culverts were noted which stemmed from off site tile drains. Vegetation was observed within the creek in portions of the creek downstream of the woodland. Vegetation within the riparian area was dominated by grasses, Red-osier Dogwood (*Cornus sericea*), Willow (*Salix Sp*.), and Poplars (*Populus sp*). The water temperature was recorded as 6.2 °C at the time of year (March 24, 2021).

Overall, based on observations, water conditions and flow, the reach associated with Irvine Creek is considered as poor fish habitat.

4.2 Terrestrial Resources

4.2.1 Vegetation Communities

The majority of the study area consist of an active golf course. The study area also supports wetlands, forests, thicket, and meadow features. Vegetation communities identified on the study area are illustrated in **Figure 2**.

ELC Unit 1: Anthropogenic

Portions of the study area classified as Anthropogenic includes the active golf course lands on the study area. Vegetation in this area consists of manicured turf and trees, notably dead/dying Green Ash (*Fraxinus pennslyvanica*), Freeman's Maple (*Acer x freemanii*), and Eastern Cottonwood (*Populus deltoides*).

ELC Unit 2: Dry-Moist Old Field Meadow (CUM1-1)

These meadow areas are dominated by cool season grasses (e.g., *Poa pratensis*, *Bromus inermis*), Tall Goldenrod (*Solidago altissima*), asters (*Symphyotrichum* spp.), and

ELC Unit 3: Cultural Meadow (CUM1)

This unit is a more recently disturbed area comprised of ruderal herbaceous species such ragweed (*Ambrosia artimisiifolia*), Red clover (*Trifolium pratense*), grasses, Bird's Foot Trefoil (*Lotus corniculatus*), and Horseweed (*Erigeron canadense*).

ELC Unit 4: Hedgerow (HE)

This hedgerow is dominated by Green Ash (the majority of which are dead or declining), Trembling Aspen (*Populus tremuloides*), Manitoba Maple (*Acer negundo*).

ELC Unit 5: Cultural Woodland (CUW1)

Two small woodlands are located at the south end of the study area.

Unit 5a is dominated by European Ash (*Fraxinus excelsior*), Manitoba Maple, Green Ash, Pear (*Pyrus communis*), Domestic Apple (*Malus pumila*). Dominant groundcovers are Tall Goldenrod, Smooth Brome Grass (*Bromus inermis*), Wild Strawberry (*Fragaria virginiana*), and Tall Agrimony (*Agrimonia gryposepela*).

Unit 5b is a small patch of young regenerating White Cedar (*Thuja occidentalis*).

ELC Unit 6: Cultural Thicket (CUT1)

This community consists of dense regenerating Trembling Aspen and Red-osier Dogwood. Groundcovers include Tall Goldenrod, Smooth Brome, Wild Strawberry and asters.

ELC Unit 7: White Pine Coniferous Plantation (CUP3-2)

This community is dominated by mid-aged planted White Pine (*Pinus strobus*). The understory consists of Green Ash, Alternate-leaved Dogwood, and Wild Red Raspberry. Groundcovers are sparse, but include Tall Goldenrod, Green Ash seedlings, Thicket Creeper (*Parthenocissus vitacea*), and avens (*Geum* sp).

ELC Unit 8: Fresh-Moist Lowland Deciduous Forest (FOD7)

This community describes much of forested areas on the study area. The community is dominated by Green Ash (much of which is dying off), Trembling Aspen, White Elm (*Ulmus americana*), Manitoba Maple, with occasional Sugar Maple (*Acer saccharum*), White Birch (*Betula papyrifera*), and Black

Cherry (*Prunus serotina*). The understory is dense and dominated by Choke Cherry (*Prunus virginiana*) and Alternate-leaved Dogwood (*Cornus alternifolia*) in association with Wild Black Currant (*Ribes americanum*), Green Ash, Black Ash (*Fraxinus nigra*), and Wild Honeysuckle (*Lonicera dioica*). Ground covers include Thicket Creeper, Wild Strawberry, Enchanter's Nightshade (*Circea canadensis*), Northern Dewberry (*Rubus pubesens*), Garlic Mustard (*Alliaria petiolota*), Jewelweed (*Impatiens capensis*), and avens (*Geum* sp).

ELC Unit 9: Green Ash Mineral Deciduous Swamp (SWD2-2)

This swamp feature is dominated by Green Ash (much of which his dying off), Trembling Aspen, Balsam Poplar (*Populus balsamifera*) and Crack Willow (*Salix x fragilis*). The understory is dominated by Red-osier Dogwood, Wild Red Raspberry (*Rubus idaeus* ssp *strigosus*), Bebb's Willow (*Salix bebbiana*), and Wild Black Currant. Dominant ground covers are, Fowl Manna Grass (*Glyceria striata*), Smooth Goldenrod (*Solidago gigantea*), and Sensitive Fern (*Onoclea sensibilis*).

ELC Unit 10: Willow Mineral Thicket Swamp (SWT2-2)

ELC Units 10a/10b, located at the north end of the study area are dominated by Meadow Willow (*Salix petiolaris*) in association with Pussy Willow (*Salix discolor*), Red-osier Dogwood, and Balsam Poplar saplings. Dominant groundcovers are Tall Goldenrod, Lance-leaved Aster (*Symphyotrichum lanceolatum*), New England Aster (*Symphyotrichum novaea-anglia*), and Purple Loosestrife (*Lythrum salicaria*).

ELC unit 10c is dominated by Pussy Willow, Bebb's Willow, Meadow Willow, Heart-leaved Willow (*Salix eriocepheala*), and Red-osier Dogwood. Ground covers include a mix of old meadow and meadow marsh species, including Tall Goldenrod, Lance-leaved Aster, Fox Sedge (*Carex vulpinoidea*), and Grass-leaved Goldenrod (*Euthamia graminifolia*). Localized wetter areas support Narrow-leaved Cattail (*Typha angustifolia*).

ELC Unit 11: Forb Mineral Meadow Marsh (MAM2-10)

ELC Unit 11a, located at the north end of the study area, is dominated by Lance-leaved Aster and Narrow-leaved Cattail.

Unit 11b, located toward the south end of the study area, is associated with a dug pond, which dries out in the summer. Dominant ground covers are Silverweed (*Potentilla anserina*), Variegated Horsetail (*Equisetum variegatum*), Reed Canary Grass, and Lance-leaved Aster.

ELC Unit 12: Shallow Aquatic (SA) – Golf course ponds

There are several small golf course irrigation ponds on the study area. The dominant vegetation in the ponds is charophyte green algae (*Chara* spp.). Emergent vegetation along the pond edges includes Narrow-leaved Cattail, Reed Canary Grass, and Soft-stem Bulrush (*Schoenoplectus tabernamontanii*).

4.2.2 Floral Inventory

A total of 139 species of vascular plants was identified on the study area. A list is provided in **Appendix B**. Of the 139 species, 43 (31%) are non-native to Ontario. The majority of native species are common and secure in Ontario and Wellington County.

One species, Black Ash, was recently designated Endangered by COSSARO. Black Ash was documented in ELC units 8 and 9, primarily in the understory. The majority of mature ash trees on the property are dead or declining as a result of Emerald Ash Borer. No mature Black Ash were observed. It is Beacon's understanding that MECP is temporarily pausing the protections for Black Ash under the ESA for two years from the time it is added to the SAR in Ontario List.

Based on the Draft Wellington County Vascular Plant List (Cecile 2021), two species documented on the property are considered uncommon in Wellington County, including Variegated Horsetail (*Equisetum variegatum*) and Hairy Honeysuckle (*Lonicera hirsuta*). No regionally rare species were identified.

4.2.3 Breeding Birds

A total of 30 species were documented on the study area (**Appendix C**). This diversity is reflective of the variable habitats present on the study area, dominated by meadow and open anthropogenic spaces along with smaller areas of woodland, thicket, and wetland. Observations were most concentrated away from the open spaces.

The avian community is comprised of species indicative of urban and rural settings. The most abundant species was Savannah Sparrow (*Passerculus sandwichensis*) with 11 territories recorded, while other meadow species included Eastern Kingbird (*Tyrannus tyrannus*), Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*).

Most of the breeding records were of common disturbance-tolerant species often found near human habitation. These included Black-capped Chickadee (*Poecile atricapillus*), House Wren (*Troglodytes aegon*), American Robin (*Turdus migratorius*), Warbling Vireo (*Vireo gilvus*), Song Sparrow (*Melospiza melodius*), Chipping Sparrow (*Spizella passerina*), Red-winged Blackbird (*Agelaius phoeniceus*), and American Goldfinch (*Spinus tristus*), all with multiple territories.

The woodland community in the eastern-central portion of the study area supported territories of Red-bellied Woodpecker (*Melanerpes carolinus*), Eastern Wood-Pewee (*Contopus virens*), Great-crested Flycatcher (*Myiarchus crinitus*), Red-eyed Vireo (*Vireo olivaceus*), and American Redstart (*Setophaga ruticilla*). Surrounding thickets provided habitat for other species including Alder Flycatcher (*Empidonax alnorum*), Gray Catbird (*Dumetella carolinensis*), Yellow Warbler (*Setophaga petechia*), Mourning Warbler (*Geothlypis philadelphia*), Common Yellowthroat (*Geothlyphis trichas*) and Indigo Bunting (*Passerina cyanea*).

Area-sensitive birds require larger tracts of suitable habitat in which to breed or are those that have a higher breeding success in larger areas of suitable habitat. Four such species were recorded. The first of these, American Redstart, is a forest-sensitive species which requires large areas of woodland habitat in which to breed successfully. However, unpaired singing males are routinely observed in smaller patches of woodland. In this case, four territories were recorded. The other three, Savannah Sparrow,

Bobolink, and Eastern Meadowlark, are grassland-sensitive species requiring large areas of open habitat for successful breeding. While Savannah Sparrow is a common breeder in a wide variety of such open habitats, including old-field and agricultural edge habitat, the other two species are less common and declining.

Although no species provincially ranked as S1 through S3 (Critically Imperiled through Vulnerable) were encountered, two species regulated under the ESA were recorded: the previously mentioned Bobolink and Eastern Meadowlark. Both are listed as Threatened federally and provincially, with one and two territories recorded respectively. The meadowlark breeds in a variety of grassland habitats including hayfields, pasturelands and weedy meadows. Its populations initially increased in Eastern Canada following settlement and the clearance of forests in favor of pasturelands and hayfields, but it has faced significant declines since the mid-20th century due to changes in agricultural practices (COSEWIC 2011). Two territories of this species were observed, one each in the northern and southern meadows. The Bobolink has experienced similar population trends but has more limited habitat preferences than the meadowlark, and avoids more marginal weedy habitats (McCracken *et al*. 2013, COSEWIC 2010). One territory of this species was recorded in the southern meadow.

Additionally, one species listed as Special Concern, Eastern Wood-Pewee, was observed with one territory present. Though this species is special concern provincially and federally based on a declining trend over their range, these birds remain relatively common in both urban and urbanizing woodlands. They are somewhat tolerant of forest fragmentation and will live in both edge habitats and forest interiors. Special Concern species are not afforded with habitat protection under the ESA.

4.2.4 Amphibians

Five frog species and one toad species were recorded from four out of the five stations on the study area during the 2021 nocturnal amphibian call surveys. Species included American Toad (*Anaxyrus americanus*), Green Frog (*Rana clamitans*), Gray Tree Frog (*Hyla versicolor*), Northern Leopard Frog (*Lithobates pipiens*), Spring Peeper (*Pseudacris crucifer*) and Wood Frog (*Lithobates sylvaticus*). The findings of these amphibian breeding surveys are summarized in **Table 4**.

The primary amphibian breeding areas on the property are all in a linear formation where Pond 1 is found in the north end and continues numerically to Pond 5 in the south end of the study area (**Figure 2**).

Table 4. Breeding Amphibian Survey Results (2021)

Station (Figure 2)	Survey 1 (April 6, 2021)	Survey 2 (May 18, 2021)	Survey 3 (June 10, 2021)
1	WOFR – 1(1)	NLFR - 1(1)	GRFR - 1(1)
2	SPPE - 2(10) WOFR - 1(1)	AMTO - 2(4) GRTR - 1(1) SPPE - 1(3)	GRFR - 2(6) GRTR - 1(3)
3	WOFR – 1(1)	GRTR – 1(1) SPPE – 2(10)	GRFR - 1(5) GRTR – 1(3)
4	No Calls	No Calls	No Calls
5	WOFR –2(5) SPPE – 3	AMTO – 1(1)* SPPE – 1(1)	AMTO – 1(1) SPPE – 1(1)

* = Call recorded from outside of station area
AMTO = American Toad, GRFR = Green Frog, GRTR = Gray Tree Frog, SPPE = Spring Peeper, WOFR = Wood Frog

Code 0 - No calling
Code 1 - Individuals can be counted; calls not simultaneous. Estimated number of individuals indicated in brackets
Code 2 - Calls distinguishable; some simultaneous calling. Estimated number of individuals indicated in brackets
Code 3 - Full chorus; calls continuous and overlapping.

No amphibians were heard calling on any survey evenings within the survey area at station four. This area of the wetland was noted to be dry which made this habitat area unsuitable for breeding amphibians.

No threatened or endangered amphibian species were recorded on the study area.

4.2.5 Turtles

Surveys for basking turtles within the wetlands and ponds on the study area did not record any turtles using the habitat within the study area.

4.2.6 Bats

Bat Habitat Assessment

Through these surveys, a total of 30 snag trees were recorded within the 10 surveyed plots and provide candidate maternity roosting habitats on the study area. A summary of these snag trees are included in **Appendix A**. Detailed descriptions of the ELC communities that were surveyed for bat habitat are provided in **Section 4.2.1**.

Since the area of each plot is 0.05 ha ($A = \pi r^2$), bat maternity roost tree density for the woodlands is calculated as shown in **Appendix A**. Based on these calculations the deciduous woodlands on the study area provides potential bat maternity roosting at greater than 20 snags/ha at all surveyed plots.

Acoustic Monitoring

The analysis showed the presence of SAR bat activity at 12 of the 15 detectors deployed. These detectors were placed throughout the forest and woodland communities on the study area to confirm presence/absence of bat species in areas with identified candidate bat maternity roost habitat.

Little Brown Myotis was detected at 11 detectors (5, 6, 9, 11, 12, 14, 17 and 18). In total there were 257 Little Brown Myotis calls recorded within the woodlands on the study area, 160 of which were recorded almost nightly around detector 17.

Northern Myotis was detected at three of the detectors (14, 15 and 17). In total there were 21 Northern Myotis calls recorded on the study area, 19 of which were recorded around detector 17.

A total of 6 identified SAR bat calls were recorded between 9:00 pm and 10:00 pm on 3 of the 18 nights that the detectors were deployed. Two Little Brown Myotis calls were recorded around detector 12 on July 1, 2021 and occurred within a 5 minute period of each other, suggesting these calls were from the same individual. One little Brown Myotis call was recorded around detector 17 on June 29, 2021. One

Little Brown Myotis call and one Northern Myotis call were recorded around detector 17 on June 22, 2021. Finally, one Northern Myotis call was recorded around detector 17 on June 27, 2021.

The low number of SAR calls during the typical bat emergence period (i.e., 9:00 pm to 10:00 pm) suggests that the wooded features on the study area do not provide maternity roost habitat for SAR bat species. Beacon is of the opinion that the wooded habitat on the study area, particularly that around detectors 17, 14 and 11 (where the majority of SAR calls were recorded) provides foraging or flyover habitat for SAR bats.

Other species detected on site include Hoary Bat (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycteris noctivagans*), Big Brown Bat (*Eptesicus fuscus*) and Eastern Red Bat (*Lasiurus borealis*).

Bat Exit Survey

No bats were observed exiting or entering either of the buildings over the two evenings of surveys. The digital files from each detector were analyzed using specialized software to determine if any regulated bat species are present in the area.

The results of the acoustic analysis determined the presence of many bats, comprised of four species as summarized in **Table 5** below.

Table 5. Acoustic Monitoring Results

Date	Species Identification				Total
	Big Brown Bat	Hoary Bat	Silver-haired Bat	Little Brown Myotis	
July 25, 2021	61	39	9	-	109
July 26, 2021	74	26	22	4	126
Total	**135**	**65**	**31**	**4**	**235**

During these surveys a total of 135 Big Brown Bat, 65 Hoary Bat (*Lasiurus cinereus*), 31 Silver-haired Bat and 4 Little Brown Myotis calls were recorded flying in the vicinity of the two buildings, but no bats were observed exiting or entering either of the buildings during these surveys.

Of the species recorded during the exit surveys, Little Brown Myotis is the only species listed as endangered under the ESA. None of the other species are listed under the ESA. Given that no bats were observed entering or exiting either of the buildings on the study area, it can be concluded that endangered bat habitat is not associated with the buildings.

4.2.7 Endangered or Threatened Species

As described in the preceding sections, Beacon staff conducted both desktop and on-site investigations to assess whether any Endangered or Threatened species were likely to occur on or adjacent to the study area. **Table 6** provides Beacon's assessment based on the results of field investigations

combined with knowledge of the habitat preferences and natural history of the species being considered.

Table 6. Endangered and Threatened Species (Provincial)

Species	Status on SARO List	Were Species and/or Habitat Documented during on-site Assessment?
Vascular Plants (Dicots)		
Butternut, *Juglans cinerea*	END	**No,** a targeted search for Butternut trees (*Juglans cinerea*) was conducted. This species is a provincially and nationally endangered tree species that, while still relatively common in southern Ontario, has been listed because the population has been declining due to the presence of a Butternut Canker disease. No Butternut were present on the study area.
Reptiles and Amphibians		
Blanding's Turtle, *Emydoidea blandingii*	END	**No;** although suitable habitat such as wetlands, aquatic and adjacent terrestrial communities are present on the study area, basking turtle surveys were conducted and no turtles were recorded on the study area.
Birds		
Bank Swallow, *Riparia riparia*	THR	**No**, vertical exposed banks (suitable habitat) are not present at this location.
Barn Swallow, *Hirundo rustica*	THR	**No**, a habitat assessment was undertaken during the site visit for this species. These birds construct conspicuous mud-based nests on the exterior of structures. Although structures were present on the study area, no Barn Swallow were recorded on the study area during breeding bird surveys.
Chimney Swift, *Chaetura pelagica*	THR	**No**, a habitat assessment was conducted and although one chimney was present on a house on the study area, it was capped and therefore unsuitable for Chimney Swift nesting or roosting habitat. In addition, no Chimney Swift were recorded on the study area during breeding bird surveys.
Bobolink, *Dolichonyx oryzivorus*	THR	**Yes,** grassland habitat is present on the study area. One Bobolink breeding territory was recorded in the southern meadow on the study area during the breeding bird surveys.
Eastern Meadowlark, *Sturnella magna*	THR	**Yes,** grassland habitat is present on the study area. Two Eastern Meadowlark breeding territories were recorded, one in the northern meadow and one in the southern meadow on the study area during the breeding bird surveys.
Eastern Whip-poor-will, *Antrostomus vociferus*	THR	**No**, the forest communities on the study area are not suitable breeding habitat for this species. This species typically breeds in large forests with openings which are not present on the study area. In addition, the breeding bird surveys and evening surveys on the study area did not detect this species.
Northern Bobwhite, *Colinus virginianus*	END	**No;** although marginal breeding habitat is present, the Northern Bobwhite is no longer found in the area where the study area is located. None were observed during breeding bird surveys.
Mammals		
Endangered Bats	END	**No** suitable overwintering habitat present.

Species	Status on SARO List	Were Species and/or Habitat Documented during on-site Assessment?
Little Brown Myotis, *Myotis lucifugus* Northern Myotis, *Myotis septentrionalis* Tri-colored Bat, *Perimyotis subflavus* Eastern Small-footed Myotis, *Myotis leibii*		Although the snag surveys found potential maternity roosting habitat within the woodland communities on the study area, the results of the acoustic monitoring demonstrated that only foraging and flyover habitat was present. Although two structures are present on the study area, bat exit surveys were conducted and the results confirmed that no endangered bats are using the structures as roosting habitat.

SARO: Species at Risk in Ontario List
END: Endangered
THR: Threatened

Based on the above assessment in **Table 6** and on-site investigations, there is suitable habitat present for the threatened Eastern Meadowlark and Bobolink on the study area. These species are discussed in Section 5.4.

4.2.8 Incidental Wildlife

A number of incidental wildlife species were recorded during field investigations on the study area. Some of the bird species recorded included: Blue Jay (*Cyanocitta cristata*), Hairy Woodpecker (*Dryobates villosus*), Turkey Vulture (*Cathartes aura*) and Mallard (*Anas platyrhynchos*). Mammal species recorded on the study area included White-tailed Deer (*Odocoileus virginianus*), and Grey Squirrel (*Sciurus carolinensis*). Evidence of Coyote (*Canis latrans*) present on the study area was also recorded.

Other common mammal species that are likely present on and adjacent to the study area include Raccoon (*Proycon lotor*), Striped Skunk (*Mephitis mephitis*), Meadow Vole (M*icrotus pennsylvanicus*) and/or Red Fox (*Vulpes vulpes*).

5. Natural Heritage Features and Constraints

The natural heritage features of the study area are discussed in the next paragraphs in the context of the proposed redevelopment, the results of the vegetation and wildlife surveys, and based on applicable policy and regulations related to natural heritage.

5.1 Woodland

The main natural heritage feature of the study area is the central woodland/wetland feature (ELC communities 8b and 9, **Figure 2**). A portion of these woodlands is associated with Core Greenlands on

Schedule A1 of the County of Wellington Official Plan. These woodlands, however, do not meet the criteria for significant woodlands as they are too small in size per the County Official Plan (less than 4 ha). They are also generally separated by more than 30 m, and therefore are not considered a single woodland under the Wellington County Forest Conservation Bylaw. This portion of woodland on the study area includes the Green Ash Mineral Deciduous Swamp. It also supported the majority of the forest birds observed on the study area and high concentrations of bats.

A narrow woodland feature and contiguous White-Pine Coniferous Plantation (ELC communities 8a and 7, **Figure 2**) are present just outside the central woodland/wetland feature. These woodlands are not associated with Core Greenlands and do not meet the criteria for significant woodlands.

An additional small wooded feature (ELC community 8c, **Figure 2**) is present to the south of the central wetland/woodland feature. This woodland is also not associated with Core Greenlands and does not meet the criteria for significant woodlands. This woodland will be retained with the proposed redevelopment plan.

The cultural woodlands located at the southernmost portion of the study area (ELC community 5a and 5b, **Figure 2**) are small in size and do not meet the criteria for significance.

5.2 Wetlands

There are three wetland communities that occur on the study area: Thicket Swamp, Meadow Marsh and Deciduous Swamp. These communities have not been evaluated through OWES and are not considered significant. All of these communities are associated with portions of the Core Greenlands on Schedule A1 of the County of Wellington Official Plan and are regulated by the GRCA. The wetland boundaries were staked and confirmed by the GRCA in September 2021.

The central wetland feature (ELC community 9, **Figure 2**), is the largest (1.92 ha) wetland community on the study area and is associated with the central woodland feature. There is an open water pond within the staked wetland boundary, which is used for irrigation. It contains an abundance of algae and emergent vegetation along its edges. No turtles were observed in this, or any of the open water ponds on the property.

The wetland feature in the north end of the study area (ELC communities 10a, 10b, 11a and 12a, **Figure 2**) is 0.46 ha in area and is comprised of a willow thicket swamp and meadow marsh and open water. The open water portion of this wetland is a pond used for golf course irrigation. No turtles were observed during basking surveys and only single individuals of Green Frog, Northern Leopard Frog and Wood Frog were heard calling during anuran surveys. The wetland does not support an abundance of wildlife and is overall low functioning.

A second, isolated pond (ELC community 12b, **Figure 2**), is also an irrigation pond, measuring 0.08 ha in area. As a ponded area through the year, it supported several species of amphibians throughout the breeding season. The pond is anthropogenic in origin and used for irrigation.

The wetland feature in the south end of the study area (ELC community 11b, **Figure 2**) is 0.17 ha in area and is a meadow marsh, associated with a shallow dug pond which dries up by summer. Early breeding amphibians (i.e., wood frogs and spring peepers) were heard calling from this ponded area, and for later surveys, a single individual American Toad was calling as well.

5.3 Fish Habitat

A constructed municipal drain (Black Drain) traverses the study area and flows through the central wetland feature in a north-south direction. As described in Section 4.1, this feature is contained within a straight, dug channel and its riparian conditions are not associated with the adjacent wetland. It is a flat run throughout without varied morphology or substrate. Through the aquatic habitat assessment completed in March 2021, it was determined that poor fish habitat was associated with the reach that drains to Irvine Creek.

5.4 Habitat of Endangered and Threatened Species

The provincially threatened Eastern Meadowlark and Bobolink were confirmed breeding on the study area within the northern and southern meadows (ELC communities 2a and 2b, **Figure 2**) during the June 2021 breeding bird surveys. One Bobolink breeding territory and one Eastern Meadowlark breeding territory were recorded in the southern meadow and one Eastern Meadowlark breeding territory was recorded in the northern meadow. Under the habitat regulations for these species, it is possible to remove the habitat provided suitable new habitat is created within the same ecoregion. MECP has developed species specific guidelines and regulations to address habitat removals. Prior to removal of the meadow habitat, a plan must be developed in accordance with MECP guidelines to ensure compliance with the regulations.

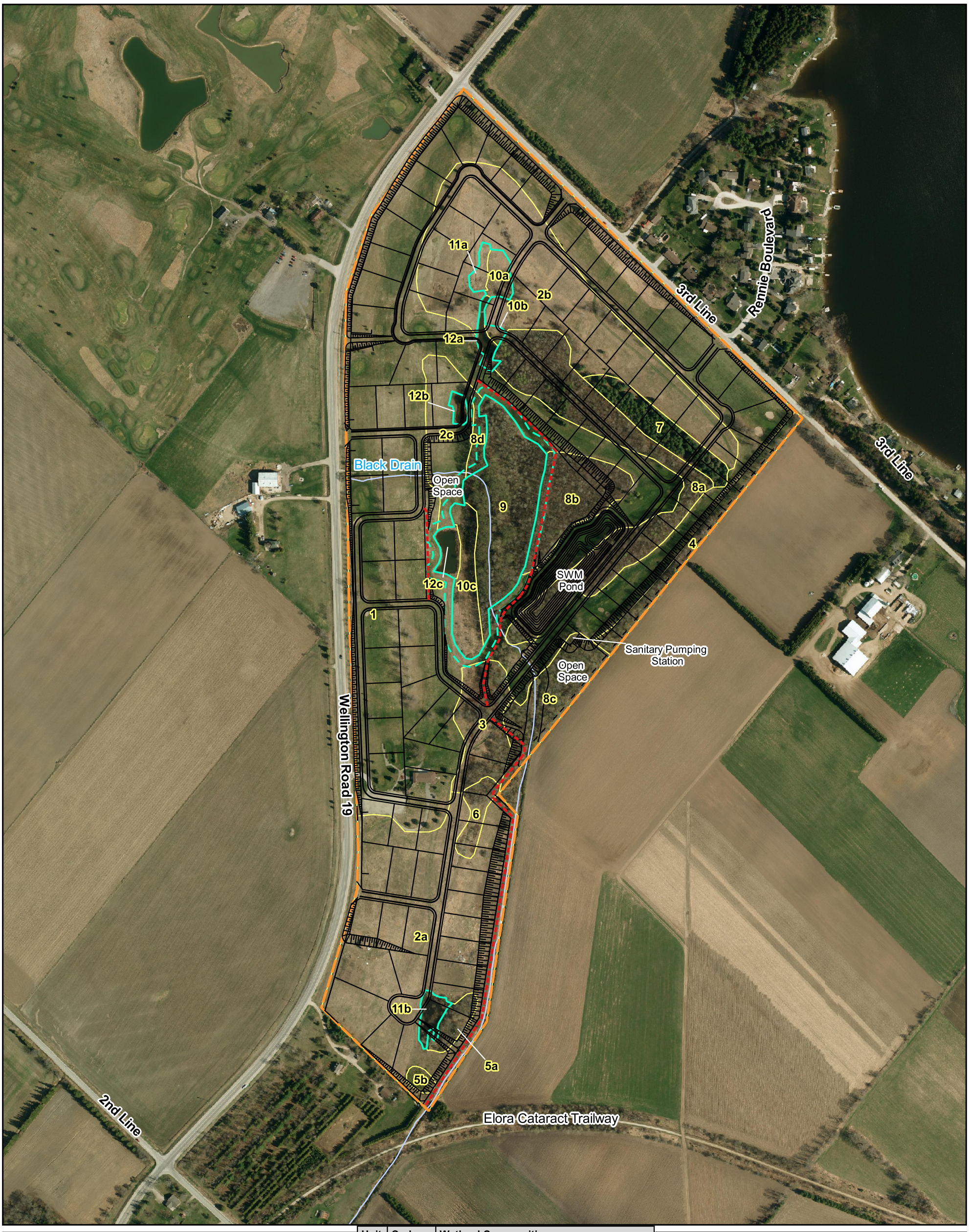
Two species of endangered bats, Little Brown Myotis and Northern Myotis, were recorded during acoustic monitoring in June 2021 within the central woodland communities, in particular, within ELC communities 8b, 8c and 8a (**Figure 2**). It was concluded that due to the low number of these endangered bat calls during the typical emergence period, the woodland communities do not provide maternity roosting habitat and instead provide foraging or flyover habitat. Nonetheless, MECP will be consulted to ensure conformity with the ESA.

No other threatened or endangered species were recorded on the study area.

6. Proposed Development

The description of the proposed redevelopment is based on the Preliminary Concept Plan prepared by GSP Group (GSP; 2021) and the Functional Servicing Report – Fergus Golf Course Development prepared by R.J. Burnside & Associates Limited (Burnside; 2022a).

The study area is proposed to be redeveloped with 118 single family dwelling lots, a 1.04 ha open space block (south of the existing wetland), including a proposed sanitary pumping station, a stormwater management (SWM) pond for quantity and quality control, another open space block (5.31 ha), which includes the existing Black Drain and will preserve the existing wetland. The proposed redevelopment plan is shown in **Figure 3**.



Legend

- Study Area
- Ecological Communities
- Wetlands (as staked by Beacon on June 23 & July 9 2021 and confirmed by GRCA on September 27, 2021)
- Wetland + 10 m
- Watercourse (MNRF 2021)
- Proposed Development
- Conceptual Trail Alignment

Units	Code	Wetland Communities
10	SWT2-2	Willow Mineral Thicket Swamp
11	MAM2-10	Forb Mineral Meadow Marsh
9	SWD2-2	Green Ash Mineral Deciduous Swamp
		Aquatic Communities
12	SA	Shallow Water
		Forest Communities
8	FOD7	Fresh - Moist Lowland Deciduous Forest
		Cultural Communities
2	CUM1-1	Dry - Moist Old Field Meadow
3	CUM	Cultural Meadow
5	CUW	Cultural Woodland
6	CUT	Cultural Thicket
7	CUP3-2	White Pine Coniferous Plantation
		Other Communities
1	ANT	Anthropogenic
4	HE	Hedgerow

Proposed Development

Figure 3

Fergus Golf Club EIS

BEACON ENVIRONMENTAL

Project: 221111
Last Revised: February 2022

Client: Fergus Development Inc.

Prepared by: BD
Checked by: CG

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6.1 Servicing

The study area will be serviced by a private communal water and sanitary system with treatment facilities proposed on the northwest parcel. Key servicing details, as they relate to natural environment features, are provided below and in greater detail within the Functional Servicing Report (Burnside 2022a) and Fergus Golf Club Stormwater Management Report (Burnside 2022b).

6.1.1 Stormwater Management

A single SWM facility is proposed for the study area (Burnside 2022b). This SWM pond is an off-line SWM wet pond, with an outlet to the Black Drain which will receive most of the drainage from the study area. The SWM pond will be located east of the central wetland feature. There are multiple uncontrolled areas that will drain from the study area which have been accommodated in the allowable release rate from the SWM facility.

The minor storm system will be a series of storm sewers sized to convey the 5-year return period storm as per the Township of Centre Wellington standard. The storm sewers will follow the roads within the proposed redevelopment and ultimately outlet to the SWM pond in the middle of the study area. There will be another piped outlet to the Black Drain of uncontrolled flows at the southwest corner of the study area. This outlet will include an oil-grit separator and/or a surface Low Impact Development (LID) measure to provide quality control prior to discharging to the Black Drain.

The major storm system flow route will follow a combination of proposed ROWs and overland flow blocks to convey overland flows from major storm events, up to and including the 100-year storm event. The major system flows will be directed to the proposed SWM pond. The entire 100-year flow will be contained within the major system flow route.

Further details about the post-development flow and external drainage areas are discussed in Burnside's Stormwater Management Report (2022b).

6.1.2 Water Supply

The proposed water supply for the development will be delivered by one of the existing wells on the northwest parcel (on the north side of Wellington Road 19). A 150 mm watermain is proposed to distribute water from the wells. The proposed routing and connection points of this watermain are provided in the Functional Servicing Report (Burnside 2022a).

6.1.3 Wastewater and Sanitary Servicing

A new communal wastewater treatment facility is proposed to service the development, to consist of a wastewater treatment system with beds for dispersal of treated effluent into the subsurface (Burnside 2022a).

Wastewater from all of the residential units in the proposed redevelopment will be collected in a gravity sewer system and conveyed to a pumping station located on the east side of the proposed open space

block along the southern boundary of the study area. The pumping station will pump sewage to the proposed onsite wastewater treatment facility on the northwest parcel.

The proposed dispersal beds will be located on the northwest parcel. These dispersal beds would be constructed in approximately ten separate beds to distribute the effluent. The proposed dispersal beds would be constructed using raised Type A Dispersal Beds, which consist of a 200 mm stone layer protected by geotextile and underlain by a sand layer. Further details are provided in the Functional Servicing Report (Burnside 2022a).

6.2 Grading

The site will be graded in accordance with the Centre Wellington grading and drainage criteria. As per the FSR (Burnside 2022a), the proposed grading plan will satisfy the criteria as follows:

- *Incorporate existing grades at road access points to Wellington Road 19 as well as Third Line;*
- *Matching of existing boundary grades at the property limits as well as existing wetland and wooded areas for protection;*
- *Optimization of earthworks (i.e., minimizing fill);*
- *Provision for adequate cover on proposed services;*
- *Provision for overland flow conveyance on the roadways to the proposed SWM ponds (i.e., major system storm drainage and emergency overland flow); and*
- *Conveyance of stormwater within site and minimize external runoff.*

The proposed road grades allow for overland flow conveyance on the future roads in order to direct major storm drainage to the future SWM pond located south of the existing wetland.

The proposed grading plan will generally match existing grades along Black Drain, surrounding the central wetland/woodland feature and surrounding the woodland feature to the south with all grading occurring within the proposed lots, streets, SWM pond block and sanitary pumping station. A few locations adjacent to the Black Drain corridor, central wetland/woodland feature and the south woodland feature will require minor grading into the buffer. These grading encroachments are further discussed in Section 7.6, unless otherwise noted.

6.3 Roads

Two major access roads for the proposed subdivision will be provided along Wellington Road 19 as well as Third Line to allow a smooth connection between both existing roads.

Two crossings of Black Drain are proposed for connectivity, neighborhood structure and traffic flow. The crossings are located in areas that are already disturbed by the presence of the golf course. The remainder of the proposed roads on the study area are located away from the central natural features and are mainly proposed within areas that are already landscaped or degraded habitat. Additional discussion is provided in Section 7.7.

6.4 Amenities – Trails and Open Space

The proposed redevelopment plan includes Open Space blocks in two locations: surrounding the central woodland/wetland feature and surrounding the smaller woodland feature to the south as well as a proposed trail system (**Figure 3**).

7. Potential Impacts and Mitigation

Background review and field investigations have been completed for the study area. The proposed redevelopment is generally confined to lands that are already disturbed, anthropogenic areas with a building, driveway, shed, landscaped areas and existing golf course and associated golf course infrastructure such as dug out ponds. The central portion of the study area includes woodlands, wetlands and a municipal drain which represent portions of the Core Greenlands on the study area, in accordance with the criteria set out in the applicable natural heritage policy documents. The study area is located in an area that is already highly developed and subject to existing rural and agricultural stressors and disturbances (e.g., noise, light, landscaping and vegetation maintenance). Accordingly, it is anticipated that negative effects to natural heritage will be minimal. However, appropriate mitigation will be required to protect the remaining natural heritage features (a) during the construction phase and (b) following completion of construction, as discussed below.

7.1 Buffers and Development Design

The central wetland feature will be protected with a 10 m buffer applied around the perimeter of this feature (**Figure 3**). Further, the redevelopment plan has been designed to retain as much of the associated woodland feature as possible. An open space block has been situated to retain most of ELC community 8c, and the eastern property boundary hedgerow.

7.2 Stormwater Management Plan

The implementation of a SWM Plan is required to protect the natural environment from the following:

- Increased risk of flooding to downstream areas;
- Erosion of Black Drain channel from uncontrolled surface water runoff and flows; and
- Impaired water quality and increased turbidity leading to impacts to fisheries, macroinvertebrates and aquatic vegetation.

A complete SWM plan has been developed by Burnside (2022b). The analysis determined that one stormwater management wet pond facility is required for quality and quantity control. The location of this facility is shown in **Figure 3**.

The SWM Pond will be located at a low point on the study area, immediately south of the central wetland feature. This SWM pond will require grading to create 5:1 side slopes and a 5 m wide access road to provide access to the forebay, pond inlet and outlet. The pond outlet will be directed to the Black Drain.

The requirement for a pond liner will be determined at detailed design in order to maintain a permanent pool based on the groundwater levels observed.

A conveyance capacity analysis was performed on the Black Drain to ensure that proposed release rates of the SWM pond would not result in any erosion or flooding impacts.

7.2.1 Low Impact Development Techniques

Low Impact Development (LID) techniques will be implemented where appropriate throughout the development, to lessen the impacts associated with stormwater. These are discussed in detail in Section 6.6 of the SWM Report (Burnside 2022b) and include various lot level and conveyance controls. The following Best Management Practices have been proposed for implementation as part of the overall LID strategy and water balance mitigation.

- Direction of residential roof downspouts to ground surface (within the lot); and
- Grassed swales in sideyards and backyards.

Due to the average depth of groundwater in the spring season being approximately 0.5 m below grade, it is recommended to not implement subsurface LIDs on the study area.

7.3 Water Balance

Based on the preliminary water balance results (Golder 2022), site-wide infiltration is expected to decrease by 14% and runoff is expected to increase by 88% post-development, including downspout disconnection. It is recommended to consider additional LID mitigation features in order to maintain pre-development infiltration on a site-wide basis. Given the average depth to groundwater being approximately 0.5 m below grade, there is very low feasibility to implement subsurface LIDs. There may be opportunities to provide other LIDs, which will be explored at detailed design.

7.4 Wastewater and Sanitary Servicing

The proposed gravity sewer system for the study area will be located within the roads. There are two crossing locations of the roads over the Black Drain. The Black Drain will be protected through a culvert in these locations.

The proposed sanitary pumping station will be located in the northeast corner of the south open space block, adjacent to the woodland feature within this block. Potential impacts associated with this location include vegetation removal, noise and light effects on wildlife. Various environmental and design mitigation measures will be implemented to ensure the protection of the woodland and wildlife within the woodland. This will include developing detailed plans for Erosion and Sediment Control (ESC), construction and post-construction monitoring, and contingency plans.

The proposed wastewater treatment system and dispersal beds will be located on the northwest parcel, on the north side of Wellington Road 19, and will not have direct impacts on the natural heritage features or wildlife on the study area.

7.5 Grading

The proposed grading plan has been designed to mimic the existing drainage to Black Drain to the extent possible. The grading plan design will allow for major storm drainage to be directed to the proposed SWM pond which will outlet to the Black Drain.

Grading for the study area has generally been driven by existing and proposed infrastructure, natural heritage features, matching existing grades, road and lot grading criteria and pipe cover. The grade differential across the study area is minimal (e.g., 10 m) and generally follows the existing grade around natural heritage features.

The grading design recognizes the existing boundary conditions including the buffers applied to the natural heritage features. The site grading has been completed to retain these features while minimizing cut and fill operations to the extent possible. As noted in Section 7.1, the plan has been designed to retain wooded area where possible and to minimize disturbance and prevent the need for retaining walls. In some cases the necessary lot grading has been adjusted so as to preserve trees in rear lots, as is the case for portions of ELC community 8b and the eastern hedgerow.

7.5.1 Proposed Grading Adjacent to Central Wetland Feature

In order to accommodate the proposed SWM pond block, located immediately adjacent to the central wetland feature, some minor grading will be required which may encroach into the wetland buffer at the southeast end of the central wetland. This grading is required in order to accommodate the outlet and stormwater conveyance from the SWM pond into the Black Drain. This area is also where a pedestrian bridge is proposed to connect the trail over the Black Drain and grading will be required to accommodate this bridge.

7.5.2 Proposed Grading Adjacent to South Woodland Feature/Open Space

In order to accommodate the proposed sanitary pumping station at the northeast corner of the south woodland feature as well as the residential lots and trail at the northwest corner of the south woodland feature, some minor grading will be required that may encroach into this feature. The grading by the sanitary pumping station is required to accommodate the gravity sewer system which will convey wastewater from the residential units to this location. The grading at the northwest corner of the south woodland feature is required to accommodate the proposed trail and residential units. This grading will create a slope which can act as a barrier between the residential unit block, trail and the woodland feature to provide additional protection from intrusion of people and pets into the natural features.

7.5.3 Trees

An Arborist Report prepared by Beacon (2022) under separate cover will provide details on individual tree removals and compensation.

7.6 Watercourse Crossings

7.6.1 Street C and Street B Crossings of Black Drain

Two crossings of Black Drain are proposed for connectivity, neighborhood structure and traffic flow. The GRCA's Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (2015) were reviewed in relation to the proposed crossings. As part of the proposed redevelopment plan, approximately 100 m of Black Drain will be enclosed in a culvert on the western portion of the study area where proposed residential lots and Street C overlap with the drainage feature.

The Black Drain, especially in the location of proposed enclosure is a low function feature that is entirely channelized, providing marginal fish habitat and is acting primarily as a stormwater discharge channel for upstream areas. Results of the hydrogeological study do not suggest groundwater inputs to the channel. There are no wetland areas associated with the drainage channel and opportunities for fish passage are limited.

The drainage feature was constructed to serve as a municipal surface water drain for surrounding lands,. Enclosing this short section will not result in any increased flood or erosion hazards and the risk to public safety is reduced as there will be no open water ditch within the rear yards of the redevelopment.

Black Drain will also be protected through a culvert where it crosses the proposed Street B. It will remain open where it flows through the central wetland feature and through the eastern woodland feature that is being retained. A pedestrian bridge is also required (see Section 7.7). Approvals from the GRCA and DFO will be required to construct the culverts and crossings over Black Drain.

7.7 Trails

The redevelopment plan proposes the creation of a trail along the outside buffer perimeter of the central woodland/wetland feature (**Figure 3**) in a former manicured golf course area. The trail path follows the path of the existing trail within the central woodland feature and will include a provision for a connection to the Elora Cataract Trail. The trail path will cross Black Drain in one section on the eastern side of the central wetland feature. A pedestrian bridge is proposed over this crossing to protect the drainage feature. This trail will be constructed with permeable materials and will direct pedestrian traffic away from the natural features.

7.8 Vegetation Removal

A large portion of the study area is utilized as golf course and consists of landscaped areas. Trees situated within the areas to be redeveloped will need to be removed; however, as noted in Section 7.1, the proposed redevelopment has been designed so that trees have been integrated within open space or buffer blocks, or in some cases rear lots of larger residences. Considerable effort has been taken to preserve as many trees as possible. The naturally vegetated areas on the study area are mainly

contained within the central wetland and woodland features and hence will be protected as part of the Core Greenlands.

7.8.1 Wetland Communities

Three isolated wetland communities will be removed to accommodate the proposed redevelopment. This includes the following communities, illustrated in **Figure 4**:

- Willow Mineral Thicket Swamp, Forb Mineral Meadow Marsh and Shallow Water (SWT2-2, MAM2-10 and SA, ELC units 10a, 10b, 11a and 12a) as one combined wetland unit;
- Shallow Water (SA, ELC unit 12b); and
- Forb Mineral Meadow Marsh (MAM2-10, ELC unit 11b).

The Willow Mineral Thicket Swamp in the north end of the study area (ELC units 10a, 10b, 11a and 12a as one wetland unit, 0.46 ha) will be removed to accommodate the redevelopment. It is proposed that compensation for this feature in the form of a willow thicket swamp be provided immediately west of the central wetland feature within the (0.51 ha) open space area on the proposed redevelopment plan (**Figure 4**). This will enhance the Core Greenlands in this area and provide overall increased function of the wetland habitat.

The Shallow Water community (ELC unit 12b, 0.08 ha) is a small irrigation pond for the golf course which will be removed to accommodate the proposed redevelopment.

The Forb Mineral Meadow March (ELC unit 11b, 0.17 ha) is a small wetland feature which will be removed to accommodate the redevelopment. A stormwater management pond is proposed immediately south of the central wetland feature which will provide additional wetland habitat to offset the removal of this wetland.

GRCA's policies 8.4.4 and 8.4.5 provides the conditions for which a wetland may be "interfered with", or in this case, removed. Accordingly, these wetlands are not provincially significant, are all less than 0.5 ha, they are not part of an ecologically functional corridor or linkage, they do not provide significant wildlife habitat or habitat for rare species, and they are not part of a significant groundwater discharge or recharge area. By relocating the Willow Mineral Thicket Swamp wetland community, the overall Core Greenlands will be expanded and the ecological functions and hydrological functions of the wetland can be enhanced. A permit will be required by the GRCA to remove these wetland communities.

The total area of wetland that will be removed is 0.71 ha. Proposed compensation for these removals is discussed in Section 8.

7.8.2 Woodland Communities

The forest communities are located mainly within the central portion of the study area, surrounding the central wetland feature. These central woodland features (ELC communities 8b and 9, **Figure 4**) and a smaller woodland feature to the south (ELC community 8c, **Figure 4**) will be mainly undisturbed through the redevelopment process except for potential changes to the water balance and minor encroachment to accommodate grading (**Table 7; Figure 4**). Without mitigation, less drainage may reach these features which could cause long-term impacts. However, using the results of the water balance and

through the implementation of LID measures, these impacts can be avoided. Section 7.2 addresses mitigation measures related to the water balance. These woodlands to be retained are also generally the most active with respect to forest bird species and bat activity.

The narrow woodland feature, Fresh-Moist Lowland Deciduous Forest and contiguous White-Pine Coniferous Plantation (ELC communities 8a and 7, **Figure 4**) are located to the east of the central woodland feature and will be removed to accommodate redevelopment with the exception of a small portion within the open space block west of the SWM pond.

The cultural woodlands located at the southernmost portion of the study area (ELC communities 5a and 5b, **Figure 2**) and partially associated with the small wetland community in the south (ELC community 11b, Figure 2) are proposed for removal to accommodate the redevelopment plan. The total area of these two cultural woodland communities is 0.30 ha.

The total area of woodland communities that will be removed is 3.96 ha. Additional tree removals and Tree Protection Zones (TPZ) for the remaining trees within the hedgerow (ELC community 4, **Figure 4**) will be addressed in the Arborist Report (Beacon 2022).

Table 7. Vegetation Removals

ELC Unit	Area being removed (ha)
CUP3-2 (7)	0.68
FOD7 (8a)	2.56
FOD7 (8b)	0.28
FOD7 (8c)	0.14
CUW (5a)	0.21
CUW (5b)	0.09
Total area:	**3.96**

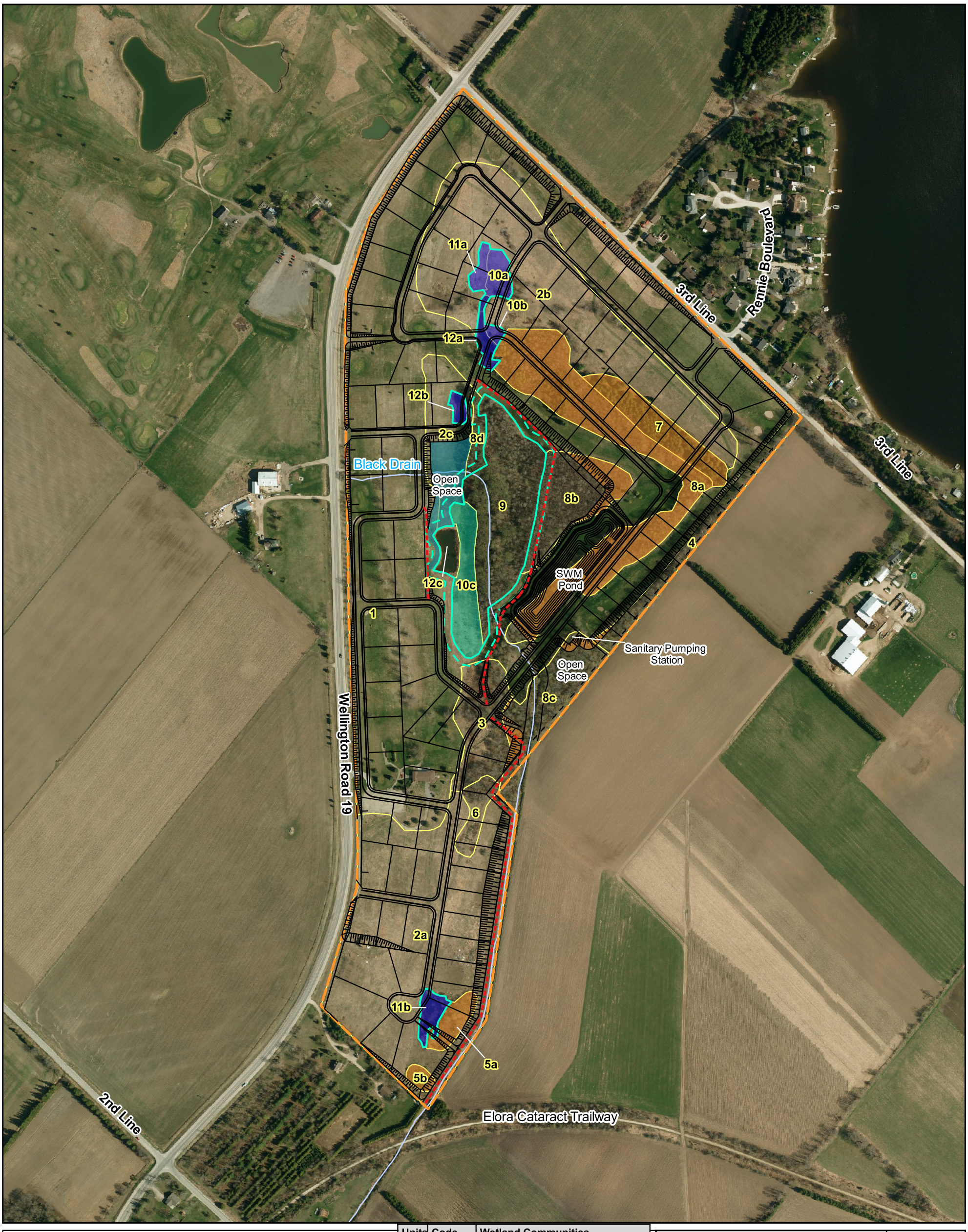
7.8.3 Meadow Communities

Approximately 12 ha of meadow communities will also be removed to accommodate redevelopment. While these communities provide habitat for wildlife, including grassland bird species, their removal will be addressed in conformance with the ESA.

7.9 Wildlife

Wildlife, including birds, amphibians, and mammals utilize the study area. It is anticipated that changes to the wildlife community will result from the proposed redevelopment.

The current breeding bird community is generally typical of an urban and rural landscape. There are likely greater numbers of birds present due to the availability of habitat associated with the open areas of the golf course. The proposed redevelopment will likely result in a reduction in the overall number of birds that utilize the study area for foraging, given that currently open habitats will be converted to residential development. However, the diversity of species will probably be maintained post-development, as the majority of the existing naturally vegetated areas will be retained and enhanced



Legend

- Study Area
- Ecological Communities
- Proposed Development
- Watercourse (MNRF 2021)
- Wetlands (as staked by Beacon on June 23 & July 9 2021 and confirmed by GRCA on September 27, 2021)
- Wetland + 10 m
- Proposed Wetland Compensation Area
- Proposed Wetland Enhancement
- Wooded Areas To Be Removed
- Wetland To Be Removed
- Conceptual Trail Alignment

Units	Code	Wetland Communities
10	SWT2-2	Willow Mineral Thicket Swamp
11	MAM2-10	Forb Mineral Meadow Marsh
9	SWD2-2	Green Ash Mineral Deciduous Swamp
Units		**Aquatic Communities**
12	SA	Shallow Water
Units		**Forest Communities**
8	FOD7	Fresh - Moist Lowland Deciduous Forest
Units		**Cultural Communities**
2	CUM1-1	Dry - Moist Old Field Meadow
3	CUM	Cultural Meadow
5	CUW	Cultural Woodland
6	CUT	Cultural Thicket
7	CUP3-2	White Pine Coniferous Plantation
Units		**Other Communities**
1	ANT	Anthropogenic
4	HE	Hedgerow

Vegetation Removals and Proposed Compensation

Figure 4

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(e.g., surrounding the central woodland/wetland feature). Also, areas within the study area that are currently manicured lawn or degraded habitat will be naturalized (e.g., wetland and riparian enhancement areas); and much of the existing and higher quality habitat will have naturalized (vegetated) buffers established adjacent to them which will remain relatively undisturbed.

Several treed cultural communities, tree groupings and individual trees will be removed from the tableland portions of the site. Most of these areas are anthropogenic and have limited function on the landscape. These trees have also been assessed in the arborist report and will be subject to compensation accordingly. Field studies suggest that this area is only used for foraging and as flyover habitat, however, the extent to which bats may utilize any of the trees on site is part of ongoing discussions with MNDMNRF. Permissions from MNDMNRF may be required, should these features be inhabited by any endangered bat species.

The golf course irrigation pond (ELC community 12b), the small wetland to the north and the small wetland to the south within the study area will be removed. These ponds and wetlands are likely to provide habitat for warmwater tolerant fish species, and breeding amphibian surveys have confirmed these ponds and wetlands provide limited habitat for common amphibian species but they are all isolated communities and the irrigation pond is not a naturally occurring feature. Amphibian habitat will be replaced through a constructed wetland immediately west of the central wetland feature (replacing the Willow Thicket Swamp) and the proposed SWM pond immediately east of the central wetland feature. All appropriate permits from relevant agencies will be obtained to facilitate the removal of the ponds including wildlife relocation. Small mammals such as raccoon, grey squirrel and skunk will continue to use the study area post development.

7.10 Species at Risk

7.10.1 Grassland Birds

One Bobolink breeding territory and one Eastern Meadowlark breeding territory were recorded in the southern meadow (ELC community 2a, **Figure 2**) and one Eastern Meadowlark breeding territory was recorded in the northern meadow (ELC community 2a, **Figure 2**). Under the habitat regulations for these species (Section 23.2 of Ontario Regulation 242/08), it is possible to remove the habitat provided suitable habitat is created within the same ecoregion. MECP has developed species specific guidelines and regulations to address habitat removals. Prior to removal of the meadow habitat, a plan must be developed in accordance with MECP guidelines to ensure compliance with the regulations.

7.10.2 Endangered Bats

Two species of endangered bats, Little Brown Myotis and Northern Myotis, were recorded during acoustic monitoring in June 2021 within the central woodland communities on the study area (ELC communities 8b, 8c and 8a, **Figure 2**). The results of the monitoring suggested that the woodland communities do not provide maternity roosting habitat and instead provide foraging or flyover habitat. The ELC communities 8b and 8c will be retained as part of the proposed redevelopment plan to continue to provide foraging and flyover habitat for these species. The ELC community 8a will not be retained in the proposed redevelopment plan and therefore consultation with the MECP will be required to ensure conformity with the ESA.

7.11 General Mitigation Measures

Erosion and Sediment Control

Prior to any construction, a detailed Erosion and Sediment Control Plan will be developed using the Greater Golden Horseshoe Area Conservation Authorities' Erosion and Sediment Control Guidelines for Urban Construction (2019).

Any grading or site alteration related activities should be confined to the established limit of development. Fencing at the development limit should be regularly inspected and maintained in good working order throughout the construction period. Fencing should be removed upon completion of construction after exposed soils have been stabilized. Standard Best Management Practices, including the provision of sediment control measures, should also be employed during the construction process.

Tree Removal and Preservation

An arborist report has been prepared under a separate cover by Beacon (2022). These plans detail single trees and groups of trees, including hedgerows that are outside of woodland areas. The Plan includes recommendations for retention or removal of each of these trees. The report also includes general guidelines including nest surveys during the breeding bird season prior to removal of any specimens, as well as direction for the installation of tree protection fencing.

Timing of Vegetation Removal

The federal *Migratory Birds Convention Act* (1994) and provincial *Fish and Wildlife Conservation Act* protect the nests, eggs and young of most bird species from harm or destruction. As the breeding bird season in southern Ontario is generally from early April to August, the clearing of vegetation (including grasses and shrubs) should occur outside of these periods. For any proposed clearing of vegetation within these dates, or where birds may be suspected of nesting outside of typical dates, an ecologist should undertake detailed nest searches immediately prior to site alteration to ensure that no active nests are present.

Noise and Light Effects on Wildlife

Acute and cumulative effects for a single development associated with noise and light are very difficult to quantify. Noise in particular may be a reason why landscape-level effects are known to occur within urban matrices even as natural areas are set aside. The effects of these stressors can be significant in previously undeveloped areas, however, this system is already heavily influenced by the light and noise of the existing golf course, nearby agricultural operations and roadways. This has resulted in a suite of species that are already tolerant to these stressors.

8. Restoration and Enhancement Opportunities

Several restoration and enhancement areas have been identified across the site with the objective of:

- Buffering and protecting existing habitats;
- Providing connectivity between natural areas;
- Creating new habitat; and
- Enhancing and restoring existing habitats.

These areas are illustrated in **Figure 4** and include an enlarged and enhanced central wetland feature which represents a portion of the Core Greenlands. These areas include the following.

- Creation of a wetland feature to compensate for the Willow Thicket Swamp removal;
- Enhancement of the existing disturbed portion of the central wetland feature;
- Riparian and upland plantings along the Black Drain corridor;
- Naturalized SWM pond block which will provide additional open water habitat; and
- Areas for woodlot management.

Offsite compensation will likely be required for Eastern Meadowlark and Bobolink for the removal of the southern and northern meadow habitat. Discussions will be undertaken with MECP as the development process advances.

A Woodlot Management Plan will also be prepared which will detail opportunities for woodlot management with the retained woodland feature and woodland that is being partially removed. Within these compensation and enhancement areas, there are also opportunities to transplant the Variegated Horsetail and Hairy Honeysuckle located within other areas of the property to be redeveloped.

9. Policy Conformity

A summary of federal, provincial and municipal environmental protection and planning policies and regulations applicable to the study area were discussed in **Section 3**. An evaluation of how the proposed re-development complies with the applicable environmental policies and legislation are summarized below in **Table 8**.

Table 8. Policy Compliance Assessment

Applicable Policy / Legislation	Relevant EIS Findings and Recommendations	Policy Compliance
***Federal Fisheries Act* (1985)**	A single drainage feature, a constructed municipal drain is present on the study area. The surveys in 2021 confirmed that poor fish habitat was associated with the reach that drains to Irvine Creek. The Black Drain will be protected through a culvert in two separate areas where the proposed redevelopment includes street crossings over the drain. In addition, the Black Drain will be protected where	Yes (Subject to DFO approval)

Applicable Policy / Legislation	Relevant EIS Findings and Recommendations	Policy Compliance
	the proposed redevelopment includes a pedestrian bridge along the trail path crossing over the drain.	
***Endangered Species Act* (2007)**	Habitat for Bobolink (threatened), Eastern Meadowlark (threatened), Little Brown Myotis (endangered) and Northern Myotis (endangered) has been confirmed on the study area. Bobolink and Eastern Meadowlark habitat will be removed from the study area to accommodate the proposed redevelopment. Compensation for the removal of the habitat will be provided in accordance with *Endangered Species Act* regulations to the satisfaction of MECP. Foraging and flyover habitat of Little Brown Myotis and Northern Myotis was confirmed on the study area within the woodland communities 8a, 8b and 8c (Figure 2). The communities 8b and 8c will be retained with the proposed redevelopment. The woodland community 8a will not be retained and therefore consultation with the MECP will be required to ensure conformity with the *Endangered Species Act*.	Yes (Subject to MECP Permitting and Approval)
Provincial Policy Statement (2020) Section 2.1 – Natural Heritage		
1. Habitat for Threatened and Endangered Species	Habitat for endangered and threatened species has been identified on the study area and is being addressed in conformity with the *Endangered Species Act* (see above).	Yes
2. Significant Valleylands	Not applicable – there are no Significant Valleylands on or adjacent to the study area.	Yes
3. Significant Wetlands	Not applicable – There are no Significant Wetlands on or adjacent to the study area.	Yes
4. Significant Woodlands	Not applicable - There are no Significant Woodlands on or adjacent to the study area.	Yes
5. Significant Wildlife Habitat	Not applicable – there is no SWH on or adjacent to the study area.	Yes
6. Significant Areas of Natural and Scientific Interest	Not applicable – There are no ANSIs on or adjacent to the study area.	Yes
7. Fish Habitat	A single drainage feature associated with Black Drain is present on the study area. The surveys in 2021 confirmed that poor fish habitat was associated with the reach that drains to Irvine Creek. The Black Drain will be protected through a culvert in two separate areas where the proposed redevelopment includes street crossings over the drain. In addition, the Black Drain will be protected where the proposed redevelopment includes a pedestrian bridge along the trail path crossing over the drain.	Yes (subject to GRCA and DFO permitting approvals)
County of Wellington Official Plan (2021)	Core Greenlands include: • Provincially Significant Wetlands (PSW) and other wetlands;	Yes (Pending DFO approval, ESA compliance and GRCA permit)

Applicable Policy / Legislation	Relevant EIS Findings and Recommendations	Policy Compliance
	• Habitat of endangered or threatened species; • Fish habitat; and • Floodway and hazardous lands The central wetland feature and central portion of the municipal drain will be protected with the proposed redevelopment plan. In addition, a 10 m buffer has been applied to the central wetland feature. While three other wetland areas are proposed for removal, they meet the GRCA criteria to allow for their removal and compensation is proposed. Grassland avian species will be addressed through the ESA, in consultation with MECP. The constructed municipal drain, which traverses the study area, has been identified as poor fish habitat within the portion of the reach that drains to Irvine Creek. This drain will be protected, as discussed above, within the section that flows through the central wetland feature. The drain will also be protected through culverts and a pedestrian bridge where it overlaps with proposed streets and the trail path in the proposed redevelopment plan. As per the policies of the Official Plan, development in accordance with provincial and federal requirements approval must be granted to enclose this feature. No other Core Greenlands were identified on the study area.	
Grand River Conservation Authority Policies and Regulations (2015)	The wetlands and municipal drain that traverses the study area are regulated by the GRCA under *Ontario Regulation 150/06.* A permit from the GRCA under this regulation will be required to remove the smaller wetland features and enclose the municipal drain in culverts and under a pedestrian bridge. GRCA's policies 8.4.4 provides the conditions for which a wetland may be "interfered with", or in this case, removed. Accordingly, these wetlands are not provincially significant, they are not part of an ecologically functional corridor or linkage, they do not provide significant wildlife habitat or habitat for rare species, and they are not part of a significant groundwater discharge or recharge area. Additionally, a compensation plan has been proposed for the Willow Mineral Thicket Swamp adjacent to the central wetland feature and the proposed stormwater management pond will provide additional wetland habitat to offset the wetland removals. GRCA policy 9.1.17 provides conditions for which watercourses may be enclosed, which are met by the proposed redevelopment plan. The majority of the Black	Pending the provision of a permit under *Ontario Regulation 150/06* from GRCA.

Applicable Policy / Legislation	Relevant EIS Findings and Recommendations	Policy Compliance
	Drain will be left open and undisturbed, however, a small section is proposed to be enclosed in a culvert.	

10. Conclusion

Beacon has conducted a background review and field investigations in order to prepare this EIS for the proposed residential redevelopment. Seasonal field studies including vegetation characterization, breeding bird surveys, amphibian call surveys, basking turtle surveys, bat habitat assessment and acoustic monitoring and aquatic habitat assessment were completed. The appropriate natural heritage policy framework was reviewed with respect to the PPS, Growth Plan, County of Wellington Official Plan, as well as the GRCA regulations, ESA and *Fisheries Act*.

The proposed redevelopment has been described and an impact analysis undertaken in the context of natural heritage. The proposed redevelopment will result in the removal of the smaller wetland features, tree loss and the removal of meadow communities. These features will be compensated for through restoration and enhancement areas described in this report. Other general mitigation measures have been proposed and are to be adhered to, to ensure adverse impacts to the natural system do not occur, including vegetation timing windows and ESC measures.

It is our opinion that the proposed redevelopment can proceed in accordance with the applicable natural heritage policies of the province, municipality and GRCA.

Report prepared by:
Beacon Environmental

Nadine Price, M.Sc.
Ecologist

Report reviewed by:
Beacon Environmental

Carolyn Glass, B.Sc., MES
Senior Ecologist

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Appendix A

Bat Survey Data

Appendix A

Bat Survey Data

Table 1. Candidate Bat Maternity Roost Plot Surveys April 1, 2021

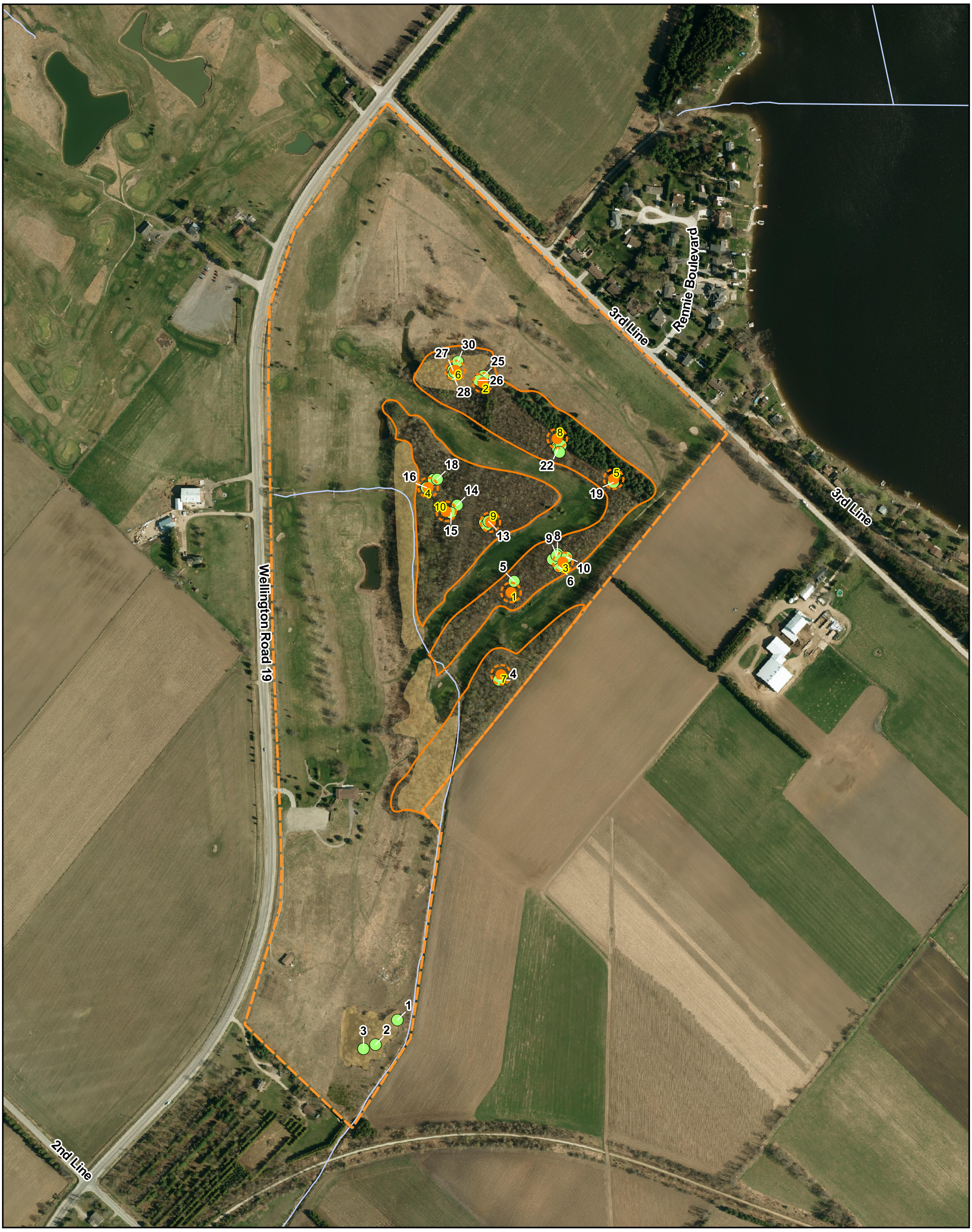
Tree #	Plot #	Tree Species	Number of Cavities	Diameter at Breast Height (cm)	Tree Height (m)	Loose Bark	Decay Class [a]	Leaf nests	Easting	Northing
1	n/a	Green Ash	4	68	10-15	1-25%	2	0	551544.4	4843340.2
2	n/a	Apple species, Malus sp.	2	48	0-5	0%	5	0	551516.1	4843308.4
3	n/a	Apple species, Malus sp.	3	38,21	5-10	0%	2	0	551500.5	4843302.9
4	7	White Birch	1	5	10-15	0%	1	0	551675.8	4843780.5
5	1	Largetooth Aspen	10+	3	10-15	1-25%	4	0	551695.6	4843908.5
6	3	Red Maple	0	18	10-15	0%	1	0	551754	4843927.5
7	3	Silver Maple	0	49,15	10-15	0%	1	0	551745.4	4843936.9
8	3	Red Maple	0	33	10-15	0%	1	0	551751.8	4843944.3
9	3	Red Maple	0	15	5-10	0%	1	0	551750.8	4843941.9
10	3	Silver Maple	0	28	10-15	0%	1	0	551763.8	4843939.7
11	9	Trembling Aspen	0	32	10-15	25–50%	2	0	551657.4	4843984.8
12	9	Trembling Aspen	1	34	10-15	1-25%	1	0	551659.5	4843981.3
13	9	Green Ash	1	14	5-10	0%	2	0	551662.5	4843986
14	10	Green Ash	5	26	5-10	0%	3	0	551621.8	4844007.2
15	10	Trembling Aspen	5	24	10-15	0%	3	0	551613.8	4843997.2
16	4	Trembling Aspen	3	24	5-10	0%	4	0	551582.1	4844029.7
17	4	Manitoba Maple	0	17,9	0-5	0%	1	0	551590.9	4844040.4
18	4	Green Ash	7	18	5-10	1-25%	5	0	551596.1	4844040.8
19	5	Largetooth Aspen	0	21	5-10	1-25%	2	0	551824.1	4844036.6
20	8	Black Cherry	8	42	10-15	0%	1	0	551751.7	4844084.3

Tree #	Plot #	Tree Species	Number of Cavities	Diameter at Breast Height (cm)	Tree Height (m)	Loose Bark	Decay Class [a]	Leaf nests	Easting	Northing
21	8	Red Maple	0	19	10-15	0%	1	0	551751.8	4844083.4
22	8	Red Maple	0	15	10-15	0%	1	0	551752.2	4844080.5
23	8	Red Maple	0	15	10-15	0%	1	0	551756.3	4844084.6
24	8	Sugar Maple	0	26	10-15	0%	1	0	551754.3	4844075.8
25	2	Black Cherry	2	32	5-10	0%	2	0	551655.9	4844174.5
26	2	Largetooth Aspen	0	29	10-15	25–50%	1	0	551649.8	4844168.8
27	6	Largetooth Aspen	10+	43	10-15	0%	3	0	551616.3	4844181.9
28	6	Largetooth Aspen	10+	51	10-15	0%	4	0	551616.5	4844175.9
29	6	Largetooth Aspen	1	38	10-15	0%	2	0	551618.4	4844179.8
30	6	Largetooth Aspen	5	35	10-15	0%	4	0	551622.7	4844193.1

a – Decay class as listed in the Ministry of Natural Resources and Forestry - Guelph District's *Bat and Bat Habitat Surveys of Treed Habitats*. Updated April 2017.

Table 2. Plot Density Calculations

ELC Unit	Polygon Size	Plot #	# Snag or Cavity Trees ≥25cm Diameter at Breast Height	Total Snag Density (# snag or cavity trees/ha)
8a	0.05	1	1	20.00
8a	0.05	2	2	40.00
8a	0.05	3	5	100.00
9	0.05	4	3	60.00
8a	0.05	5	1	20.00
8a	0.05	6	4	80.00
8c	0.05	7	1	20.00
8a	0.05	8	5	100.00
8b	0.05	9	3	60.00
9	0.05	10	2	40.00



Legend

- Study Area
- GRCA Wetlands
- Watercourse (MNRF 2020)
- Bat Maternity Roost Tree Locations
- Random Sampling Points for Bat Habitat
- Treed Polygons to Generate Random Plots Within

Bat Maternity Roost Assessment

Figure 5

Fergus Golf Club EIS

BEACON ENVIRONMENTAL

Project: 221111
Last Revised: February 2022

Client: Fergus Development Inc.

Prepared by: BD
Checked by: CG

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Appendix B

Floral Survey Data

Appendix B

Floral Inventory

Scientific Name	Common Name	COSEWIC	SARO	SRank	Wellington
Acer negundo	Manitoba Maple			S5	
Acer saccharum	Sugar Maple			S5	
Alliaria petiolata	Garlic Mustard			SE5	
Fraxinus nigra	Black Ash	THR	END	S3	
Fraxinus pennsylvanica	Red Ash			S4	
Juglans nigra	Black Walnut			S4?	
Leonurus cardiaca	Common Motherwort			SE5	
Lonicera tatarica	Tatarian Honeysuckle			SE5	
Maianthemum racemosum	Large False Solomon's Seal			S5	
Parthenocissus vitacea	Thicket Creeper			S5	
Pinus strobus	Eastern White Pine			S5	
Pinus sylvestris	Scots Pine			SE5	
Populus tremuloides	Trembling Aspen			S5	
Prunus virginiana	Chokecherry			S5	
Rhamnus cathartica	European Buckthorn			SE5	
Rhus typhina	Staghorn Sumac			S5	
Rubus idaeus	Red Raspberry			S5	
Salix x fragilis	(Salix alba X Salix euxina)			SNA	
Solanum dulcamara	Bittersweet Nightshade			SE5	
Solidago canadensis	Canada Goldenrod			S5	
Thuja occidentalis	Eastern White Cedar			S5	
Tilia americana	Basswood			S5	
Vitis riparia	Riverbank Grape			S5	
Acer x freemanii	(Acer rubrum X Acer saccharinum)			SNA	
Achillea millefolium	Common Yarrow			SE5?	
Actaea rubra	Red Baneberry			S5	
Agrimonia gryposepala	Hooked Agrimony			S5	
Agrostis gigantea	Redtop			SE5	
Agrostis stolonifera	Creeping Bentgrass			SE5	
Ambrosia artemisiifolia	Common Ragweed			S5	
Aquilegia canadensis	Red Columbine			S5	
Arctium lappa	Great Burdock			SE5	
Arisaema triphyllum	Jack-in-the-pulpit			S5	

Scientific Name	Common Name	COSEWIC	SARO	SRank	Wellington
Asclepias syriaca	Common Milkweed			S5	
Betula papyrifera	Paper Birch			S5	
Bidens frondosa	Devil's Beggarticks			S5	
Bromus inermis	Smooth Brome			SE5	
Calamagrostis canadensis	Bluejoint Reedgrass			S5	
Carex bebbii	Bebb's Sedge			S5	
Carex blanda	Woodland Sedge			S5	
Carex flava	Yellow Sedge			S5	
Carex pedunculata	Long-stalked Sedge			S5	
Carex stipata	Awl-fruited Sedge			S5	
Carex vulpinoidea	Fox Sedge			S5	
Cichorium intybus	Wild Chicory			SE5	
Circaea canadensis	Broad-leaved Enchanter's Nightshade			S5	
Cirsium arvense	Canada Thistle			SE5	
Cirsium vulgare	Bull Thistle			SE5	
Clematis virginiana	Virginia Clematis			S5	
Cornus alternifolia	Alternate-leaved Dogwood			S5	
Cornus racemosa	Grey Dogwood			S5	
Cornus sericea	Red-osier Dogwood			S5	
Dactylis glomerata	Orchard Grass			SE5	
Daucus carota	Wild Carrot			SE5	
Dipsacus fullonum	Common Teasel			SE5	
Dryopteris carthusiana	Spinulose Wood Fern			S5	
Dryopteris cristata	Crested Wood Fern			S5	
Echium vulgare	Common Viper's Bugloss			SE5	
Epilobium ciliatum	Northern Willowherb			S5	
Epilobium parviflorum	Small-flowered Hairy Willowherb			SE4	
Equisetum arvense	Field Horsetail			S5	
Equisetum hyemale	Common Scouring-rush			S5	
Equisetum variegatum	Variegated Scouring-rush			S5	U
Erigeron canadensis	Canada Horseweed			S5	
Erythronium americanum	Yellow Trout-lily			S5	
Eupatorium perfoliatum	Common Boneset			S5	
Euthamia graminifolia	Grass-leaved Goldenrod			S5	
Eutrochium maculatum	Spotted Joe Pye Weed			S5	
Fragaria virginiana	Wild Strawberry			S5	
Fraxinus excelsior	European Ash			SE2	
Galium aparine	Common Bedstraw			S5	
Galium palustre	Common Marsh Bedstraw			S5	

Scientific Name	Common Name	COSEWIC	SARO	SRank	Wellington
Geranium robertianum	Herb-Robert			S5	
Geum canadense	Canada Avens			S5	
Glyceria striata	Fowl Mannagrass			S5	
Impatiens capensis	Spotted Jewelweed			S5	
Juncus effusus	Soft Rush			S5	
Lactuca biennis	Tall Blue Lettuce			S5	
Lolium arundinaceum	Tall Ryegrass			SE5	
Lonicera dioica	Wild Honeysuckle			S5	
Lonicera hirsuta	Hairy Honeysuckle			S5	U
Lotus corniculatus	Garden Bird's-foot Trefoil			SE5	
Lythrum salicaria	Purple Loosestrife			SE5	
Malus pumila	Common Apple			SE4	
Matteuccia struthiopteris	Ostrich Fern			S5	
Medicago lupulina	Black Medick			SE5	
Oenothera biennis	Common Evening-primrose			S5	
Onoclea sensibilis	Sensitive Fern			S5	
Ostrya virginiana	Eastern Hop-hornbeam			S5	
Oxalis stricta	Upright Yellow Wood-sorrel			S5	
Phalaris arundinacea	Reed Canarygrass			S5	
Phragmites australis ssp. australis	European Reed			SE5	
Picea abies	Norway Spruce			SE3	
Picea glauca	White Spruce			S5	
Pilea pumila	Dwarf Clearweed			S5	
Pinus nigra	Austrian Pine			SE3	
Poa pratensis	Kentucky Bluegrass			S5	
Populus balsamifera	Balsam Poplar			S5	
Potentilla anserina	Silverweed			S5	
Prunus serotina	Black Cherry			S5	
Pyrus communis	Common Pear			SE4	
Ranunculus recurvatus	Hooked Buttercup			S5	
Ribes americanum	American Black Currant			S5	
Robinia pseudoacacia	Black Locust			SE5	
Rubus idaeus ssp. strigosus	North American Red Raspberry			S5	
Rubus occidentalis	Black Raspberry			S5	
Rubus pubescens	Dwarf Raspberry			S5	
Salix bebbiana	Bebb's Willow			S5	
Salix discolor	Pussy Willow			S5	
Salix eriocephala	Cottony Willow			S5	

Scientific Name	Common Name	COSEWIC	SARO	SRank	Wellington
Salix petiolaris	Meadow Willow			S5	
Sambucus canadensis	Common Elderberry			S5	
Schoenoplectus tabernaemontani	Soft-stemmed Bulrush			S5	
Scirpus atrovirens	Dark-green Bulrush			S5	
Scorzoneroides autumnalis	Autumn Hawkbit			SE5	
Solidago altissima	Tall Goldenrod			S5	
Solidago gigantea	Giant Goldenrod			S5	
Sonchus arvensis	Field Sow-thistle			SE5	
Sorbus aucuparia	European Mountain-ash			SE4	
Symphyotrichum ericoides var. ericoides	White Heath Aster			S5	
Symphyotrichum lanceolatum ssp. lanceolatum	Eastern Panicled Aster			S5	
Symphyotrichum lateriflorum var. lateriflorum	Calico Aster			S5	
Symphyotrichum novae-angliae	New England Aster			S5	
Symphyotrichum puniceum var. puniceum	Purple-stemmed Aster			S5	
Taraxacum officinale	Common Dandelion			SE5	
Thalictrum pubescens	Tall Meadow-rue			S5	
Trifolium hybridum	Alsike Clover			SE5	
Trifolium pratense	Red Clover			SE5	
Trifolium repens	White Clover			SE5	
Tussilago farfara	Coltsfoot			SE5	
Typha angustifolia	Narrow-leaved Cattail			SE5	
Ulmus americana	White Elm			S5	
Verbascum thapsus	Common Mullein			SE5	
Viburnum lantana	Wayfaring Viburnum			SE2	
Viburnum opulus	Cranberry Viburnum			S5	
Vicia cracca	Tufted Vetch			SE5	
Viola labradorica	Labrador Violet			S5	
Viola pubescens	Yellow Violet			S5	
Viola sororia	Woolly Blue Violet			S5	

Appendix C

Breeding Bird Data

Appendix C

Breeding Bird Data

Common Name	Scientific Name	Status		Provincial breeding season SRANK [b]	Area-sensitive (OMNR)c	# Breeding Pairs/ Territories
		National Species at Risk COSEWICa	Species at Risk in Ontario Listing a			
Killdeer	*Charadrius vociferus*			S5		1
Mourning Dove	*Zenaida macroura*			S5		1
Red-bellied Woodpecker	*Melanerpes carolinus*			S4		1
Eastern Wood-Pewee	*Contopus virens*	SC	SC	S4		1
Alder Flycatcher	*Empidonax alnorum*			S5		1
Great Crested Flycatcher	*Myiarchus crinitus*			S4		1
Eastern Kingbird	*Tyrannus tyrannus*			S4		1
Black-capped Chickadee	*Poecile atricapillus*			S5		3
House Wren	*Troglodytes aedon*			S5		5
American Robin	*Turdus migratorius*			S5		6
Gray Catbird	*Dumetella carolinensis*			S4		2
Cedar Waxwing	*Bombycilla cedrorum*			S5		1
Warbling Vireo	*Vireo gilvus*			S5		2
Red-eyed Vireo	*Vireo olivaceus*			S5		3
Yellow Warbler	*Setophaga petechia*			S5		1
American Redstart	*Setophaga ruticilla*			S5	A	4
Mourning Warbler	*Geothlypis philadelphia*			S4		1
Common Yellowthroat	*Geothlyphis trichas*			S5		1
Indigo Bunting	*Passerina cyanea*			S4		3
Chipping Sparrow	*Spizella passerina*			S5		2
Savannah Sparrow	*Passerculus sandwichensis*			S4	A	11
Song Sparrow	*Melospiza melodia*			S5		8
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4	A	1

Common Name	Scientific Name	Status		Provincial breeding season SRANK [b]	Area-sensitive (OMNR)c	# Breeding Pairs/ Territories
		National Species at Risk COSEWICa	Species at Risk in Ontario Listing a			
Red-winged Blackbird	*Agelaius phoeniceus*			S4		5
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4	A	2
Common Grackle	*Quiscalus quiscula*			S5		1
Brown-headed Cowbird	*Molothrus ater*			S4		1
Orchard Oriole	*Icterus spurius*			S4		1
Baltimore Oriole	*Icterus galbula*			S4		1
American Goldfinch	*Spinus tristis*			S5		2

Field Work Conducted On: June 1 and 16, 2021

Number of Species: 30
Number of (provincial and national) Species at Risk: 3
Number of S1 to S3 Species: 0
Number of Area-sensitive Species: 4

KEY
a COSEWIC = Committee on the Status of Endangered Wildlife in Canada
a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)
END = Endangered, THR = Threatened, SC = Special Concern

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

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