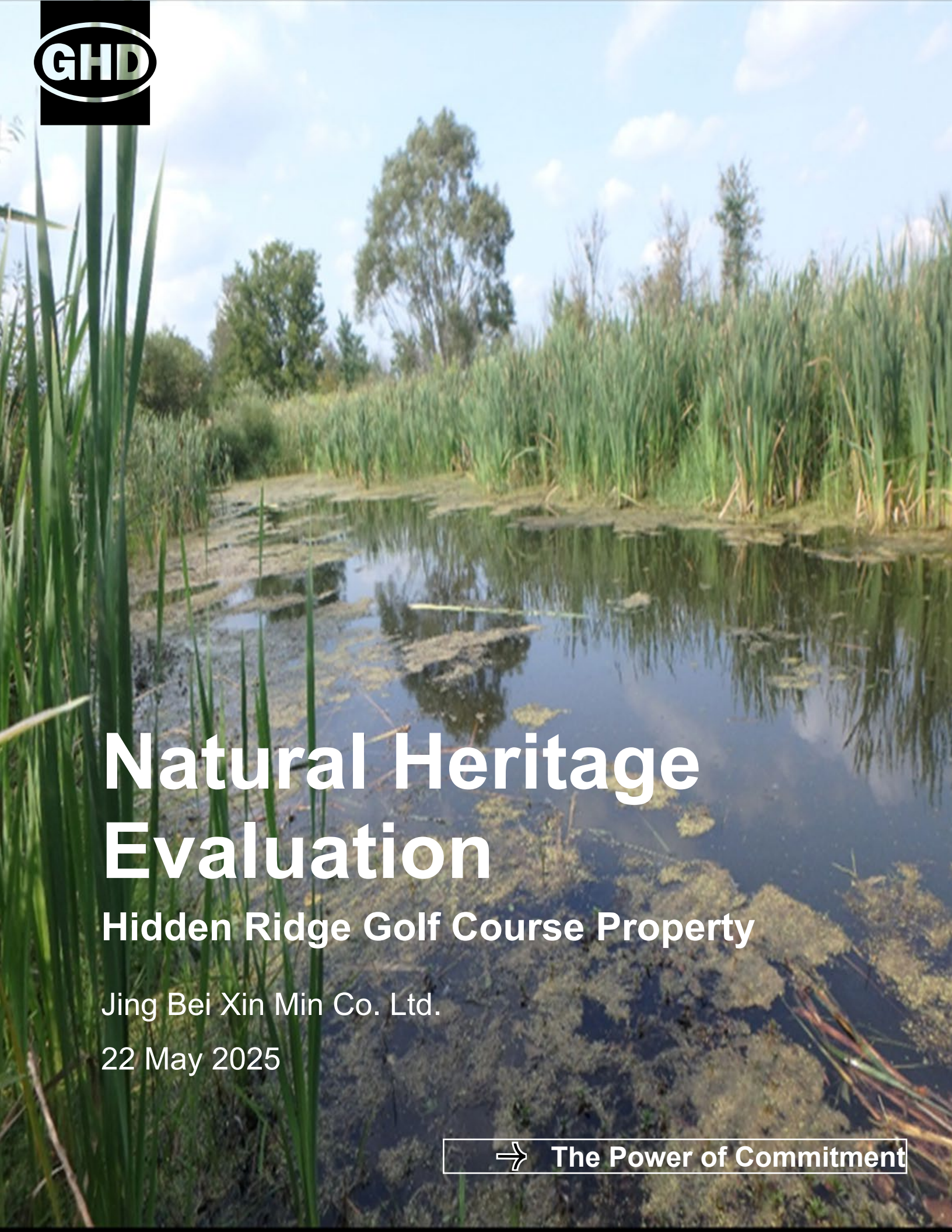

Natural Heritage Evaluation

Hidden Ridge Golf Course Property

Jing Bei Xin Min Co. Ltd.

22 May 2025

The Power of Commitment

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1. Introduction

1.1 Background

GHD Limited (GHD) has been retained by China Canada Jing Bei Xin Min Intl. Co. Ltd. (the 'client') to complete a Natural Heritage Evaluation (NHE) for Phase 2 of the Hidden Ridge Golf Course property draft plan of subdivision located on 309 Zephyr Road in Zephyr, Ontario ('Site'). The property is currently an abandoned golf course, historical use has created a moderate level of disturbance from golfers and maintenance. Natural environment features are present on Site, including birds, wildlife, wetland, and fish that have adapted to the golf course grounds. A virtual meeting with the Client, GHD, Lake Simcoe Region Conservation Authority (LSRCA), Township of Uxbridge and the Region of Durham was held on January 29, 2025, to discuss the Site development limits.

This Natural Heritage Evaluation (NHE) is required as the proposed plan of subdivision 'development' is within the Greenbelt Plan area. The NHE must meet the requirements of the Greenbelt Plan, Township of Uxbridge Official Plan and zoning bylaws and LSRCA policy and legislation.

The project Phase 1 NHE was completed by GHD (previously NEA) on April 9th, 2020 (NEA, 2020). The Phase 1 report included recommendations for Phase 2 constraints and setbacks and supplemental field surveys.

The Phase 2 NHE Terms of Reference (March 2021) was reviewed by the Lake Simcoe Region Conservation Authority (LSRCA), and they requested one additional vegetation survey and three amphibian surveys. The additional field scope was completed by GHD in 2022 and the NHE was updated January 13, 2023 (GHD, 2023).

The NHE was peer reviewed by PGL Environmental Consultants (comments issued to GHD June 28, 2024), requesting additional field inventories and updates to the NHE. The following NHE reflects the supplemental field inventories completed in 2024 and reporting updates in responses to the peer-review comments. A separate peer review comment response matrix document has been prepared by EcoVue Consulting Services Inc (EcoVue).

1.2 Location and Site

The property is located 309 Zephyr Road, southeast of the corner of Zephyr Road and 3rd Concession Road and is described as Part of Lots 24 and 25, Concession 3 in the Hamlet of Zephyr in the Region of Durham (**Figure 1**). The Site encompasses the western portion of the property, which includes former golf course grounds, hedgerows, open field meadows, unnamed ponds, and the edge of wetland and woodland features, equaling approximately 47 acres. The Site excludes the large-scale natural features associated with the Zephyr-Egypt Wetland Complex PSW that encompasses the eastern portion of the property, as those features are protected and will remain undeveloped.

Phase 2 is located directly south of Phase 1 and consists of 17 residential lots, as well as roads and servicing. The site plan provided by EcoVue (February 12, 2024) has been overlayed on the NHE **Figure 1** and **Figure 2**.

The Site is located within the boundaries of the Greenbelt Plan. Key Natural Heritage Features on the property or within 120 m of the property include:

- Protected Countryside designation
- Significant woodland
- Possible habitat for threatened or endangered species
- Watercourse and hydrological features (ponds)
- Provincially significant Zephyr-Egypt wetland complex
- Provincially significant Zephyr-Egypt Life Science ANSI
- Fish and Aquatic habitat

The Greenbelt Plan requires the completion of a Natural Heritage Evaluation when a development is proposed within or in the area of influence of a key natural heritage feature. The property is also within the Regulated Area of LSRCA.

1.3 Scope and Limitations

This report has been prepared by GHD for China Canada Jing Bei Xin Min Intl. Co. Ltd. and may only be used and relied on by China Canada Jing Bei Xin Min Intl. Co. Ltd. for the purpose agreed between GHD and China Canada Jing Bei Xin Min Intl. Co. Ltd. as set out in section 1 of this report.

GHD otherwise disclaims responsibility to any person other than China Canada Jing Bei Xin Min Intl. Co. Ltd. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

1.4 Study Rationale

This section identifies federal, provincial and other regulatory legislation, policies, official plans (OP) and OP amendments that are applicable and relevant to the Site and the immediate vicinity. This includes policies that triggered the study. These documents may identify natural features, Species at Risk and other habitat as well as other features relevant to this Site.

1.4.1 Federal Legislation

1.4.1.1 Species at Risk Act, 2020

The Species at Risk Act (SARA 2002) incorporates several prohibitions to protect individuals of listed Threatened (THR), Endangered (END), or Extirpated (EXT) species at risk (SAR) – as designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Per Section 34, Section 58 and Section 61, these prohibitions apply to aquatic species and migratory birds protected by the MBCA, on all lands, and any other listed wildlife species when on federal lands, or any lands if recommended by the Minister of the ECCC to the Governor in Council.

1.4.1.2 Migratory Birds Convention Act, 1994

The purpose of the Migratory Birds Convention Act (MBCA 1994) is to implement the Convention by protecting and conserving migratory birds, as populations and individual birds, and their nests. The MBCA (1994) and Migratory Birds Regulations (MBR; 2022), protect most species of migratory birds and their nests and eggs. General prohibitions under the MBCA and MBR protect migratory birds, their nests and eggs and prohibit the deposit of harmful substances in waters/areas frequented by them. The MBR includes an additional prohibition against incidental take, defined by Environment and Climate Change Canada (ECCC) as: "The inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs."

ECCC implements policies and guidelines to protect migratory birds, and guidance on the ECCC website is provided to help to minimize the risk of detrimental effects to migratory birds and to achieve compliance with the law. Compliance with the MBCA and MBR is best achieved through a due diligence approach based on a site-specific analysis in consideration of the avoidance guidelines published by ECCC.

1.4.1.3 Fisheries Act, 1985

The purpose of the Fisheries Act is to help conserve and protect fisheries and aquatic ecosystems. Specifically, the fish and fish habitat protection provisions are intended to prevent projects taking place in and around fish habitat from

causing the death of fish or the harmful alternation, disruption or destruction (HADD) of fish habitat. In addition, the Act administers relevant provision of the Species at Risk Act.

If death of fish or the harmful alteration, disruption or destruction of fish habitat have the potential to result from a project, an authorization may be required from the Minister of Fisheries, Oceans and the Canadian Coast Guard as per Paragraph 34 or 35 of the Fisheries Act Regulations.

1.4.2 Provincial Legislation

1.4.2.1 Endangered Species Act, 2007

The purposes of the Ontario Endangered Species Act (ESA 2007) are to:

1. identify Species at Risk (SAR) based on the best available scientific information, including information obtained from community knowledge and aboriginal traditional knowledge;
2. protect species that are at risk and their habitats, and to promote the recovery of species that are at risk;
3. promote stewardship activities to assist in the protection and recovery of species that are at risk. 2007, c. 6, s. 1. (Government of Ontario 2021)

The ESA clearly defines the five classifications of species status as extinct, extirpated, endangered, threatened, or special concern, and provides guidelines on the process of species status determination.

Regulations made under this Act include Ontario Regulation 230/08 and 242/08. Ontario Regulation 230/08 provides the list of Species at Risk (SAR) in Ontario, which is updated regularly. This list was most recently consolidated in 2024 (Government of Ontario, 2024). Species status provided in the list is assessed by an independent body, the Committee on the Status of Species at Risk in Ontario (SARO), based on the best-available science and Aboriginal Traditional Knowledge.

General habitat protection is afforded to all species listed as endangered or threatened. General habitat descriptions are technical, science-based documents that have been developed for some of the species that are most likely to be affected by human activity (Government of Ontario 2022). Further information including a Recovery Strategy or Management Plan is required for each listed species, on a timeline dictated by the species status.

Ontario Regulation 242/08 explains possible exemptions to the ESA and details on how the purpose of the ESA is to be carried out (Government of Ontario 2022).

1.4.2.2 Provincial Planning Statement, 2024

The Provincial Planning Statement, 2024 (PPS) is the statement of the Ontario government's policies on land use planning. It applies province-wide (in the province of Ontario) and provides provincial planning direction on land use planning. Municipalities use the PPS to develop their official plans and to guide and inform decisions on other planning matters. The PPS is issued under Section 3 of the Planning Act and all decisions affecting land use planning matters 'shall be consistent with' the Provincial Planning Statement (Government of Ontario 2024).

The Study Area is located within Ecoregion 6E. Policy Section 4.1 of the PPS 2024 outlines policies for Natural Heritage, and portions relevant to this project include:

4.1.4 Development and site alteration shall not be permitted in:

- *a. significant wetlands in Ecoregions 5E, 6E and 7E1; and*
- *b. significant coastal wetlands.*

4.1.5 Development and site alteration shall not be permitted in:

- *a. significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;*
- *b. significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
- *c. significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*

d. significant wildlife habitat;

e. significant areas of natural and scientific interest; and

f. coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 4.1.4.b), unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

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

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

4.1.8. Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 4.1.4, 4.1.5 and 4.1.6 unless the ecological function of the adjacent lands has been evaluated, and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

1.4.2.3 Greenbelt Plan, 2017

The proposed development location is entirely within the Protected Countryside designation of the Greenbelt Plan (Map 14). The property contains a portion of mapped Natural Heritage features in the east (wetlands). The following policies (Section 3.2.5) apply:

1.4.3 Key Natural Heritage Features and Key Hydrologic Features Policies

Key natural heritage features include:

– Significant habitat of endangered species, threatened species and special concern species;
– Fish habitat;
– Wetlands;
– Life Science Areas of Natural and Scientific Interest (ANSIs);
– Significant valleylands;
– Significant woodlands;
– Significant wildlife habitat;
– Sand barrens, savannahs and tallgrass prairies; and
– Alvars
– Key hydrologic features include:
– Permanent and intermittent streams;
– Lakes (and their littoral zones);
– Seepage areas and springs; and
– Wetlands

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

1. *Development or site alteration is not permitted in key hydrologic features and key natural heritage features within the Natural Heritage System, including any associated vegetation protection zone, with the exception of:*
   a. Forest, fish and wildlife management;
   b. Conservation and flood or erosion control projects, but only if they have been demonstrated to be necessary in the public interest and after all alternatives have been considered; or
   c. Infrastructure, aggregate, recreational, shoreline and existing uses, as described by and subject to the general policies of section 4 of this Plan.

2. *Beyond the Natural Heritage System within the Protected Countryside (as shown on Schedule 4), key hydrologic features are defined by and subject to the natural features policies of section 3.2.4.*
3. *Beyond the Natural Heritage System within the Protected Countryside (as shown on Schedule 4), key natural heritage features are not subject to the natural features policies of section 3.2.4 of this Plan, but are to be defined pursuant to, and subject to the policies of, the PPS.*
4. *In the case of wetlands, seepage areas and springs, fish habitat, permanent and intermittent streams, lakes, and significant woodlands, the minimum vegetation protection zone shall be a minimum of 30 metres wide measured from the outside boundary of the key natural heritage feature or hydrologic feature.*
5. *A proposal for a new development or site alteration within 120 metres of a key natural heritage feature within the Natural Heritage System or a key hydrologic feature anywhere within the Protected Countryside requires a natural heritage evaluation and hydrological evaluation, which identify a vegetation protection zone which:*
    a. *Is a sufficient width to protect the key natural heritage feature or key hydrologic feature and its functions from the impacts of the proposed change and associated activities that may occur before, during and after, construction and where possible, restore or enhance the feature and/or function; and*
    b. *Is established to achieve, and be maintained as natural self-sustaining vegetation*

The Greenbelt Plan requires the completion of a Natural Heritage Evaluation when development is proposed within or in the area of influence of a key natural heritage feature.

1.4.4 Local and Other Regulatory Bodies

1.4.4.1 Durham Regional Official Plan, 2024

The Durham Region Official Plan defines the intent of Regional Council regarding growth and development in the Regional Municipality of Durham (Region of Durham Official Plan, 2024). Map '1' (Regional Structure – Urban and Rural Systems) designates portions of the property as part of the Zephyr Hamlet and major open spaces areas. Map '2a' (Regional Natural Heritage System) shows the property contains a portion of the regional natural heritage system while Map '2b' (Provincial Oak Ridges Moraine Conservation Plan and Greenbelt Plan Land Use Designations) shows the property contains a portion of the greenbelt natural heritage system. Map '2c' (Water Resources System - Key Hydrologic Features) shows the Site contains portions of a Provincially Significant Wetland (the Zephyr-Egypt Wetland Complex).

Section 7.1 of the OP states that, "*Major Open Space Areas are a component of the region's Greenland's System that generally follow major permanent and/or intermittent stream and valleys and contain high concentrations of key natural heritage features and key hydrologic features"*.

Regarding the Regional Natural Heritage System identified in Map 2a on the Site Section 7.4.4 of the OP states:

It is the policy of Council to:

Prohibit development and site alteration within the regional natural heritage system, except as permitted by the applicable provincial plans including:

a. *legally existing uses that conform to area municipal official plans and zoning by-laws;*
b. *new buildings and structures and the full range of uses for existing and new agricultural uses, agricultural-related uses and on-farm diversified uses and normal farm practices, subject to the key natural heritage features policies in this section; as Amended*
c. *naturalized stormwater management systems and facilities and passive recreational uses if an approved environmental impact study demonstrates that construction will have no negative impact; and*
d. *new infrastructure if authorized through an Environmental Assessment or if no reasonable alternative location exists and an environmental impact study demonstrates that construction will have no negative impact.*

With section 7.4.15 addressing the presence of Key Natural Heritage Features and Key Hydrologic Features as identified on the Site on Map 2c and part of the trigger for this NHE:

Require that any proposal for development or site alteration in proximity to key natural heritage features or key hydrologic features include an environmental impact study as part of a complete application. The Region, in consultation with the area municipality, conservation authority and applicant, may select and retain a qualified environmental consultant to peer review the study at the applicant's expense.

Section 7.4.5 of the OP requires an environmental impact study (EIS) / Natural Heritage Evaluation (NHE) for development and site alteration within 120 metres of the natural heritage system. The proximity of natural heritage features (PSW, wildlife habitat, etc.) serve as triggers for this NHE.

1.4.4.2 Township of Uxbridge Official Plan, February 2025 Office Consolidation

Map 1 (Community Structure & Provincial Planning Areas) shows the Site within the Greenbelt Plan area and the Lake Simcoe Protection Act watershed boundary. Section 1.9.5 of the OP states that applications for development or site alteration in the minimum area of influence shall be accompanied by a natural heritage evaluation. The presence of natural heritage features on the Site necessitate this NHE.

1.4.4.3 Lake Simcoe Region Conservation Authority

In Ontario, Conservation Authorities develop and deliver local, watershed-based resource management programs on behalf of the province and municipalities. Conservation Authorities carry out programs including natural hazard management (flood and erosion control, drought/low water), the management of conservation authority owned land, and surface water and groundwater monitoring programs (Government of Ontario 2022). They also provide advice to municipalities regarding natural hazard management and other matters (e.g., development impacts on floodplains and wetlands).

The Conservation Authority whose jurisdiction the Subject Property falls under is the Lake Simcoe Region Conservation Authority (LSRCA). Effective April 1, 2024, Ontario Regulation 41/24, Prohibited Activities, Exemptions and Permits (made under the Conservation Authorities Act) became applicable (Government of Ontario 2024). Under this regulation, Conservation Authorities (including LSRCA) can regulate the impacts of development and activities in or adjacent to river or stream valleys, Great Lakes watercourses and other hazardous lands (such as floodplains, the shorelines of inland lakes and wetlands) through a permitting process (Government of Ontario 2024b).

1.5 Other Resources Referenced

Prior to field surveys, background information for the Site and surrounding lands from a variety of sources were reviewed to provide context for the setting and sensitivity of the Site. Background information sources include:

1.5.1 Data Sources

- Department of Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping (DFO, 2022)
- Orthophotography/Satellite Imagery
- MNRF Land Information Ontario (LIO) database mapping and Natural Heritage Information Centre (NHIC) Make a Map tool (2019)
- Ontario Breeding Bird Atlas data (Bird Studies Canada, (BSC) 2001-2005 field data)
- NatureCounts data (Bird Studies Canada, 2020)
- Ontario Ministry of Natural Resources Fish-On Line, Fish Species List (OMNR, 2019)
- Reptile and Amphibian Atlas (Ontario Nature, 2019)

1.5.2 Literature and Resources

- Natural Heritage Reference Manual (MNRF, 2010)
- Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. Peterborough, 38pp. (MNRF, 2015)

1.6 Description of Development

The Phase 2 proposed development includes the creation of 17 estate lots to be developed with single-family dwellings, as well as roads and servicing including a stormwater pond. Please note, Phase 1 of the development is located adjacent to Zephyr Road and was addressed in a separate NHE report submitted in April 2020.

The development interactions with the natural features in Phase 2 will be addressed in this report.

1.7 Scope of Report

This NHE report provides the following information as outlined in the Terms of Reference (**Appendix H**) and agency correspondence:

- Baseline ELC delineation and mapping of the area, including soil sampling
- Breeding bird surveys
- Amphibian breeding surveys
- Wetland delineation and boundary updates
- Incidental observations of amphibians, birds, snakes, and other wildlife
- Presence of significant trees (butternut, black ash) or regionally rare plants
- Detailed tree inventory and assessment of woodland designation
- Assessment of habitat for wildlife including wildlife linkages
- Ecological functions of the woodland, including Significant Wildlife Habitat
- Presence of habitat of threatened or endangered species (butternut, bats, woodland bird species)
- Fish and aquatic habitat assessments and surface water quality sampling
- Targeted Species and Risk (SAR) surveys.

This report will only deal with the suitability of the Site from a biological perspective and the constraints due to the presence of the key natural heritage features and NHS policies. Any other approvals or constraints due to zoning, flood and fill regulations, water balances, health regulations, archaeology, slope stability studies, minimum distance separation or other approvals for the township and other agencies are the responsibility of the owner.

2. Study Methods

2.1 General Approach

The field inventories for the Phase 2 development area were completed in 2017, spring 2022, and summer 2024. The following field assessments have been completed for the Phase 2 development area: background natural features review, vegetation communities, wildlife, breeding birds, amphibian breeding surveys, fish community surveys, aquatic habitat, surface water quality, and species at risk screening.

Our approach to preparation of the Phase 2 NHE consisted of four distinct phases.

1. Reviewed and updated the Phase 2 background information. The background review included recent air photography, Township of Uxbridge Official Plan, Greenbelt Plan land use and key natural features GIS mapping, MNRF GIS database mapping and woodland layers and other correspondence or files.
2. Preparing a Terms of Reference report for the Phase 2 report to verify if any further field inventories were required by the Township or Lake Simcoe Region Conservation Authority.
3. Conduct additional field inventories that were requested by LSRCA from the Terms of Reference comments and consultation. As well as the comments on the NHE received the peer reviewer. Inventories included three amphibian breeding surveys, one additional ELC and botanical inventory in 2022. Confirm ELC vegetation

communities including wetlands, one additional breeding bird survey, and targeted Species at Risk surveys in 2024. The Terms of Reference (ToR) and ToR checklist has been provided in Appendix H and I.

4. Preparation of the NHE report based upon both the updated literature and development plan following the requirements in the Provincial Planning Statement, Township of Uxbridge Official Plan, Township of Uxbridge zoning bylaw and the Greenbelt Plan. The report focuses on the maintenance of these features and their functions. The impact assessment and mitigation measures focus on the wetland and ANSI, maintaining water infiltration, wildlife issues and natural linkage and corridors in the area. The report identifies planning, design and construction practices that will maintain or enhance the identified features and functions in this area of the Greenbelt.

The NHE report will be submitted by Ecovue to the Township. They in turn will forward the report to LSRCA for environmental review and comments. The NHE report has been written to meet the requirements of the Official Plan, Greenbelt Plan and the LSRCA planning policies.

2.2 Site Study Methodology

2.2.1 Physical Site Characteristics

Site characteristics were assessed during field visits. This assessment included general documentation of existing disturbances, current property use, age of vegetation cover, topography and natural features.

2.2.2 Biophysical Inventory

2.2.2.1 Vegetation

ELC Survey Method

All vegetation encountered in the Site were inventoried during spring and summer site visits in 2017, and again in spring of 2022. A Site visit was conducted in summer of 2024 to verify the Ecological Land Classification (ELC) communities and wetland boundaries based on current conditions.

Delineation and classification of the vegetation community types was based on the Ecological Land Classification for Southern Ontario (Lee et al., 1998). General notes on disturbance, topography, soil types, soil moisture and state of each community were also compiled.

Rare, significant or unusual species were searched for. Species significance or rarity on a national, provincial, regional and local level was based on published literature and standard status lists. These included SARA (2021), COSEWIC (2021), COSSARO (2021), Ontario Endangered Species Act (2008), Riley (1989).

2.2.2.2 Birds

Breeding Bird Survey (BBS) Survey

Breeding bird surveys were conducted in summer of 2017 following the protocols of the Ontario Breeding Bird Atlas (OBBA) point count methodologies. One additional BBS survey was conducted in summer 2024 to record bird species on Site. Surveys were conducted in the peak season (April 15 to August 15) approximately 10-15 days apart. All birds seen or heard within the five-minute station period were documented and breeding evidence codes recorded. Surveys were conducted in the early morning. In addition, any birds protected under the Schedule 1 Migratory Birds Convention Act (MBCA) were also searched for, targeting suitable habitat.

2.2.2.3 Amphibians

Breeding Amphibian Surveys

Three targeted surveys were completed in spring of 2022 to detect any calling amphibians (i.e., frogs or toads). Surveys were conducted following a modified Marsh Monitoring Program protocol. Surveys were conducted when evening temperatures were a minimum of 5ºC and 10ºC and for 3 minutes per survey time period, starting no earlier than 30 minutes after sunset and no later than midnight. Stations are placed so that calling amphibians were detected from all wetland and adjacent upland habitats. MMP protocol requires 250 m spacing between stations. For these surveys, stations are placed in close proximity to wetland pockets regardless of the distance between stations. Field conditions were recorded upon arrival (cloud cover, temperature, wind, precipitation). Surveyors noted whether any species detected were within (or outside of) 100 meters of the survey station.

Protocol from Environment Canada's Marsh Monitoring Program was utilized using associated call level codes. Code 1: Calls not simultaneous, number of individuals can be accurately counted. Code 2: Some calls simultaneous, number of individuals can be reliably estimated. Code 3: full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated.

2.2.2.4 Other Wildlife

While surveyors were on Site conducting surveys of vegetation communities (i.e., ELC and wetland) observations of any wildlife encountered on Site was recorded (including mammals, amphibians and reptiles). Documentation included notes about the species detected, their location and the type of encounter (i.e., direct sightings and indirect evidence such as calls, tracks, scat, burrows, dens, trails and browse).

2.2.2.5 Significant Wildlife Habitat

The identification of Significant Wildlife Habitat was completed in several stages. As part of the background review, natural areas in the Site were examined along with orthophotography. A candidate list of SWH criteria/feature was determined. During the field visits, searches for evidence of those identified candidate features were conducted and the features assessed.

After the field inventories, GHD biologists analyzed the information collected and determined which SWH features (if any) were confirmed based on the habitats on Site and on the Ecological Land Classification communities present on the subject property, using the criteria for Significant Wildlife Habitat in Ecoregion 6E (2015).

2.2.2.6 Targeted Species at Risk Surveys

Black ash

Targeted SAR surveys were conducted in 2024 to document any black ash (*Fraxinus nigra*) within the development envelope and within 30m. Black ash were recently listed as Endangered under the ESA and is afforded protection. If any black ash was identified, a thorough health assessment was completed as per the MECP black ash assessment guidelines (MECP 2024) to determine if the trees were healthy and/or suffering from emerald ash borer infestation.

SAR Bats

Leaf on bat cavity tree surveys were completed as per MECP's Bats and Bat Habitats Guidelines for Windpower (2011) in 2024. The surveys were completed within the development limits where any snag trees or living trees with dead sections/branches, cavities, hollow trees/snags, and/or loose or peeling bark was evident. In addition, the existing buildings on Site were inspected externally to identify potential for bat use. Suitable exit/entry holes were documented (if any) and any physical evidence (i.e. guano) was documented.

Red-Headed Woodpecker

Red-headed woodpecker (*Melanerpes erythrocephalus*) surveys were completed following a modified version of the draft protocol developed by GEI Consultants-Savanta for Environment and Climate Change Canada (March 2021) in

2024. Red-headed woodpecker is listed as endangered in Ontario. One survey was completed to identify if suitable snag/cavity trees were identified and found to have a cavity meeting the GEI specifications (deciduous tree, snag or dead section of large living tree, DBH >50cm, cavity >7m above ground), if suitable characteristics were identified, call back surveys were completed, watching the cavity and listening for a call back response was conducted. The surveys were completed within the proposed development envelope and within 30m.

2.2.2.7 Fish and Aquatic Habitat

Aquatic habitat assessments were conducted in summer 2017 using standardized provincial aquatic protocols (OSAP, MTO). Aquatic habitat was quantified and characterized based on local substrate composition, vegetation, flow influence and condition, sediment transport, cover, channel morphology, groundwater indicators, riparian habitat, barrier presence and form, land use and landscape influences, human modifications and unique features. Appropriate assessment types were determined on-site based on feature type using professional judgment.

Surface water quality was collected by GHD biologists. Measured parameters included dissolved oxygen (mg/L), conductivity (us/cm), total dissolved solids (mg/L) and water temperature (°C) using a handheld YSI Professional Plus System. The pH was recorded with a handheld waterproof pH meter and turbidity was recorded with a handheld LaMotte2020.

The Canadian Water Quality Guidelines for the Protection of Aquatic Life (Canadian Council of Ministers of the Environment, 2002) and the Provincial Water Quality Objectives (PWQO) were used to interpret water quality data (Energy, 1994).

Fish community sampling was conducted on Site in summer of 2017 using a Smith-Root Model 24 backpack electrofisher, single pass technique (Stanfield, 2017). The single pass survey technique allowed biologists to characterize the fish community and provide a qualitative assessment of species abundance at the Site. This method requires a high shocking intensity (7-15 sec/m2) and typically captures 60% of the fish population when all habitats are sampled (Stanfield, 2017). A seine net was also used in the pond habitats where an electrofisher could not be safely used. The seine net dimension were 4.5 m x 1.2 m with a bag 0.9 m (wide) x 1.2 m (deep) x 1.2 m (height). Fish total length (mm) and weight (g) were recorded for the first ten individuals of each species at each site. The remaining individuals for each species were counted and weighed in bulk.

3. Survey Results

The following section presents GHD site-specific survey data only. Supporting information, the background review or other sources will be presented and discussed in **Section 4.0** -Discussions and Analysis.

3.1 Physical Site Characteristics

The topography of the surrounding area is rolling and generally drains east into the Zephyr-Egypt Wetland Complex PSW. Phase 2 land of the subject property is approximately 34 acres in size and includes an abandoned / unmaintained golf course and associated buildings and laneways. The surrounding lands include residential and rural developments, as well as natural areas. The proposed subdivision is located in the cleared area associated with the previous golf course lands.

3.2 Biological Inventories

3.2.1 Vegetation

3.2.1.1 Level of Effort

The vegetation communities were delineated within the study by GHD biologists according to the methodologies outlined in **Section 2.2.2.1**. A summary of the level of effort and environmental conditions have been provided in **Table 1**.

Table 1 Vegetation Survey – Level of Effort and Environmental Conditions

Survey Date	Survey Type	Weather	Start Time	Effort (hours)
July 6, 2017	ELC	Sunny (30% cloud cover), humid, BWS 0-1, no precipitation during surveys, air temperature 22-28 °C	08:45	2.5 (x 2 staff)
June 7, 2022		Cloudy (100% cloud cover), BWS 1-2, no precipitation during the surveys, air temperature 16C	20:32	2 (x 2 staff)
July 25, 2024		Sun/cloud (50% cloud cover), BWS 0, no precipitation during surveys, air temperature 14C.	06:30	6 (x 2 staff)

3.2.1.2 ELC Code Descriptions

Twelve vegetation communities were identified within the entire Site. However, 2 communities (Community 2 and 4 as seen on **Figure 1**) were located in Phase 1 only, outside of the Phase 2 Site. These communities will be omitted from the descriptions below. Each community within the Phase 2 area is described below and illustrated in **Figure 1**. Representative photos of each vegetation community have been presented below (Photo 1 to 9).

A total of 183 plant species were identified in the entire Site. The majority of these are common species, typical of rural, edge, wetland and woodland communities. A complete plant list is found in **Appendix A**.

Community 1 Cultural Savannah (CUS1)

This community represents the central portion of the Site, which has been used as a golf course in the past and is now unmaintained. The area is characterized by grassy areas interspersed with patches and rows of trees. Trees in this community include red pine (*Pinus resinosa*), Scot's pine (*P. sylvestris*), white spruce (*Picea glauca*), weeping willow (*Salix babylonica*), Norway maple (*Acer platanoides*), sugar maple (*A. saccharum ssp. saccharum*), and silver maple (*A. saccharinum*). The ground layer is generally dominated by grasses, including red fescue (*Festuca rubra*), Kentucky bluegrass (*Poa pratensis*), fowl meadow grass (*P. palustris*), awnless brome grass (*Bromus inermis*), timothy (*Phleum pretense*), and quackgrass (*Elymus repens*). In addition, a number of common forbs typical of disturbed sites have begun to colonize the area such as common dandelion (*Taraxacum officniale*), white clover (*Trifolium repens*), tall buttercup (*Ranunculus acris*), Queen Anne's lace (*Daucus carota*), bird's-foot trefoil (*Lotus corniculatus*) and broad-leaved plantain (*Plantago major*).

Photo 1: Community 1 (Photo Date: July 6, 2017)

Community 3 Maintained Area Around Buildings (No ELC Code Applicable)

This community is confined to the area immediately adjacent to the existing buildings and laneway at the north end of the subject property. Several tree species are present including Manitoba maple, Norway maple and eastern white cedar (*Thuja occidentalis*). The scattered understory includes staghorn sumac (*Rhus typhina*), European buckthorn (*Rhamnus cathartica*), lilac (*Syringia vulgaris*), wild red raspberry (*Rubus idaeus*), Virginia creeper (*Parthenocissus inserta*) and wild grape (*Vitis riparia*). The ground cover is dominated by common lawn and field species such as awnless brome grass, Kentucky bluegrass, bird's-foot trefoil, Canada thistle, Queen Anne's lace, common dandelion, tall buttercup, broad-leaved plantain, narrow-leaved plantain (*Plantago lanceolata*), white clover, cow vetch (*Vicia cracca*), common milkweed (*Asclepias syriaca*), common yarrow and swallow-wort.

Photo 2: Community 3 (Photo Date: July 6, 2017)

Community 5 Reed Canary Grass Mineral Meadow Marsh (MAM2-2)

Community 5 represents the portion of the Zephyr-Egypt Wetland Complex PSW directly adjacent to the unmaintained golf course area at the north end of the subject property (portions of Phase 1 and 2 areas). The bulk of this community is dominated by reed canary grass (*Phalaris arundinacea*), with spotted jewelweed (*Impatiens capensis*) and late goldenrod (*Solidago gigantea*) dominating the transitional edge areas, and other common species scattered throughout including coltsfoot (*Tussilago farfara*), field horsetail (*Equisetum arvense*), common cattail (*Typha latifolia*), grass-leaved goldenrod (*Euthamia graminifolia*), marsh bedstraw (*Galium palustris*), swamp milkweed (*Asclepias incarnata*), calico aster (*Sypmyotrichum lateriflorum var. lateriflorum*) and tall white aster (*S. lanceolatum ssp. lanceolatum*). Scattered trees and shrubs include Manitoba maple, Freeman's maple (*Acer x freemanii*), American elm, balsam poplar (*Populus balsamifera*), slender willow (*Salix petiolaris*), Bebb's willow (*S. bebbiana*), pussy willow (*S. discolor*), and red-osier dogwood (*Cornus stolonifera*). The ponded areas in the central portion of Community 5 include aquatic species such as common duckweed (*Lemna minor*), common waterplantain (*Alisma plantago-aquatica*), water horsetail (*Equisetum fluviatile*), wild mint (*Mentha arvensis*), American brooklime (*Veronica americana*), and cursed crowfoot (*Ranunculus scleratus*).

Photo 3: Community 5 (Photo Date: July 6, 2017)

Community 6 White Cedar Mineral Coniferous Swamp (SWC1-1)

This community is in the southeast portion of the subject property and comprises a part of the Zephyr-Egypt Wetland Complex PSW. The canopy in this community is dominated by eastern white cedar, though other trees are scattered throughout, including Manitoba maple, red maple (*Acer rubrum*), white birch (*Betula papyrifera*), and American elm (*Ulmus americana*). The understory includes European buckthorn, wild red raspberry, choke cherry (*Prunus virginiana*), alternate-leaved dogwood (*Cornus alternifolia*), and American black currant (*Ribes americanum*). The ground layer is rich in ferns and forbs typical of cedar swamps, such as spotted jewelweed, bulbet bladder fern (*Cystopteris bulbifera*), sensitive fern (*Onoclea sensibilis*), Canada mayflower (*Maianthemum canadense*), ostrich fern (*Matteuccia struthiopteris*), wild sarsaparilla (*Aralia nudicaulis*), and northern lady fern (*Athyrium felix-femina*).

Photo 4: Community 6 (Photo Date: July 6, 2017)

Community 7 White Cedar – Hardwood Mineral Mixed Swamp (SWM1-1)

This community is in the southeast corner of the subject property and comprises a part of the Zephyr-Egypt Wetland Complex PSW. The canopy in this community includes a mix of eastern white cedar, Manitoba maple, trembling aspen (*Populus tremuloides*) and balsam poplar. The understory includes European buckthorn, choke cherry and alternate-leaved dogwood. The ground layer is similar to that of Community 6 including spotted jewelweed, bulbet bladder fern, and sensitive fern, as well as Canada enchanter's nightshade (*Circaea lutetiana ssp. canadensis*), fowl manna grass (*Glyceria striata*), Jack-in-the-pulpit (*Arisaema triphyllum*), and rice cut grass (*Leersia oryzoides*).

Photo 5: Community 7 (Photo Date: July 6, 2017)

Community 8 Fresh – Moist White Cedar Coniferous Forest (FOC4-1)

Community 8 represents a small upland forest area that is contiguous with the mixed swamp of Community 7, in the southeast corner of the subject property. The canopy in this community is dominated by eastern white cedar, with some scattered Manitoba maple and American basswood (*Tilia americana*) also present. The understory is limited to European buckthorn. The ground layer in this community is very sparse, which is typical of dense cedar stands, where little light can penetrate to the forest floor. Species present include herb Robert (*Geranium robertianum*), common dandelion, garlic mustard (*Alliaria petiolata*), Canada enchanter's nightshade, yellow avens, Canada goldenrod (*Solidago canadensis)* and tall buttercup.

Photo 6: Community 8 (Photo Date: July 6, 2017)

Community 9 Poplar Mineral Deciduous Swamp (SWD4-3)

Community 9 was identified during the 2017 surveys; it is located outside of the Site boundaries within the Zephyr-Egypt Wetland Complex PSW and therefore is not shown on **Figure 1**. The canopy in this community includes abundant trembling aspen with occasional black walnut (*Juglans nigra*), black ash (*Fraxinus nigra*), eastern white cedar, scattered white willow (*Salix alba*), Manitoba maple, American elm, white birch, balsam fir (*Abies balsamea*) and white spruce (*Picea glauca*). The understory includes red-osier dogwood, European buckthorn, Tartarian honeysuckle (*Lonicera tatarica*), wild grape and Virginia creeper. The ground layer is fairly diverse, characterized by abundant spotted jewelweed and sensitive fern with frequent fowl manna grass and purple-stemmed aster (*Symphyotrichum puniceum*) and occasional swallow-wort, late goldenrod and rice cut grass.

Community 10 Deciduous Hedgerow (No ELC Code Applicable)

Community 10 represents a young hedgerow that runs along the south edge of the subject property. This hedgerow was dominated by European buckthorn, with a scattered canopy of Manitoba maple, eastern white cedar, trembling aspen, American basswood and small leaf linden (*Tilia cordata*). The ground layer was limited to a few common species such as Canada goldenrod, swallow-wort, tall buttercup and Canada thistle (*Cirsium arvense*).

Photo 7: Community 10 (Photo Date: July 6, 2017).

Community 11 Forb Mineral Meadow Marsh (MAM2-10)

Community 11 was an additional wetland community delineated during the 2024 field visit which had encroached into Community 1. This community occurred in three pockets along the eastern boundary of the Site, abutting Communities 5, 6, and 7. This meadow marsh was dominated by purple-stemmed aster (*Symphyotrichum puniceum)*, reed canary grass, common cattail, red-osier dogwood, swamp milkweed, Canada goldenrod, and spotted joe-pyeweed (*Eutrochium maculatum*).

Photo 8: Community 11 (Photo Date: July 25, 2024)

Community 12 Water Lily - Bullhead Lily Floating-leaved Shallow Aquatic (SAF1-1)

Community 12 was an additional wetland community delineated during the 2024 field visit. It occurred in a former golf course irrigation pond that was previously unvegetated, which had become dominated by floating-leaved vegetation. The species identified included common cattail, common floating pondweed (*Potamogeton natans*), water-shield (*Brasenia schreberi)*, fragrant water-lily (*Nymphaea odorata spp. Odorata)*, and stonewort (*Chara spp*.).

Photo 9: Community 12 (Photo Date: July 25, 2024)

3.2.2 Birds

3.2.2.1 Bird Surveys - Level of Effort

Targeted surveys for breeding birds were conducted in the Site by GHD biologists according to the methodologies outlined in **Section 2.2.2.2.** A summary of the level of effort and environmental conditions at the time of survey have been provided in **Table 2**.

Table 2 Bird Survey – Level of Effort

Survey Date	Survey Type	Weather	Start Time	Effort (hours)
June 27, 2017	Breeding Bird Surveys	Sunny (10% cloud cover), BWS 0, no precipitation during surveys, air temperature 11 °C	06:15	0.5 (x2 staff)
July 6, 2017		Sunny (30% cloud cover), humid, BWS 0-1, no precipitation during surveys, air temperature 22-28 °C	08:40	1 (x2 staff)
July 25, 2024		Sun/cloud (50% cloud cover), BWS 0, no precipitation during surveys, air temperature 14C.	06:40	0.5 (x2 staff)

3.2.2.2 Breeding Bird Surveys (BBS)

A total of 36 bird species were observed during field surveys in 2017 including common rural, edge and woodland species such as American robin (*Turdus migratorius*), black-capped chickadee (*Poecile atricapillus*), European starling (*Sturnus vulgaris*), cedar waxwing (*Bombycilla cedrorum*), yellow warbler (*Dendroica petechia*), common yellowthroat

(*Geothlypis trichas*), chipping sparrow (*Spizella passerina*), song sparrow (*Melospiza melodia*), northern cardinal (*Cardinalis cardinalis*) and American goldfinch (*Carduelis tristis*) (**Appendix C**).

No BBS surveys were completed in 2022; however, incidentals were recorded while on Site. Two species were observed incidentally in 2022; eastern whip-poor-will (*Antrostomus vociferus*) and American woodcock (*Scolopax minor*).

A total of 21 bird species were observed during the field surveys in 2024 including house wren (*Troglodytes aedon*), green heron (*Butorides virescens*), common raven (*Corvus corax*), white-breasted nuthatch (*Sitta carolinensis*), alder flycatcher (*Empidonax alnorum*), and white-throated sparrow (*Zonotrichia albicollis*). Three additional species were observed incidentally and includednorthern harrier (*Circus hudsonius*), belted kingfisher (*Megaceryle alcyon*), and indigo bunting (*Passerina cyanea*) (**Appendix C**).

No Species at Risk birds were observed on Site.

3.2.3 Amphibians

3.2.3.1 Level of Effort

Three amphibian surveys were conducted by GHD biologists according to a modified Marsh Monitoring Protocol (refer to **Section 2.2.2.3**). **Table 3** summarizes the effort level and weather conditions of these surveys.

Table 3 Amphibian Surveys – Level of Effort

Survey Date	Survey Type	Weather	Start Time
April 21, 2022	Breeding Amphibian Survey	11C/ 9/10 Cloud Cover/ 0 Wind Scale/ No precipitation	20:40
May 9, 2022		15C/ 7/10 Cloud Cover/ 4 Wild Scale/ No precipitation	21:00
June 7, 2022		14C/ 9/10 Cloud Cover/ 2 Wind Scale/ No precipitation	21:40

3.2.3.2 Breeding Amphibian Surveys

Four species of frogs were found during GHD biologist's amphibian breeding surveys in the spring/summer of 2022 (**Appendix D**). Wood frog (*Lithobates sylvaticus)*, spring peeper (*Pseudacris crucifer*), green frog (*Lithobates clamitans*) and American toad (*Anaxyrus americanus*) were all heard in proximity to the three stations on Site, which were all near potential breeding habitats of permanent water bodies and wetlands (**Figure 1**).

Amphibian breeding survey station 1 which targeted an existing golf course pond, contained only one species; green frog with a call index of 1, only on the third visit (June 7, 2022). Two other species, American toad and spring peeper were also heard, but were outside of the survey area and in the distant PSW to the east.

Amphibian breeding survey station 2 targeted an existing golf course pond. Spring peepers with call codes of 3 were identified in visits 1 and 2. Green frog was identified in visits 2 and 3, with both visits recording call code level 1. It should be noted that while conducting these surveys call level codes of 3 were occurring in the nearby PSW of spring peeper, wood frog and American toad.

Amphibian breeding survey station 3 targeted the east pond and PSW. This station recorded call level codes of 3 for spring peepers and wood frog within the 150 m station radius. A call level code of 1 was recorded for green frog on the third visit. American toad was heard at a call level 3 as well but was outside of the station radius. Wood frog egg masses were also identified in large numbers in the PSW ponds.

3.2.4 Other Wildlife

GHD biologists recorded seven herpetozoa species – American bullfrog (*Lithobates catesbeianus*), green frog (*Rana clamitans*), grey treefrog (*Hyla versicolor*), northern leopard frog (*Lithobates pipiens*), snapping turtle (*Chelydra serpentina*) midland painted turtle (*Chrysemys picta marginata*) and milksnake (*Lampropeltis triangulata)* (**Appendix E**). The frogs were heard and/or observed in various locations throughout the Site. The snapping turtle was identified

in the Habitat Zone 1 pond, and midland painted turtles were observed in the Habitat Zone 1 and Habitat Zone 2 ponds, both located within vegetation Community 1 (i.e., the central golf course area). The milksnake was identified basking in Community 3. Refer to **Figure 2** for Habitat Zone locations.

A total of three mammal species were observed by GHD biologists during the surveys in 2017 - eastern cottontail (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*) (tracks), and eastern chipmunk (*Tamias striatus*) (**Appendix F**). In 2022, biologists observed a white-tail deer and a young milksnake (*Lampropeltis Triangulum*). It is likely that the Site also supports a suite of other mammal species common to rural and edge habitats that were not observed, such as coyote (*Canis latrans*), eastern gray squirrel *(Sciurus carolinensis*), red squirrel *(Tamiasciurus hudsonicus)* and red fox (*Vulpes vulpes*).

In 2024, GHD biologists observed five incidental species of which included eastern cottontail, red squirrel, midland painted turtle (*Chrysemys picta*), green frog, and monarch butterfly (*Danaus plexippus*) (**Appendix F**). All of these incidentals were identified in the eastern wetland (Community 5 – MAM2-2 and Community 11 – MAM2-10)

3.2.5 Significant Wildlife Habitat

During our review of candidate significant wildlife habitat, the following were identified as potentially present on Site: Turtle Wintering Areas, amphibian breeding habitat (woodland), amphibian breeding habitat (wetland), Woodland area-sensitive bird breeding habitat, habitat for Special Concern and Rare Wildlife species.

After the 2022 surveys, it was determined that SWH criteria for amphibian breeding habitat (wetlands) was confirmed on and adjacent to the Site, as well as Special Concern and Rare Wildlife Species. The 2024 surveys confirmed habitat to Special Concern and Rare Wildlife Species.

3.2.6 Significant Woodland

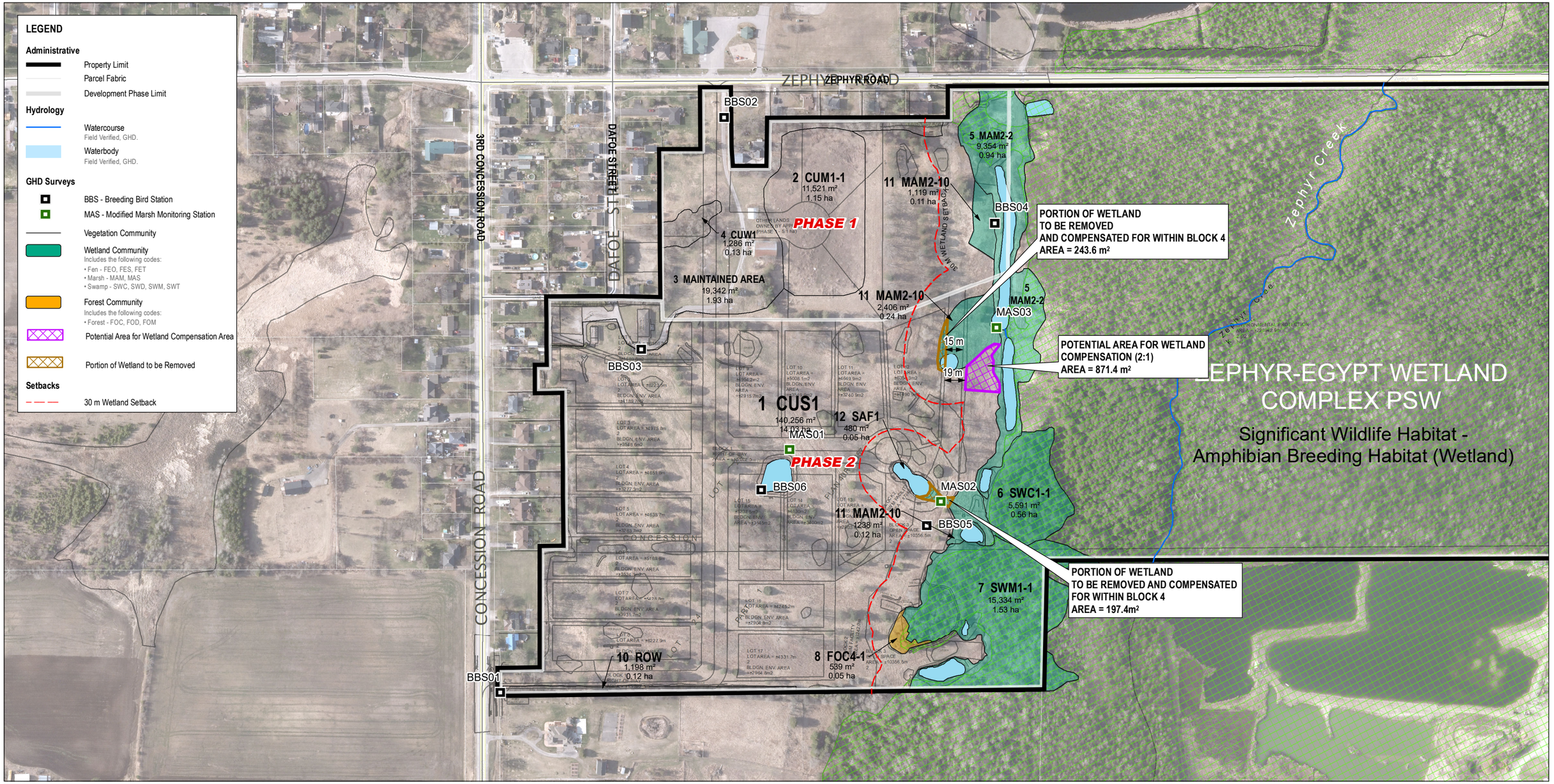
Significant Woodland was identified within the southeast portion of the Site as Communities 6, 7 and 8 (**Figure 1**). The woodland was associated with the swamp communities and their treed portions within the Provincially Significant Wetland.

3.2.7 Wetland

The Zephyr-Egypt Wetland Complex PSW was located along the east portion of the entire Site (Communities 5, 6, 7; **Figure 1**).

During the Site visit on July 25, 2024, biologists found that the wetland along the eastern Site boundary had increased in size, incorporating some of the previously delineated unmaintained golf course community (Community 1 – cultural savannah). Soil cores were conducted to verify the new wetland community boundary (Community 11 – forb mineral meadow marsh) (**Photo 10**). The soil cores revealed organic soils with a depth of 25cm, and a sharp transition to heavily mottled clay soils. **Figure 1** has been updated to reflect the new wetland community. Additionally, one of the ponds on Site was reclassified as a shallow aquatic wetland, however, was determined to be primarily greater than >2 meters in depth (Community 12 – water lily – bullhead lily floating-leaved shallow aquatic).

Photo 10: Soil core in Community 11, organic soils sharply transitioning to heavily mottled clay (Photo Date: July 25, 2025)



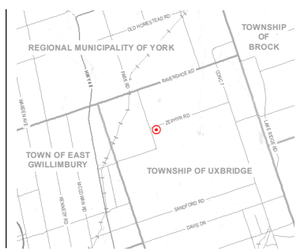
ELC TYPES - 1ST APPROXIMATION

Ecological Land Classification for Southern Ontario: First Approximation and Its Application. 1998.

ELC CODE	ECOSITE-VEGETATION TYPE DESCRIPTION
CUM1-1	Dry-Moist Old Field Meadow
CUW1	Mineral Cultural Woodland
FOC4-1	Fresh-Moist White Cedar Coniferous Forest
MAM2-2	Reed-Canary Grass Mineral Meadow Marsh
SWC1-1	White Cedar Mineral Coniferous Swamp
SWD4-2	White Birch-Poplar Mineral Deciduous Swamp
SWM1-1	White Cedar-Hardwood Mineral Mixed Swamp
CUS1	Cultural Savannah
MAM2-10	Forb Mineral Meadow Marsh
SAF1-1	Water Lily - Bullhead Lily Floating-leaved Shallow Aquatic

CITATIONS

- Draft Plan of Subdivision. 17-1672. .EcoVue Consulting. July 28, 2021.
- Lee. H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.
- Imagery Source: © Regional Municipality of Durham, 2020.



REVISION & WORK HISTORY

REV	BY	DATE	DESCRIPTION	REQUEST
0	W.P.	2018-03-13	Initial map creation.	C.E.
1	W.P.	2018-03-16	Changes to vegetation communities.	C.E.
2	W.P.	2020-03-26	Changes to orthophotography and site plan.	K.R.
3	W.P.	2020-04-14	Changes to vegetation communities.	K.R.
4	W.P.	2021-09-27	Full updates to template, property boundaries, vegetation and parcels.	C.E.
5	W.P.	2022-07-22	Updates to surveys. Adding new survey stations.	C.D.T.

DATA DISCLAIMERS

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Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

SCALE
1 cm : 34 meters
0 10 20 30 40
Meters

JING BEI XIN MIN CO. LTD
Zephyr Road, Zephyr, ON
Pt Lots 24 & 25, Con 3, Geo. Township of Scott
Township of Uxbridge
Regional Municipality of Durham
Lake Simcoe Region Conservation Authority

NATURAL HERITAGE EVALUATION

VEGETATION COMMUNITIES, TERRESTRIAL FEATURES & CONSTRAINTS

Project No. **12562874**
Revision No. **04**
Date **2025-05-02**

FIGURE 1

Document Path: Q:\GIS\PROJECTS\12562000s\12562874\Layouts\202109_RPT001\12562874_202408_RPT001_GIS001 - Vegetation Communities, Terrestrial Features and Constraints.mxd
Date Saved: 2025-05-02 3:24:02 PM

3.2.8 Fish and Aquatic Habitat

3.2.8.1 Level of Effort

Surveys for fish and aquatic habitat were conducted on August 21st, 2017. Surveys were conducted following the methodologies outlined in **Section 2.2.2.6**. A summary of the level of effort and environmental conditions at the time of assessment have been provided in **Table 4**.

Table 4 Fish and Aquatic Habitat Surveys – Level of Effort

Survey Date	Survey Type	Weather	Start Time	Effort (Person hrs.)
August 21, 2017	Aquatic Habitat Assessments, Fish Community Surveys and Surface Water Quality	Sunny (0% cloud cover), humid, BWS 0-2, no precipitation during surveys, air temperature 30.9 °C and water temperature 22.7°C and 24.5 °C.	10:00	7 (x2 staff)
Note: BWS-Beaufort Wind Scale (Government of Canada, 2017),				

Aquatic Habitat Assessments

The Site is part of the Black River subwatershed, one of the healthiest subwatersheds in the Lake Simcoe basin. The Black River subwatershed occupies 375km^2 of lands south of the eastern portion of Lake Simcoe. The main tributaries in the subwatershed include Harrison Creek, Mount Albert Creek, Vivian Creek, and Zephyr Creek. These watercourses mainly flow through natural features and agricultural areas before reaching Sutton, Ontario and out letting into Lake Simcoe (LSRCA, 2010). There were several unnamed ponds located within the Site. These ponds were likely manmade for the purpose of the golf course.

The Site was classified into eight aquatic habitat zones (Habitat Zone 1-8). Habitat zones were established based on barriers, difference in substrate composition, riparian habitat, percent in-stream cover, hydrological connection, and unique features. The aquatic habitat zone locations have been illustrated in **Figure 2**, their attributes have been summarized in **Table 5** and representative photos from each habitat zone has been presented under each habitat zone description (**Photos 11 to 21**).

The distinguishing features of these habitat zones was location, in-stream and overhead cover. All the ponds expect for Habitat Zone 8 were isolated and not connected to any other waterbodies within the Site, therefore preventing fish movement to and from the other ponds. The in-water substrate was dominated by fine organics except for Habitat Zone 7 (**Table 5**).

Habitat Zone Descriptions

Habitat Zone 1 was one of the northeastern ponds (**Figure 2**) and had an area of approximately 672 m^2. The minimum water depth of 0.1 m and maximum water depth of 1.2 m. The overhead cover was low consisting of non-woody vegetation. The instream cover was dense consisting of submergent, emergent and floating aquatic vegetation (**Table 5**). The dominant vegetation species include Eurasian water-milfoil (*Myriophyllum spicatum*), stonewort (*Chara spp*.), common floating pondweed (*Potamogeton natans*) and common cattail *(Typha latifolia).* Please refer **Section 3.2.1**, Community 12 for full vegetation community details. During the time of assessments biologists noted the presence of fish within this zone.

Photo 11: Habitat Zone 1, photo pond, riparian and in-water habitat. Photo facing northwest (Photo Date: August 21, 2017)

Habitat Zone 2 was an unnamed pond approximately 97 m west of Habitat Zone 1 (**Figure 2**). The unnamed pond had a total area of approximately 884 m^2, minimum water depth of 0.1 m and maximum water depth of 1.5 m. The overhead cover was sparse consisting of non-woody vegetation. The instream cover was dense with submergent aquatic vegetation (**Table 5**). The dominant species include needle spike-rush (*Eleocharis acicularis*) and stonewort (*Chara spp*). Please refer **Section 3.2.1**, Community 1 for full vegetation community details. During the time of assessment, GHD noted the presence of fish within this zone.

Photo 12 (left) and 13 (right): Habitat Zone 2, photo showing unnamed pond, riparian and in-water habitat. Photo facing northwest (Photo Date: August 21, 2017).

Habitat Zone 3 was in an unnamed pond located 100 m northeast of Habitat Zone 1 (**Figure 2**). The unnamed pond was completely choked out by cattails *(Typha latifolia)*. The minimum water depth of 0.1 m and a maximum water depth of 0.3 m. The overhead and instream cover were dense, and completely composed of cattails (**Table 5**). During the time of assessment biologists noted that there were no fish observed in the pond and there were only a few pockets of standing water. Please refer **Section 3.2.1.2** Community 11 for full vegetation community details.

Photo 14a: Habitat Zone 3, photo showing pond (outlined in red) and riparian habitat. Photo facing northeast (Photo Date: August 21, 2017)

Photo14b: Habitat Zone 3, photo showing dense cattails in pond (Photo Date: August 21, 2017)

Habitat Zone 4 was in an unnamed pond approximately 151 m southeast of Habitat Zone 1 (Figure 2). It was located within the White Cedar – Hardwood Mineral Mixed Swamp (**Figure 1** - Vegetation Community 7).

The pond had a total area of approximately 382 m^2 with a minimum water depth of 0.2 m and a maximum water depth of 1 m. The overhead cover was low consisting of trees, shrubs and non -woody vegetation. The instream cover was dominated by submergent aquatic vegetation (**Table 5**). The dominant aquatic vegetation species included stonewort (*Chara spp*), common cattail *(Typha latifolia)*, broad-fruited bur-reed (*Sparganium eurycarpum*), swamp milkweed

(*Asclepias incarnata*) and narrow-leaved cattail (*Typha angustifolia*). Please refer **Section 3.2.1**, Community 7 for full vegetation community details. Biologists noted that fish were not observed in the pond at the time of the assessment.

Photo 15: Habitat Zone 4, photo showing the western portion of pond, riparian and in-water habitat. Photo facing southwest (Photo Date: August 21, 2017)

Photo 16: Habitat Zone 4, photo showing the eastern portion of pond, riparian and in-water habitat. Photo facing southeast (Photo Date: August 21, 2017)

Habitat Zone 5 was in an unnamed pond approximately 22 m northeast of Habitat Zone 4 (**Figure 2**). The pond had a total area of 102 m^2. It was located within the White Cedar – Hardwood Mineral Mixed Swamp (Vegetation Community 7) with a minimum water depth of 1 m and a maximum water depth of 1.5 m. The overhead cover was low consisting of shrubs, trees, and overhanging banks. The instream cover was dense with aquatic vegetation and algae (**Table 5**). The dominant aquatic vegetation species included algae, star duckweed (*Lemna trisulca*), common duckweed (*Lemna minor*), and common cattail *(Typha latifolia).* Please refer **Section 3.2.1.2** Community 7 for full vegetation community details. No fish were observed in this pond at the time of the assessment.

Photo 17: Habitat Zone 5, photo showing the pond, riparian and in-water habitat. Photo facing northeast (Photo Date: August 21, 2017)

Habitat Zone 6 was in an unnamed pond approximately 67 m northwest of Habitat Zone 5 (**Figure 2**). The pond had a total area of 258 m^2. It was located within the Forb Mineral Meadow Marsh (Vegetation Community 11) with a minimum water depth of 0.1 m and a maximum water depth of 0.5 m. The overhead cover was low with trees, woody debris, and non-woody debris. The instream cover was dense with small woody debris, submergent aquatic vegetation, emergent aquatic vegetation, and algae (**Table 5**). The dominant aquatic vegetation species present included common cattail (*Typha latifolia*) . Please refer **Section 3.2.1** Community 11 for full vegetation community details. Biologists noted that fish were observed in the pond at the time of the assessment.

Photo 18: Habitat Zone 6, photo showing the pond, riparian and in-water habitat. Photo facing southeast (Photo Date: August 21, 2017)

Habitat Zone 7 was located approximately 31 m north of Habitat Zone 6 in an unnamed pond (**Figure 2**). The pond had a total area of 158 m^2 and was located between Reed Canary Grass Mineral Meadow Marsh and the White Cedar Mineral Coniferous Swamp (Vegetation Community 5 and 6).

The substrate was composed of sand, silt and fine organics, the water depth ranged from 0.1 m to 0.4 m. The overhead cover was moderate consisting of shrubs, trees and woody debris. The instream cover was also moderate with small woody debris and algae (**Table 5**). The dominant aquatic vegetation species included: algae, common duckweed (*Lemna minor*), water arum (*Calla palustris*), common cattail *(Typha latifolia)* and straight-leaved pondweed (*Potamogeton strictifolius*). Please refer Section 3.2.1.2 **Vegetation 5** for full vegetation community details. Biologists noted that fish were not observed in the pond at the time of the assessment.

Photo 19: Habitat Zone 7, photo showing the pond, riparian and in-water habitat. Photo facing northeast (Photo Date: August 21, 2017)

Habitat Zone 8 was in an unnamed pond approximately 98 m northeast of Habitat Zone 7 (**Figure 2**) and had a total area of approximately 2,193 m^2. Due to the size of this pond, biologists were unable to determine the connectivity. This pond was located within the Reed Canary Grass Mineral Meadow Marsh (Vegetation Community 5) and adjacent to the Zephyr-Egypt Wetland Complex PSW. Zephyr Creek is located east of this Habitat Zone within the PSW. It should be noted that only the southern portion of this pond is located within the Phase 2 lands.

The dominant substrate was fine organics with a minimum water depth of 0.1 m and a maximum water depth of 1 m. The overhead cover was low consisting of shrubs. The instream cover was also considered low with algae and aquatic vegetation (**Table 5**). The dominant aquatic vegetation species included common cattail *(Typha latifoli)* and common duckweed (*Lemna minor*). Please refer **Section 3.2.1**, Community 5 for full vegetation community details. Biologists noted that fish were not observed in the portion of the pond visible at the time of the assessment.

Photo 20: Habitat Zone 8, photo showing the northern portion of pond, riparian and in-water habitat. Photo facing northeast (Photo Date: August 21, 2017).

Photo 21: Habitat Zone 8, photo showing the southern portion unnamed pond, riparian and in-water habitat. Photo facing southeast (Photo Date: August 21, 2017).

Table 5 Detailed Aquatic Habitat Observations

Habitat Zone	Substrate Composition	In-Stream Cover	Canopy Cover (%)	Overhead Cover	Average Water Depth Range (m)	Zone Area (m^2)
1	100% fine organics	70% submergent aquatic vegetation 10% emergent aquatic vegetation 5% floating aquatic vegetation	0-24	2% non-woody vegetation	0.1-1.2	672
2	100% fine organics	80% submergent aquatic vegetation	0-24	15% non-woody vegetation	0.1-1.5	884
3	100% fine organics	100% emergent aquatic vegetation	0-24	100% cattails	0.1-0.3	76
4	100% fine organics	2% small woody debris 80% submergent aquatic vegetation	0-24	2% trees 5% woody debris 1% non-woody debris	0.2-1	382
5	100% fine organics	95% floating aquatic vegetation	0-24	5% shrubs 5% trees 5% woody debris 1% overhanging banks	1-1.5	102
6	100% fine organics	80% submergent aquatic vegetation 2% emergent aquatic vegetation	0-24	2% trees 2% woody debris 1% overhanging banks	0.1-0.5	258
7	30% sand 20% silt 50% fine organics	5% small woody debris 5% submergent aquatic vegetation 10% emergent aquatic vegetation 20% floating aquatic vegetation	25-49	5% shrubs 20% trees 10% woody debris	0.1-0.4	158
8	100% fine organics	5% floating aquatic vegetation 5% algae	0-24	10% shrubs	0.1-1	2.19

Surface water quality was collected in Habitat Zone 1 and 2 on August 21 2017approximately 0.3 m and 0.4 m below the surface of the water (**Figure 1**). A summary of results and information on the parameter specifics has been provided in **Table 6**.

Table 6 Surface Water Quality Results

Water Quality Parameters	Habitat Zone		Accepted Parameter Range
	01	02	
Date (dd/mm/yy)	21/08/17	21/08/17	N/A
Time (hh:mm)	11:00	15:09	N/A
Weather conditions	Clear, sunny, hot, humid, BWS 2.	Clear, sunny, hot, humid, BWS 1.	N/A
Sample Depth (m)	0.3	0.4	N/A
Air Temperature (°C)	30.9	31	N/A
Water Temperature (°C)	22.7	24.5	N/A
Dissolved Oxygen (mg/L)	9.45	10.04	5-8*
Total Dissolved Solids (mg/L)	193.05	243.10	N/A
Conductivity (SPC·us/cm)	284.5	370.4	N/A
Salinity (ppt)	0.14	0.18	N/A
pH	7.42	7.81	8-10**
Turbidity (NTU)	1.43	1.24	Normal**
Note: BWS=Beaufort wind scale (Government of Canada, 2017), N/A= not applicable and/or specific guidelines not available. *lowest acceptable range for cool water biota (Canadian Council of Ministers of the Environment, 2002), ** Provincial Water Quality Objectives (PWQO) (Energy, 1994).			

Fish Community

Existing fish community data was not available for the unnamed ponds within the Site. Therefore, GHD conducted fish community surveys on August 21, 2017 in two of the unnamed ponds (Habitat Zone 1 and 2) (**Figure 2**). It should be noted that although there was a total of eight unnamed ponds in the Site. Only two ponds were sampled as they are located directly in the development area at the time of the assessments in 2027. The remaining ponds were visually assessed for fish presence during the detailed habitat assessments.

Cumulatively, 96 fish were collected in Habitat Zone 1 (**Figure 2**). A total of three species made up the fish community and represented the following families: *Cyprinidae*, *Gasterosteidae* and *Leuciscidae*. The fish community was composed of a mixture of cool and warm water fish species that are common to the Black River Sub watershed. The most abundant fish species collected were the Common Carp (*Cyprinus carpio*) (**Photo 22**) and Blacknose Shiner (*Notropis heterodon*), both species had a total count of 44 individuals (**Table 7**).

The fish species in Habitat Zone 2 was similar to Habitat Zone 1, with a total of 73 fish individuals observed. The fish community was composed of three species representing the *Cyprinidae* and *Leuciscidae* families. The fish community present was made up of cool and warm water fish species that are common to the Black River Sub watershed. The most abundant fish species collected was the Common Carp (**Table 7** and Photo 22).

A summary of the fish community, environmental conditions and level of effort have been illustrated in **Table 7**.

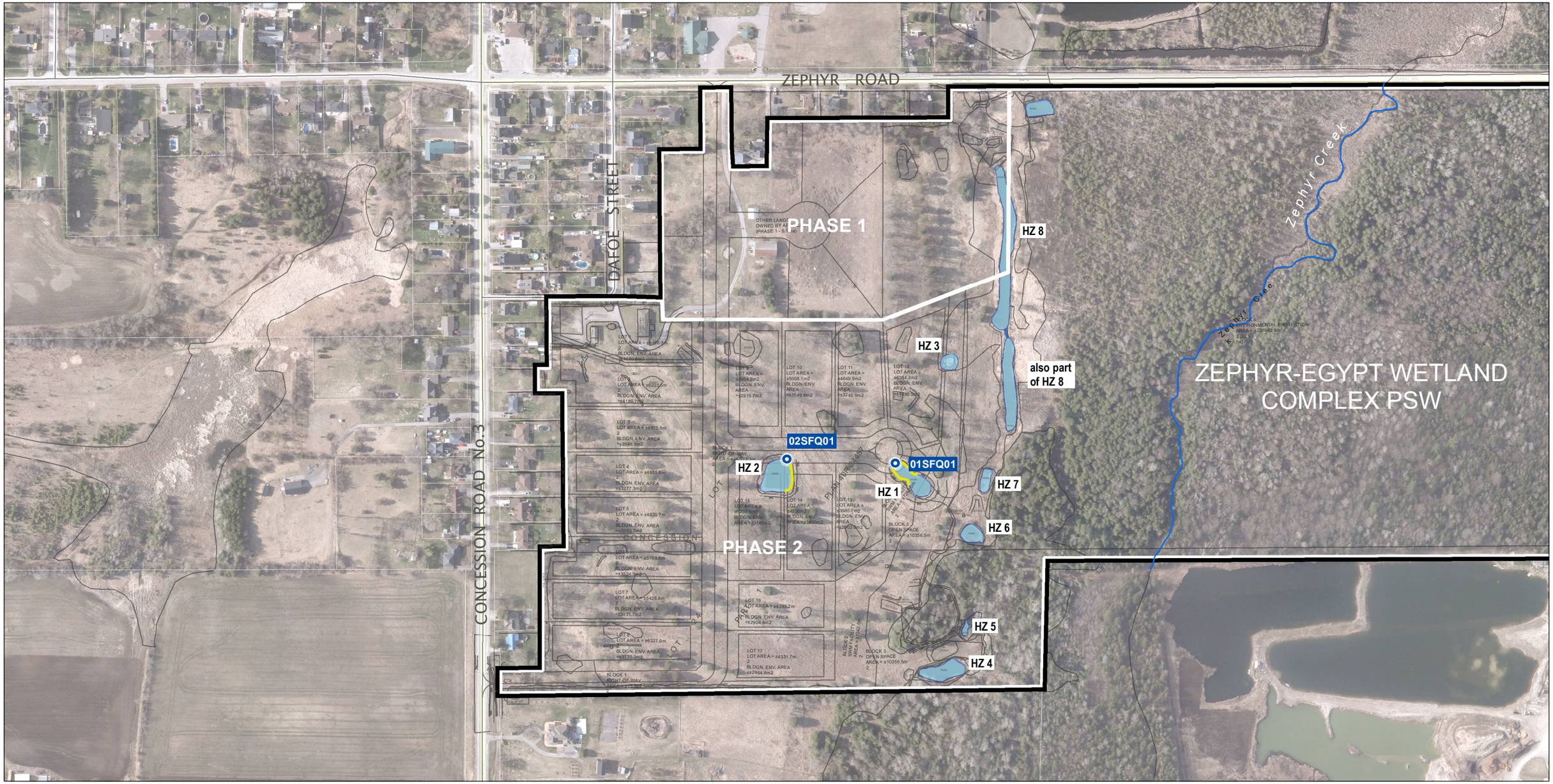
Photo 22: Photo showing Common Carp (Cyprinus carpio) collected in Habitat Zone 1 (Photo Date: August 21, 2017)

Photo 23: Photo showing Goldfish (Carassius auratus) collected in Habitat Zone 2 (Photo Date: August 21, 2017)

Table 7 Fish Community Data for Habitat Zone 1 and 2

Family Name	Common Name	Scientific Name	Thermal Regime	Spawning Season	Habitat Zones	
					1	2
Cyprinidae	Common Carp	*Cyprinus carpio*	Warmwater	Spring-Summer (May-August)	44	59
	Goldfish	*Carassius auratus*	Warmwater	Spring-Summer (May-July)	0	6
Gasterosteidae	Brook Stickleback	*Culaea inconstans*	Coolwater	Spring-Summer (May-July)	7	0
Leuciscidae	Blacknose Shiner	*Notropis heterodon*	Coolwater	Summer (June-August)	44	9
Catch Summary						
				Abundance	95	74
				Species Diversity	3	3
Incidentals						
Chelydridae	Common Snapping Turtle	*Chelydra serpentina*	N/A		1	0
Lithobates	Northern Leopard Frog (tadpole)	*Lithobates pipiens*	N/A		1	0
Environmental Conditions						
				Air Temperature (°C)	30.9	31
				Stream Temperature (°C)	22.7	24.5
Sample Attributes						
				Date (dd-mmm-yy)	21-Aug-17	21-Aug-17
				Gear Type*	SN	EF
				Total Effort	1 haul	7.59 sec/m^2
				Frequency (hertz)	N/A	70
				Voltage	N/A	350
				Shocker Seconds	N/A	508
				Sample Length (m)	60	33.48
				Average Sample Width (m)	4.5	2

Note: The thermal regime and spawning season for each fish species was obtained from *Ontario Freshwater Fishes Life History Database* (Eakins, 2019).
EF=Electrofisher, SN=Seine Net



LEGEND

Administrative

- Property Limit
- Parcel Fabric
- Development Phase Limit

Hydrology

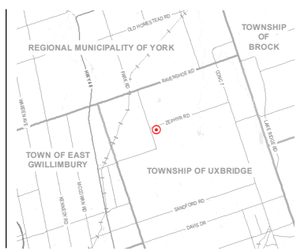
- Watercourse/Drainage
  Field Verified, GHD.
- Waterbody / River / Drainage
  Field Verified, GHD.

GHD Surveys

- Surface Water Quality Survey Station (SFQ)
- Fish Community Survey

CITATIONS

- Draft Plan of Subdivision. 17-1672. .EcoVue Consulting. July 28, 2021.
- Imagery Source: © Regional Municipality of Durham, 2020.



REVISION & WORK HISTORY

REV	BY	DATE	DESCRIPTION	REQUEST
0	W.P.	2018-03-13	Initial map creation.	S.Z.
1	W.P.	2020-03-27	Updates to orthophotography and site plan.	S.Z.
2	W.P.	2021-09-27	Updates to template.	S.Z.

DATA DISCLAIMERS

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Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

SCALE
1 cm : 34 meters
0 10 20 30 40
Meters

JING BEI XIN MIN CO. LTD
Zephyr Road, Zephyr, ON
Pt Lots 24 & 25, Con 3, Geo. Township of Scott
Township of Uxbridge
Regional Municipality of Durham
Lake Simcoe Region Conservation Authority

NATURAL HERITAGE EVALUATION
AQUATIC SURVEY LOCATIONS

Project No. **12562874**
Revision No. **02**
Date **2025-05-02**

FIGURE 1

Document Path: Q:\GIS\PROJECTS\12562000s\12562874\Layouts\202109_RPT001\12562874_202109_RPT001_GIS002 - Aquatic Survey Locations.mxd
Date Saved: 2025-05-02 3:20:52 PM

4. Discussion and Analysis

4.1 Species and Communities

4.1.1 Vegetation

The NHIC database does not list any plant Species at Risk (SAR) records in this area. One of the plant species, black ash, found by GHD biologists during the field visits in 2017 is considered endangered on a national and provincially level (**Appendix B**) (COSEWIC, 2023; COSSARO, 2025; SARA, 2025, Riley, 1989). This species was not identified within the Site boundary. Additional field investigations to locate black ash in 2024 within the proposed building envelope and within 30 meters (where access allows) did not identify any black ash.

Several regionally rare species have been identified on the Site as per the Lake Simcoe Environmental Management Strategy (LSEMS) – State of Lake Simcoe report (2003) and Riley (1989) regionally rare plant lists. The LSEMS list identifies marsh horsetail (Community 5), red pine (Community 1), moonseed (Community 6), black walnut (Community 9), pale snapweed (Community 5), straight-leaved pondweed (Community 5), and Canadian rush (Community 5 and 11) as being regionally rare. The Riley list for the Lake Simcoe area lists field thistle (Community 1, 6 and 7), and tall goldenrod (Community 1, 2, 3, 4, 5) as additional species.

No vegetation communities found by GHD biologists during the field visits in 2017, 2022 and 2024 are considered significant on a national, provincial or local level (COSEWIC, 2023; COSSARO, 2025).

4.1.2 Birds

No nationally, provincially or regionally significant bird species were recorded during the field survey in 2017 or 2024 (Appendix C) (COSEWIC, 2023 COSSARO, 2025). One bird species, yellow-bellied sapsucker (*Sphyrapicus varius*), is area sensitive (Appendix C) and was identified in Community 1. Area-sensitive birds require a minimum hectarage of suitable habitat to maintain their population.

Further to 2024 investigations for suitable habitat for red-headed woodpeckers, no red-headed woodpeckers were identified to be using the Site. In addition, no suitable cavity trees were identified on Site that would support habitat for red-headed woodpeckers.

The Ontario Breeding Bird Atlas data for the 10 km x 10 km square that includes the property (17PJ98) includes 13 bird species that are provincially or nationally significant: common nighthawk (*Chordeiles minor*), eastern whip-poor-will (*Antrostomus vociferus*), chimney swift (*Chaetura pelagica*), red-headed woodpecker (*Melanerpes erythrocephalus*), eastern wood-pewee (*Contopus virens*), bank swallow (*Riparia riparia*), barn swallow (*Hirundo rustica*), wood thrush (*Hylocichla mustelina*), golden-winged warbler (*Vermivora chrysoptera*), Canada warbler (*Cardellina canadensis*), grasshopper sparrow (*Ammodramus savannarum*), bobolink (*Dolichonyx oryzivorus*) and eastern meadowlark (*Sturnella magna*). None of these bird species were observed during the field inventories. The records from the atlas listed above are likely associated with larger natural features found in the broader vicinity of the Site including the PSW adjacent to the east. Of the species listed above, only eastern wood-pewee, golden-winged warbler, and Canada warbler have the potential to be found on Site. Common nighthawk, chimney swift, bank swallow, and barn swallow may forage over the Site, but are unlikely to nest or roost on the Site.

Eastern wood-pewee is listed as a species of special concern both nationally and provincially (SARA 2025; COSEWIC 2023; SARO 2025). They inhabit a wide variety of wooded upland and lowland habitats but is most commonly associated with the mid-canopy of forest clearings, and edge habitat in deciduous and mixed forests. It also occurs in anthropogenic habitats that provide an open forested aspect such as parks and suburban neighborhoods. It prefers intermediate-age mature forest stands with little understory vegetation (COSEWIC 2012). Suitable habitat exists within communities 1 (CUS1), 2 (CUM1-1), 3 (Maintained Area) and 4 (CUW1); however, none were identified during field surveys.

Golden-winged warbler is listed as species federally (SARA 2025; COSEWIC 2023) and a species of special concern provincially (COSSARO 2025). Golden-winged warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Their preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as right-of-ways, and field edges or openings resulting from logging or burning. The nest of the golden-winged warbler is built on the ground at the base of a shrub or leafy plant, often at the shaded edge of the forest or at the edge of a forest opening (Confer et. al. 2011). Suitable habitat may exist on Site where successional vegetation has been establishing itself in the CUS1 community, however no golden-winged warblers were detected during field surveys.

Canada warbler is listed as a special concern species and provincially (; COSSARO 2024) and threatened federally (COSEWIC, 2023). Breeding habitat for Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets (McLaren 2007). It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks (Reitsma et. al. 2010). Suitable habitat exists on Site in the adjoining PSW wetlands (Community 6 - SWC1-1, and 7 – SWM1-1); however, none were observed during field surveys.

Biologists searched the existing buildings in Community 3 on Site for nesting birds, one eastern phoebe (*Sayornis phoebe*) nest was found but it was unknown if it was active. This nest was found in the south-west corner of the large storage building.

Biologists also used effort to canvas the Site for species listed under Schedule 1 of the Migratory Bird Regulation and the Fish and Wildlife Conservation Act. They found no evidence of pileated woodpecker (*Dryocopus pileatus*) cavities, great blue heron (*Ardea herodias*) colonies nor raptor species nests. No Schedule 1 species were identified.

4.1.3 Amphibians

No nationally, provincially, or regionally significant amphibian species were recorded (COSEWIC, 2023; COSSARO, 2025) during the 2017 surveys.

The Ontario species atlas data for the 10 km x 10 km square that includes the property (17PJ98) includes 8 frog and toad species: American Bullfrog (*Lithobates catesbeianus*), Gray Treefrog (*Dryophytes versicolor*), Green Frog (*Lithobates clamitans*), Northern Leopard Frog (*Lithobates pipiens*), Spring Peeper (*Pseudacris crucifer*), Western Chorus Frog (*Pseudacris triseriata*) (not recorded here since 1981), Wood Frog (*Lithobates sylvaticus)*, and American Toad (*Anaxyrus americanus*). On the species atlas, American Toad was not recorded since 1984, but was heard during the surveys. Of these species, only four were found during amphibian surveys (refer to **Section 3.2.1.1**).

4.1.4 Other Wildlife

Three wildlife SAR were observed by GHD biologists during the Site visit in 2017 and included snapping turtle, which is listed as special concern both provincially and federally (SARO 2025; COSEWIC 2023; SARA 2025), Midland painted turtle which is listed as Special Concern federally (COSEWIC 2023), and eastern milksnake, which is listed as special concern federally (COSEWIC 2023). Both turtles were found in the Habitat Zone 1 pond on July 6 and August 21, 2017. The snapping turtle observed was a mature turtle, approximately 0.5 m in length.

The Ontario Reptile and Amphibian Atlas shows records of one additional SAR herpetofauna for Blanding’s turtle (*Emydoidea blandingii*) in the 10 km x 10 km square. Blanding’s turtle is listed as a threatened species provincially (SARO 2024) and an endangered species federally (SARA 2025; COSEWIC 2023). This species was not observed during the surveys in 2017, 2022, or 2024.

Blanding's turtle will use a range of aquatic habitats, but favour those with shallow, standing or slow-moving water, rich nutrient levels, organic substrates and abundant aquatic vegetation. They will use rivers but prefer slow-moving currents and are likely only transients in this type of habitat. This species is known to travel great distances over land in the spring in order to reach nesting sites, which can include dry conifer or mixed forests, partially vegetated fields, and roadsides. Suitable nesting substrates include organic soils, sands, gravel and cobble. They hibernate underwater

and infrequently under debris close to water bodies (COSEWIC 2005). There may be suitable habitat for Blanding's turtle associated with the adjacent PSW, however the Site is outside of the species normal habitat range therefore there is a low likelihood of this species occurring on the Site.

Snapping turtles utilize a wide range of waterbodies, but show preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways (COSEWIC 2008). Sand traps from the golf course are no longer present on Site which could facilitate breeding Snapping turtles were identified during field investigations. Community 12 (SAF1), and the ponds within Community 5 (MAM2-2) likely serves as a suitable foraging site, providing summer habitat. No sign of turtle nesting was observed. Given the shallow depth and small size of the pond, it is unlikely to provide over-wintering habitat for turtles. It is probable that critical life-stage habitat (i.e., nesting and over-wintering) for snapping turtle is limited to the adjacent PSW, which provides a much larger and more diverse range of habitat features which may support larger ponds.

Midland painted turtles occupy slow moving, relatively shallow and well-vegetated wetlands (e.g., swamps, marshes, ponds, fens, bogs, and oxbows) and water bodies (e.g., lakes, rivers, creeks, and streams) with abundant basking sites and organic substrate. The species is semi-tolerant of human-altered landscapes and may occasionally be found occupying urban ponds and lands subject to anthropogenic disturbance (e.g., farm ponds, impoundments, water treatment facilities) (COSEWIC 2018). During the Site reconnaissance visit in 2024, biologists identified midland painted turtles, listed as Special Concern federally (COSEWIC 2023). It is anticipated the habitat for the midland turtle is isolated to the adjacent PSW providing a larger and more diverse range of habitat features, with foraging habitat identified in Community 5 and 12.

Eastern milksnake uses a wide range of habitats including prairies, pastures, hayfields, wetlands and various forest types, and is well-known in rural areas where it frequents older buildings. Proximity to water and cover enhances habitat suitability. Hibernation takes place in mammal burrows, hollow logs, gravel or soil banks, and old foundations (COSEWIC 2014). A milksnake was identified on June 7, 2022, basking in Community 1. Potential hibernacula were not identified on Site; however, overwintering habitat may be present in adjacent buildings off Site (garages, residential basements and sheds). Overwintering habitat may also be present in the adjacent PSW.

Monarch butterflies, listed as Special Concern provincially (SARO 2025) and endangered federally (COSEWIC 2023) were observed throughout the Site and while milkweed plants were checked sporadically, no eggs or caterpillars were seen. It should be noted that when this Site visit took place, no common milkweed was in bloom, eliminating the monarchs from visiting the plant to oviposit. Instead, monarchs were observed nectaring on spotted joe-pyeweed (*Eutrochium maculatum*) and swamp milkweed (*Asclepias incarnata*). Monarchs will lay eggs on swamp milkweed, but no eggs or caterpillars were seen on these plants. Monarch is found throughout the northern and southern regions of Ontario. This butterfly is found wherever there are milkweed (Asclepias spp.) plants for its caterpillars and wildflowers that supply a nectar source for adults. It is often found on abandoned farmland, meadows, open wetlands, prairies and roadsides, but also in city gardens and parks. Important staging areas during migration occur along the north shores of the Great Lakes (COSEWIC 2010).

The Site was also canvased for bat habitat and bat cavity trees, no suitable habitat was observed. Four snag trees were observed; however, they were not suitable for bats as there was no peeling bark or cavities.

4.2 Natural Features

4.2.1 Provincially Significant Wetlands and Unevaluated Wetlands

Wetland communities on Site have been designated as Provincially Significant Wetlands belonging to the Zephyr-Egypt PSW. These wetlands include swamp and marsh types, as well as portions of open water. Most of these wetlands are associated with Zephyr creek and its surrounding floodplains

These wetlands provide crucial flood protection to surrounding lands, and important habitat for large numbers of uncommon to rare wildlife and plant species, as well as Significant Wildlife Habitat (refer to **Section 4.2.2**).

Field work in 2024 identified additional wetland unevaluated wetland extending beyond the limits of the mapped boundaries of the PSW limits (**Figure 1**).

4.2.2 Significant Wildlife Habitat

Significant Wildlife Habitat often occurs within other natural heritage features and areas covered by **Section 4.1** of the Provincial Planning statement (e.g., significant wetlands). Therefore, it has been suggested that identification and evaluation of significant wildlife habitat is best undertaken after other natural heritage features have been identified (Natural Heritage Reference Manual, 2010). GHD biologists analysed the information collected from the ecological communities on the subject property using the criteria for Significant Wildlife Habitat in Ecoregion 6E (2015) and confirmed two (2) forms of significant wildlife habitat on the property: Amphibian Breeding Habitat (Wetlands) due to the presence significant breeding evidence in the Zephyr-Egypt PSW on Site, and Habitat for Special Concern and Rare Wildlife Species, due to the presence of field thistle (S3), snapping turtle and Midland painted turtle. For SWH justifications see **Table 8**.

Table 8 Significant Wildlife Habitat – Candidate and Confirmed

Wildlife Habitat	Wildlife Species	Candidate SWH and Confirmed Habitat Criteria		Confirmed SWH and Defining Criteria	Candidate Habitat found within the Site	Confirmed Habitat found within the Site
Turtle Wintering Areas ***Rationale:*** Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	– Northern Map Turtle – Snapping Turtle – Midland Painted Turtle	MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	– For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. – Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen – Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	– Presence of 5 over-wintering Midland Painted Turtles is significant. – One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. – The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. – Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept.–Oct.) or spring (Mar.–May). – Congregation of turtles is more common where wintering areas are limited and therefore significant.	Ponds on Site are manmade and therefore not considered SWH. Overwintering habitat may be present in the adjacent PSW	Not confirmed.
Amphibian Breeding Habitat (**Woodland**) ***Rationale:*** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	– Eastern Newt – Blue-spotted Salamander – Spotted Salamander – Gray Treefrog – Spring Peeper – Western Chorus Frog – Wood frog	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	– Presence of a wetland, pond or woodland pool (including vernal pools) >500 m2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. – Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	Studies confirm; – Presence of breeding population of one or more of the listed newt/salamander species or two or more of the listed frog species with at least 20 individuals (adults or eggs masses) or two or more of the listed frog species with Call Level Codes of 3. – A combination of observational study and call count surveys will be required during the spring (March–June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. The habitat is the wetland area plus a 230 m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.	Extensive wetland in adjacent PSW. Likely amphibian breeding occurring in PSW.	Not confirmed

Wildlife Habitat	Wildlife Species	Candidate SWH and Confirmed Habitat Criteria		Confirmed SWH and Defining Criteria	Candidate Habitat found within the Site	Confirmed Habitat found within the Site
Amphibian Breeding Habitat (Wetland) ***Rationale:*** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes	– Eastern Newt – American Toad – Spotted Salamander – Four-toed Salamander – Blue-spotted Salamander – Gray Treefrog – Western Chorus Frog – Northern Leopard Frog – Pickerel Frog – Green Frog – Mink Frog – Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically, these wetland ecosites will be isolated (>120 m) from woodland ecosites; however, larger wetlands containing predominantly aquatic species (e.g. Bullfrog) may be adjacent to woodlands	– Wetlands >500 m2 (about 25 m diameter), ccvii supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. – Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. – Bullfrogs require permanent water bodies with abundant emergent vegetation.	Studies confirm: – Presence of breeding population of one or more of the listed newt/salamander species or two or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or two or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant. – The ELC ecosite wetland area and the shoreline are the SWH. – A combination of observational study and call count surveys will be required during the spring (March–June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.		Confirmed as present from MMP survey station 3 in PSW ponds. Station 2 also had a code level 3 for spring peeper, however the pond is manmade and not wetland. A fish and wildlife salvage is proposed to remove fish, reptiles and amphibians from this pond and relocate to protected areas.
Woodland Area-Sensitive Bird Breeding Habitat ***Rationale:*** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest songbirds.	– Yellow-bellied Sapsucker – Red-breasted Nuthatch – Veery – Blue-headed Vireo – Northern Parula – Black-throated Green Warbler – Blackburnian Warbler – Black-throated Blue Warbler – Ovenbird – Scarlet Tanager – Winter Wren	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	– Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. – Interior forest habitat is at least 200 m from forest edge habitat.	Studies confirm: – Presence of nesting or breeding pairs of three or more of the listed wildlife species. – Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. – Conduct field investigations in spring and early summer when birds are singing and defending their territories.	Only one of the listed species was identified on Site. The yellow-bellied sapsucker.	Not confirmed

Wildlife Habitat	Wildlife Species	Candidate SWH and Confirmed Habitat Criteria		Confirmed SWH and Defining Criteria	Candidate Habitat found within the Site	Confirmed Habitat found within the Site
	– Pileated Woodpecker **Special Concern:** – Cerulean Warbler – Canada Warbler					
Special Concern and Rare Wildlife Species ***Rationale***: These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1–S3, SH) plant and animal species. Lists of these species are tracked by the NHIC.	All plant and animal element occurrences (EO) within a 1- or 10-km grid. Older element occurrences were recorded prior to GPS being available; therefore, location information may lack accuracy	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the Site needs to be completed to ELC Ecosites	Studies Confirm: – Assessment/inventory of the Site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.		Yes- Midland painted turtle, snapping turtle and monarch confirmed on Site. Field thistle (S3) identified in Community 1.

4.2.3 Fish and Aquatic Habitat

Aquatic Habitat

The commercial anthropogenic offline ponds (Habitat Zones 1 to 7) have the potential to provide direct and indirect fish habitat. The three ponds (Habitat Zones 1-3) within the development envelope were verified as direct fish habitat, providing suitable habitat for all fish life history phases including; spawning, feeding, rearing, allochthonous, sediment and food supply and overwintering for three fish species, blacknose shiner, brook stickleback, common carp and goldfish. All commercial ponds (with the expectation of Habitat Zone 8) were isolated and not visually hydrologically connected to any other waterbodies within the Site including Zephyr-Egypt Wetland Complex PSW.

Fish habitat in Ontario is managed federally by the Minister of Fisheries and Oceans Canada and therefore, the Fisheries Act applies to all natural watercourses. However, Habitat Zones 1-8 on Site are exempted from the habitat protection provisions of the Fisheries Act (35) since they are classified as private, commercial and are isolated from all waterbodies that contain fish.

One pond (Habitat Zone 8) has the potential to be hydrologically connected the Zephyr-Egypt Wetland Complex PSW, Zephyr Creek. The pond has the potential to provide direct and indirect fish habitat to the downstream wetland and the watercourse. Specifically, it has the potential to provide hydrological connections, sources of nutrients, sediments and food supply inputs downstream to natural fish habitat. These attributes are important for the sustainability of the Zephyr Creek fish community. The Fisheries Act habitat regulations apply to Habitat Zone 8.

No critical habitat for Aquatic Species at Risk (DFO, 2019) or sensitive spawning habitat was identified within the Site (OMNR, 2012).

The surface water quality parameters collected within the Site were within the normal ranged for aquatic life except for pH. The pH was below the acceptable range for aquatic life. The baseline data may be used for construction and post construction effectiveness monitoring if required.

Fish Community

A total of three fish species were present in Habitat Zones 1 and 2 and represented three families: *Cyprinidae*, *Gasterosteidae* and *Leuciscidae*. The fish community was composed of fish that prefer warm and coolwater thermal regimes. A fish species list for Zephyr Creek has been provided in **Appendix G**.

Cumulatively, eight fish species have been documented in Zephyr Creek. The fish species found in Zephyr Creek and within the Site area common and widely distributed throughout southern Ontario (**Section 3.2.7.1** and **Appendix G**). The literature review found no provincially and/or nationally rare species documented within the Site (COSSARO, 2019; COSEWIC, 2019; OMNR, 2019)

Two common non-native/introduced fish species (common carp and goldfish) were observed on Site.

5. Impact Assessment and Recommendations

The following section provides a description of the predicted impacts that may result from the proposed development. It also highlights key mitigation measures to be implemented to avoid and/or minimize adverse effects to the natural environment features within or near the project. A full list of mitigation measures has been provided in **Section 7.0**. A summary of all recommendations can be found in **Table 9**.

5.1 Greenbelt Requirements

The Region of Durham and the Greenbelt Plan 2017 outline the components of a Natural Heritage Evaluation. These requirements are assessed in the following paragraphs.

a. No adverse effects on the key natural heritage features or related ecological functions.

The proposed Phase 2 development (single-family dwellings, streets and other services) was analysed in terms of its location relative to the key natural heritage features. The development is primarily setback more than 30 metres from the identified natural heritage features, with the exception of some wetland feature removal proposed (441m^2) and reduced buffer in order to accommodate the stormwater outlet and lot 12 (**Figure 1**). An analysis of ecological function(s) of each feature conducted. In addition, the proposed timing of construction, potential disturbed area and the development design were considered in our determination of potential impacts and mitigation measures. Any vegetation clearing on the Site is recommended to occur outside of the breeding bird and bat active season (April 1 to September 30).

Provincially Significant Wetland and Unevaluated Wetlands associated with the PSW

The Zephyr-Egypt Wetland Complex PSW is located on the east portion of the Site (i.e. Communities 5, 6, 7) (**Figure 1**). The boundary of the wetland on the MNR database is shown on **Figure 1** by the green cross-hatched area. Based on our field surveys and boundary delineation exercise, the wetland boundary has been expanded to include unevaluated wetland of the adjoining naturalized ponds and wetland features that were previously associated with the golf course. The wetlands provide a number of ecological functions, including their water storage that maintains the hydrology to support amphibian habitat, indirect and direct fish habitat, general wildlife habitat, and wildlife corridor functions. Potential impacts to the wetland as a result of the proposed development may include sedimentation and/or loss or change in water quality or quantity which may impact the features and functions of the wetlands and increase in human activity (i.e. foot traffic) and/or interactions,

Phase 2 has been designed with 17 lots that are primarily situated more than 30 metres from the wetland boundary, however, the expanding wetlands documented in 2024 infringe onto the proposed development in Lot 12, Block 1, Block 2 and Block 3. This infringement only occurs on the east edge of the Site, and intrude into the wetlands and its associated setback. The setback area incorporates the former golf course that has been abandoned for several years. As a result, those areas have regenerated in grasses and other herbaceous vegetation with some seedling trees establishing. There are also several trees that were between holes in that setback zone. It is recommended that setback areas be left to continue to regenerate or be enhanced with native, self-sustaining vegetation such as native seed mixes and native shrub plantings to reduce erosion from rain and snowmelt events and provide further protection to the wetland.

The proposed development proposes to remove some of the wetland area that has recently expanded into or beyond the proposed setbacks, and to remove and infill Community 12 and construct a stormwater pond outlet through that community. The total area of wetland feature to be removed is 441m$^{2.}$. A 2:1 wetland compensation ratio is recommended to be implemented to achieve no net loss in wetland. The compensated wetland would occur contiguous with the PSW and amount to 871.4m^2 in size (**Figure 1**). The compensation wetland would enhance the existing wetland and be of similar function to its adjacent wetland communities. The wetland shall be planted with native wetland vegetation. A minimum 19 m setback has been implemented from the wetland compensation area to maintain protection directly adjacent to this proposed feature. A Wetland Compensation Plan with detailed drawings is recommended to be completed and incorporated into the landscape plans for the Site. A reduced setback is proposed

from the retained portion of Community 11 in order to accommodate lot 12. A double-row of eastern white cedar is recommended to be planted to provide a barrier between the lot and the wetland community.

Heavy duty silt-fencing should be installed around the perimeter of the entire development area to prevent sediment from entering the wetland. The fencing should be installed prior to the commencement of construction and left in place until all soils are stabilized and surfaces revegetated. Regular inspections should take place at least once a month or after significant rainfall events/snowmelts to ensure the fencing is still in working order and not collapsed or damaged.

Installation of a permanent fence at the rear of the eastern lots in Phase 2 is recommended to prevent residents from using the setback or impacting the regenerating occurring from yard waste, mowing, dumping of household waste or other activities.

This proposed setback would provide a separation between the wetland, the ponds and the developed lots. It will provide a transition zone for wildlife that use the upland-wetland ecozone for various life processes. An appropriate zoning would assist in preventing uses that may impact on the wetland and its functions.

Significant Woodlands

Significant woodland is present in the southeast portion of the Site (i.e. Communities 6, 7, 8 – **Figure 1**). The woodland is associated with the swamp communities and treed portions of the PSW. As the golf course created a defined edge between the maintained fairways and the tree line, the forest edge has been well established. Where the woodland extends beyond the swamp communities it acts as a natural setback to the PSW, as well as providing wildlife habitat and wildlife corridor functions. A 1.8 m chain link fence is recommended to be erected around the perimeter of the development envelope to prevent wildlife using the woodlot from entering the construction area and completed subdivision and restrict anthropogenic movement into the protected areas. Heavy duty ESC is recommended around the development envelope to minimize sediment entering the protected areas. The majority of the significant woodland is protected with the 30 m setback associated with the wetland, with the exception of community 8. A slightly reduced setback is proposed to accommodate the proposed lots. A double-line of cedar plantings is proposed within the setback directly adjacent to community 8 to provide a more robust barrier from the proposed development. With the implementation of the proposed fence and cedar plantings no impacts are anticipated on this community.

Phase 2 is located beyond the woodland and the wetland boundary. This provides an adequate setback to those features.

Significant Wildlife Habitat

Significant Wildlife Habitat – Amphibian Breeding Habitat (Wetland) has been confirmed in the PSW wetland and its adjacent ponds. The PSW and its associated pond along the east edge of the property will be protected by a 30 metre setback and thus protect the SWH and amphibian breeding habitat.

Additional amphibian breeding habitat meeting some of the criteria of SWH was identified from MMP station 2, and a shallow golf course hazard pond (Community 12 – SAF1). The pond is slated for removal and will not have setbacks attached to it. The impacts from this removal will be the loss of amphibian breeding habitat. The impacts will not have a significant impact on amphibian populations in the area given the presence of high-quality amphibian habitat in retained ponds and in the PSW. It is recommended the compensated wetland be designed to provide for amphibian breeding habitat and a thorough fish and wildlife salvage be conducted to relocate these species before modification into a storm water pond

Habitat for Special Concern and Rare Wildlife was also confirmed on the property due to snapping turtle, midland painted turtle, milksnake, monarch and field thistle. Turtle habitat has been identified within the PSW and the golf course ponds. As stated, the PSW wetlands will be protected by a 30 metre buffer. Several unevaluated wetland pockets contiguous with the PSW will contain minor setback encroachments with the removal of approximately 441 m^2 of meadow marsh wetland. This area will be compensated for directly adjacent to the removal and will result in no net loss of wetland habitat for turtles. As for the golf course ponds, a fish and wildlife salvage will be conducted before infilling to remove and relocate any potential turtles that may be using the ponds. It is unlikely that these shallow ponds contain overwintering turtle habitat. Exclusion fencing abutting the PSW boundary should be erected to prevent frogs

and turtles from re-entering the Site and its ponds prior, during and after the construction process. A plant salvage should be conducted to remove field thistle, a ranked S3 plant species from the immediate construction envelope and relocated to an area suitable for this species. An ideal location would be within the setback of the PSW. Installation of heavy-duty ESC fencing should also occur prior to active herpetofauna season (prior to April 1 and/or after Nov 1).

Regionally Rare Plants

The LSEMS list identifies these regionally rare plant species: marsh horsetail (Community 5), red pine (Community 1), moonseed (Community 6), black walnut (Community 9), pale snapweed (Community 5), straight-leaved pondweed (Community 5), and Canadian rush (Community 5 and 11) as being regionally rare. The Riley list for the Lake Simcoe area lists field thistle (Community 1, 6 and 7), and tall goldenrod (Community 1, 2, 3, 4 and 5) as additional species.

Most species listed will be protected within the 30-metre setback from the PSW. Species identified within Community 1 (field thistle, red pine, tall goldenrod) will not be protected unless they are occurring within the 30-metre VPZ from the PSW. GHD does not recommend protections (plant salvage) for tall goldenrod and red pine, both of which have many records within the Lake Simcoe region. Salvage for Canadian rush and field thistle should be conducted to relocate these species to an area outside of the limit of disturbance such as within the protected setback area, which contains similar grassland habitats these species prefer.

b. **Connectivity along the system and between key natural heritage features and key hydrologic features located within 240 metres of each other will be maintained or, where possible, enhanced for the movement of native plants and animals across the landscape;**

Connectivity will be preserved through the implementation of a 30-metre VPZ from the PSW, with the exception of 441m^2 of wetland removal and wetland setback encroachments. As the Site was predominantly an old golf course, no connectivity features will be impacted through the Phase 2 development.

c. The removal of other natural features not identified as key natural heritage features and key hydrologic features should be avoided. Such features should be incorporated into the planning and design of the proposed use wherever possible.

No other key natural features were on the Site. Three significant species, snapping turtle, midland painted turtle and monarch were identified on Site. The turtles were identified in ponds outside of the setback zone which are scheduled to be removed during development. Due to the presence of these turtle species, GHD recommends a fish and wildlife salvage to relocate fish, turtles and frogs to nearby ponds not slated for removal protected within the natural features or associated setbacks.

Zephyr Creek and Ponds

Several ponds were identified in Phase 2 of the subject property (Figure 2). Habitat Zones 1 to 7 are anthropogenic commercial ponds and not connected to any waterbody, therefore, are not protected under the Fisheries Act fish habitat provisions and a protective setback is not recommended. Habitat Zone 1-3 are proposed to be infilled. To prevent the death of fish under the Fisheries Act and protect individual turtle and amphibians, GHD recommends a fish and wildlife salvage be conducted to relocate fish, turtles and amphibians prior to in-water works or infilling.

The Habitat Zone 8 pond located at the northeastern portion of Phase 2 and has the potential to be connected to the Zephyr-Egypt Wetland Complex PSW and Zephyr Creel. Therefore, provides direct and indirect fish habitat and will be protected from development by a 30 m setback Development includes vegetation removal or clearing, houses, pools, accessory buildings, lawns, septic, and utilities.

The remaining ponds (Habitat Zone 4-7) are encompassed within the 30 m setback of PSW and will therefore avoid potential impacts from the proposed development.

A detailed sediment and erosion control plan will be prepared for all construction activities and phases to minimize disturbed soil and minimize the transportation of soils off-site into protected fish and fish habitat.

Additional mitigation measures have been provided in **Section 7.0** of this report to further protect fish and fish habitat and ensure the project complies with the PPS and Fisheries Act. All recommendations will be incorporated into the final site plan.

Phase 2 of the development is located outside the 30-metre setback from the fish habitat (Habitat Zone 8), Zephyr PSW/watercourse (**Figure 1** and **Figure 2**). No significant impacts to fish or fish habitat are anticipated from the proposed development provided the setbacks from all fish habitat is respected and the mitigation measures and recommendations are implemented as outlined in this report.

Stormwater Management Pond

There will be an increase in impervious surface flow from the proposed development. A multiple treatment approach should be used to manage stormwater onsite and low impact development (LID) practices will used where possible. Existing vegetation should be maintained where possible to manage run-off by minimizing impervious cover. All stormwater management features must be designed to minimize thermal pollution and reduce the temperature of discharged waters. All stormwater features and LID will be located outside of the greatest natural feature buffer. It is recommended that during the detail design phase of the project that the stormwater management pond design be reviewed by a professional biologist.

5.2 General Impacts and Mitigation

5.2.1 Birds and Wildlife

According to Environment and Climate Change Canada, the Subject Property falls within Nesting Zone C2 (ECCC, 2018). The regional nesting period for Nesting Zone C2 extends from early April to late August. General impacts to the breeding birds identified during surveys include loss of nesting habitat and defended territories. Other impacts may include increased noise resulting in increased energy expenditure to advertise territories, potential window collisions with newly built structures, and road mortality. No vegetation removal should occur between the period of April 1 to August 31 of any given year. Should development be proposed within that time, a nest search should be conducted by an experienced avian biologist to ensure compliance with the Migratory Bird Regulations (2022).

5.3 Residual Effects Summary

The residual effects summary depicted in **Table 9** provides a comprehensive overview of the long-term impacts that the development may result in after mitigation measures have been implemented. This section is crucial for understanding the long-term consequences and ensuring that all potential effects are thoroughly evaluated and managed.

Table 9 Impact Assessment and Recommendation Summary

Feature or Function	Impact to Feature of Function	Mitigation	Residual Effect
Provincially Significant Wetlands	Possible sediment disturbance in PSW Possible sediment disturbance during construction of homes.	30m setback from wetland boundary. Setback area should be left to naturally vegetate or supplemented with native vegetation seed mixes or plantings. Silt fencing be installed around any future building envelopes during construction and after construction until area within construction envelope is vegetated. Obtain relevant permits from Conservation Authority	None
Unevaluated wetlands	Possible sediment disturbance. Possible sediment disturbance during construction of homes.	Primarily a 30m setback from the wetland buffer with some minor encroachments Removal of 441m^2 of wetland	None- 2:1 wetland compensation (871.4m^2) will result in a net gain of wetland. Wetland will be contiguous with existing wetlands on Site and a setback will be implemented.
Significant Wildlife Habitat – *Special Concern and Rare Wildlife Species*	Potential disturbance to snapping turtle and midland painted turtle in wetlands and ponds. Potential death of turtles walking on Site or nesting from machinery Potential death of milksnake due to machinery	Exclusion fencing installed at the development limit Fish and wildlife salvage plan to be completed and implemented in ponds scheduled to be infilled. Obtain relevant permits from MNR Staff to be instructed to identify and report SAR if noticed on Site.	None
Birds – *Migratory Birds Convention Act*	Loss of nesting habitat for birds	No vegetation clearing during the active bird breeding season (April 1 – August 31). If clearing must occur in this time frame, an avian biologist should be called and then inspect the area to be cleared to ensure no nests are present.	Loss of nesting habitat.
SAR-Tree roosting bats	Loss of potential habitat trees	Tree-clearing to occur outside of active bat roosting season April 1 – September 30 of any given year.	None
Monarch butterfly	Loss of breeding and larval forage habitat	Limit vegetation removal to outside of egg-laying and larval active times, which are from mid-June to October 31 of any given year. Milkweed species is recommended for plantings within the setback areas.	None
Herpetofauna	Increase in mortality due to construction	Installation of heavy-duty ESC fencing prior to active herpetofauna season (prior to April 1 and/or after Nov 1 of any given year)	None- 2:1 wetland compensation (871.4m^2) will result in a net gain of wetland. Wetland will be contiguous with existing wetlands on Site and a setback

Feature or Function	Impact to Feature of Function	Mitigation	Residual Effect
	Potential degradation of wetland due to siltation	Fish and wildlife salvage plan to remove herpetofauna from impacted ponds.	will be implemented. It is recommended this wetland compensation area shall but designed to provide suitable habitat for turtles and frogs.
Regionally Rare Plants	Loss of field thistle, Canada rush and foxtail sedge habitat.	Plant salvage should be conducted to remove these rare species from the developable area and into the 30m setback zone.	None
Fish and Aquatic Habitat *Habitat Zone 1-3*	Potential death of fish due to infilling	Conduct fish and wildlife salvage prior to any in-water works. Obtain relevant permits from MNRF	None
Fish and Aquatic Habitat *Habitat Zone 8*	Potential movement of sediment from development construction are into watercourse	Develop Sediment and Erosion control plan with qualified biologist. Apply 30m VPZ to protect fish and fish habitat.	None

6. Policies and Legislative Compliance

The following section describes how the proposed development will be in conformance with the relevant federal, provincial and other regulatory legislation, policies, official plans and OP amendments that are applicable and relevant to the Site and the immediate vicinity.

6.1 Federal Legislation

6.1.1 Species at Risk Act

The Site is not federally owned and are not lands recommended by the Minister of the ECCC to the Governor in Council. No federally listed threatened or endangered species are anticipated to be impacted as a result of the proposed development should the recommendations outlined in Sections 5 and 7 be followed.

6.1.2 Fisheries Act, 1985 (R.S.C., 1985, c. F-14)

The project will comply with the Fisheries Act protective provisions of the Fisheries Act by implementing the *DFO Measures to Protect Fish and Fish Habitat* and avoiding all work in and around water for waterbodies that are protected under the Fisheries Act. All project undertaking will: prevent the death of fish, maintain riparian vegetation, carry out work on land only, maintain fish passage, ensuring property sediment control, and preventing entry of deleterious substances in water.

6.1.3 Migratory Birds Convention Act, 1994 (S.C. 1994, c.22)

The core breeding period in Ontario for migratory birds under the MBCA for Bird Conservation Region 13 (i.e., the one the subject property lies within) extends from April 1 to August 31 (Environment and Climate Change Canada, 2014). As such clearing of trees and other vegetation for the development cannot occur during this timing window.

6.2 Provincial Legislation

6.2.1 Endangered Species Act, 2007

No butternut trees or other endangered or threatened species were found on Site during GHD's Site investigations. Currently, the project is in compliance with this Act. Planning Act and Provincial Planning Statement, 2024

The Site contains PSW and Significant Woodlands. As a result, Sections 4.1.4, 4.1.5 and 4.1.6 of the Provincial Planning Statement apply. Section 5 (Impact Assessment) and Section 7 (Summary of Recommendations) of this report, contain recommendations that allow the proposed development to proceed in a manner consistent with the Planning Act and Provincial Planning Statement (PPS).

6.2.2 Greenbelt Plan 2020

The Site is located within Protected Countryside as per the Greenbelt Plan land use designation, but outside of mapped NHS. The Greenbelt Plan requires a 30 m setback from Key Natural Heritage and Hydrological features. Section 5 (Impact Assessment) and Section 7 (Summary of Recommendations) discuss no net loss in Key Natural Heritage and Hydrological Features.

6.3 Local and Other Regulatory Bodies

6.3.1 Durham Region Official Plan

Recommendations in Section 5.0 (Impact Assessment and Recommendations) note the requirements and processes needed to be compliant with the Durham Region Official Plan (2024). This NHE outlines those policies and includes measures to limit impacts on the key natural heritage features and key hydrologic features. Wetland compensation is recommended in order to achieve no net loss of wetland.

6.3.2 Township of Uxbridge Official Plan

This report outlines that the PSW in the east of the property that is currently zoned as Environmental Protection by the Town of Uxbridge Official Plan (2025) will be protected by the 30 m VPZ. Portions of unevaluated wetland outside of the mapped PSW are proposed for removal. Wetland compensation is proposed to achieve no net loss and discussed in Section 5.1.

6.3.3 Lake Simcoe Region Conservation Authority (Ontario Regulation 41/24)

The Zephyr-Egypt Wetland Complex PSW is located on the eastern portion of the property, a large pond (Habitat Zone 8) is located directly west of the PSW and has the potential to be connected. As such, the regulations of LSRCA are applicable to the Site. A 30 m setback will be implemented from the wetland in most areas which will encompass the Habitat Zone 8. Any work within the regulated area will be subject to a permit, consultation with LSRCA is recommended. GHD has provided mitigation measures and recommendations to address any potential impacts to the wetlands, fish habitat and their ecological functions. Wetland compensation has also been recommended to offset the loss of two small unevaluated wetland areas.

7. Summary of Recommendations

The following section is a comprehensive list of all project mitigation measures, recommendations, best management practices and or compensation measures (if required). Many recommendations have been discussed or referenced in the body of the text and others may be newly presented standard best management practices. This list is intended to assist project reviews, contractors and clients to understand all environmental recommendations and to ensure all parties have fulsome understanding of the project. The final conclusions of this report are based on the implementation of the following.

7.1 General

1. A 30 m setback (VPZ) from the wetland and northeastern pond (Habitat Zone 8) shall be implemented, with the exception of an area of 441 m^2 of wetland proposed for removal and two reduced setbacks to accommodate a stormwater outlet and lot 12. The reduced setback shall be planted with a double row of eastern white cedars.
2. Wetland removal shall be compensated for at a 2:1 ratio and be placed contiguous with existing wetland on Site.
3. A wetland compensation plan shall be completed and incorporated into the landscape plans for the Site.
4. Cutting of trees to facilitate the development must be completed outside of the peak breeding bird nesting season (April 1- August 31 of any given year).
5. Cutting of trees to facilitate the development must be completed outside the active bat timing window of April 1 to September 30th .
6. Ensure clearing of vegetation on Site will be outside of monarch butterfly breeding season to limit killing of monarch eggs and larvae. Clearing should occur from October 31 to Mid-June, preferably in line with the breeding bird and bat clearing windows.
7. A 1.8 m chain link fence is recommended to be erected around the perimeter of the development envelope to prevent wildlife using the woodlot from entering the construction area and completed subdivision and restrict anthropogenic movement into the protected areas
8. A reduced setback is proposed to accommodate the proposed lots. A double-row of eastern white cedar plantings is proposed within the setback directly adjacent to community 8 to provide a more robust barrier from the proposed development Limit.
9. Relocate regionally rare plant species (Canadian rush, foxtail sedge, field thistle) to setback zone.
10. The development envelope for subdivision be clearly defined and delineated and a line be staked and clearly marked in the field prior to any site preparation activities on the Site.
11. During the clearing stage of the development, any trees within the border of the setback should be simply limbed rather than entirely removed, when possible.
12. Prior to any site preparation activities (grading, placement of fill) erosion and sediment control measures should be installed along the four sides of construction envelope to ensure sediment laden runoff does not enter interfere with adjacent vegetation or natural features. The silt fence should be inspected and maintained throughout the construction phase and remain in place until the soils are stabilized and re-vegetated.
13. No development, grading, fill or building envelopes are to intrude into the wetland setback with the exception of the proposed setback encroachments and feature removal, enhancement of setbacks is recommended. Setback areas should be enhanced, when possible, with native, self-sustaining vegetation such as native seed mixes and native shrub and tree plantings.
14. Obtain relevant permits from the Region, Township and LSRCA.
15. Incorporate native plantings into the landscaping around the building envelope.
16. Maintain and enhance setback areas with native plantings, including milkweed to support monarch butterflies.
17. Re-establish vegetation in the graded slopes along the new driveway and outside building envelope; these areas will be maintained as lawn or natural vegetation.

18. Remove invasive species around building envelope where possible (swallow-wort for example).
19. All structures have downspouts that spill out onto grassed surfaces and other infiltration measures (LID's) be created.
20. Fish and wildlife salvage plan to be prepared by professional biologist and MNRF permit to be acquired prior to conducting salvage.
21. Should any SAR be encountered during work related activities, or if there is potential to negatively impact SAR, or wildlife more generally, contact MECP immediately for guidelines on how to proceed.
22. It is recommended that a wetland compensation plan and detailed landscape plan will be prepared during the next phase of the project. That plan should include post-construction monitoring of the wetland plantings and overall success for a period of time to be discussed with LSRCA.

7.2 Sediment and Erosion Controls

23. A heavy-duty reinforced silt fence will be installed and maintained along development envelope boundary. This line should be surveyed and staked in the field prior to any site preparation activities.
24. All sediment and erosion control products will be selected for the Site based on the manufacturer's product specifications. Product installation and maintenance will follow the manufactures guidelines.
25. All sediment and erosion control measures shall be inspected daily during the construction phase and periodically afterwards to ensure they are functioning properly. The sediment and erosion control measures must be maintained and upgraded as required. Sediment fence shall be checked regularly to ensure they are maintained and working properly. Accumulated silt and debris will be removed from the fence and Site after every precipitation event.
26. Construction will be undertaken during normal weather conditions, to the extent possible, and will avoid large precipitation events to minimize the risk of sedimentation off-site.
27. In the event that sediment and erosion control measures are not functioning, the construction supervisor shall order the work to be stopped. No further work shall be carried out until the construction methods and/or the sediment control plan is adjusted to address the sediment/erosion problem(s). Such occurrences should be document by the site inspector and provided to a qualified biologist.

7.3 Fish and Fish Habitat (DFO measures to protect fish and fish habitat)-Habitat Zone 8

28. No work in or near water to avoid killing fish by means other than fishing.
29. No development within the 30 m vegetative protection zone. The setback will maintain riparian vegetation between areas of land activity and the high watermark of the watercourses.
30. No use of explosives in or near water.
31. Respect MNR fish timing windows to protect fish.
32. Should work conditions change such that it is possible that fish or fish habitat may potentially be negatively impacted, all works shall cease until the problem has been corrected or authorization has been obtained from the appropriate authorities.
33. Maintain riparian vegetation.
34. Carry out all works and activities by avoiding all work in or near water. No placement of fill or the temporary or permanent structures below the high-water mark.
35. No disturbance of bank material or building structures in the area than may result in erosion or scouring.
36. Always maintain fish passage.
37. Prevent soil compaction using mats and pads.

7.4 Fish and Wildlife Salvage Plan

It is recommended that the aquatic life and wildlife salvage will be completed by a professional biologist in all isolated work areas prior to in-water works and dewatering. The following plan will be implemented on-site:

38. A professional biologist will acquire Ministry Natural Resources (MNR) Scientific Fish Collection Permit and potentially a Wildlife Collection Permit for the construction area prior to in-water works.
39. Biologist and contractor must coordinate prior to dewatering to confirm the work timing and environmental site conditions.
40. Collection and relocation of fish and wildlife will occur from all isolated in-water work areas prior to the commencement of any in-water works.
41. The contractor will have the appropriate size and number of pumps on Site to dewater the isolated work area in an efficient manner.
42. The contractor will consult with biologist when to start and stop dewatering of the fish and wildlife salvage area. This is to ensure appropriate water levels are maintained for effective use of fish removal gear while minimizing negative impacts to fish.
43. Fish collection methods will be chosen on Site by the biologist to best suit the environmental conditions, watercourse dimensions, estimated fish abundance and size. Both passive and active live fish collection techniques are recommended and may include seine net and backpack electrofishing.
44. Wildlife collection methods will be chosen on Site by the biologists and may include, seine netting, trapping and other means to salvage these species from the work area.
45. At a minimum, the selected gear type will be fished three times or until the catch approaches zero to ensure all fish have been removed from the Site.
46. Fish and wildlife will be released alive into another pond. The specific release site will be chosen by a biologist and will be of equal or greater habitat quality. Release site selection will include but not be limited to habitat type and availability, water temperature, probability of depredation and available cover.
47. Invasive fish species such as goldfish will be euthanized humanely on Site and disposed of 30 m away from area of capture, as per MNR fish collection permit specifications.
48. Biologist will submit a data summary and copy of the MNR Fish Collection Record (FCR), and Mandatory Report of all Wildlife collected after all works have been completed.

7.5 Operation of Machinery

49. No machinery shall enter the shoreline or watercourse.
50. All heavy equipment, machinery, and tools required for the work shall be regularly inspected, maintained and operated to avoid leakage of fuels and liquids and shall be stored in a manner that prevents any deleterious substance from entering the soil or nearby watercourses.
51. Vehicle and equipment refuelling and/or maintenance shall be conducted within a defined staging area 30 m from any waterbody. If 30 m is not achievable a portable spill containment berm may be used. Portable spill containment berms can be rented by companies such as Wise Environmental Solution Inc (W.I.S.E, 2017).
52. Any part of a vehicle and/or equipment entering the water will be free of fluid leaks and externally cleaned/degreased to prevent deleterious substances from entering the water.
53. Any stockpiled materials will be stored and stabilized away from the water above the high-water mark at a minimum of 30 m. Stockpiles will be enclosed by sediment fencing or installed down gradient for the purpose of preventing movement of sediment away from the stockpile.
54. An emergency spill kit shall be kept on Site and employed immediately should a spill occur. In the case of a spill, the Ontario Spill Action Center shall be notified immediately at 1-800-268-6060. All provincial and federal regulations shall be adhered to.

55. Maintain an adequate supply of clean-up materials on-site. Construction crews will be fully trained in their use to ensure timely and effective responses to spill incidents.

7.6 Concrete Leachate

56. Concrete leachate is alkaline and highly toxic to fish and aquatic life. Measures will be taken to prevent any incidence of concrete or concrete leachate from entering any waterbody.
57. Ensure that all works involving the use of concrete, cement, mortars, and other Portland cement or lime-containing construction materials (concrete) will **not** deposit, directly or indirectly, sediments, debris, concrete, concrete fines, wash or contact water into any waterbody.
58. All concrete, sealants or other compounds used for this project shall be utilized according to the appropriate Product Technical Data Sheet, stating guidelines and methods for proper use, and provided by the manufacturer of the product.

8. Conclusion

GHD has prepared this Natural Heritage Evaluation report to address potential environmental interactions associated with Phase 2 construction of the Hidden Ridge subdivision in Zephyr.

As the Site was previously golf course lands, the subdivision was permitted based on the current zoning of the land. Based on our analysis, the development is in an area that would create the least amount of impact on Greenbelt key natural heritage features and functions, including the PSW and associated woodlands. Unevaluated wetland removal of 441m^2 is proposed, with compensation to achieve no net loss. Recommendations were made to minimize potential impacts on the key natural heritage features during all phases of the project.

No significant impacts on key natural heritage features or the NHS area are anticipated provided all mitigation measures and recommendations are implemented as outlined in this report.

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Appendices

Appendix A

Plant Species by Community

APPENDIX A Plant Species by Community

Families and genera for the plant species found in this appendix are listed in taxonomic order. The species are listed alphabetically by scientific name within each genus.

Three standard reference works were used for the botanical nomenclature and taxonomy (Newmaster et. al., 1998; Gleason and Cronquist 1991; Voss 1980; 1985). Other published works for botanical names included; ferns (Cody and Britton 1989); grasses (Dore and McNeill 1980); orchids (Whiting and Catling 1986); shrubs (Soper and Heimburger 1982) and trees (Farrar 1995).

Total: Number of communities where plant species was recorded
X : Plant species recorded

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
STONEWORT FAMILY	*CHARACEAE*													
stonewort	*Chara spp.*	4	X				X		X					X
HORSETAIL FAMILY	*EQUISETACEAE*													
field horsetail	*Equisetum arvense*	3					X		X		X			
water horsetail	*Equisetum fluviatile*	1					X							
marsh horsetail	*Equisetum palustre*	1					X							
variegated horsetail	*Equisetum variegatum*	1					X							
BEECH FERN FAMILY	*THELYPTERIDAE*													
marsh fern	*Thelypteris palustris*	1									X			

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
WOOD FERN FAMILY	*DRYOPTERIDACEAE*													
northern lady fern	*Athyrium filix-femina*	2						X	X					
bulbet bladder fern	*Cystopteris bulbifera*	2						X	X					
ostrich fern	*Matteuccia struthiopteris*	2						X	X					
sensitive fern	*Onoclea sensibilis*	5					X	X	X	X	X			
PINE FAMILY	*PINACEAE*													
balsam fir	*Abies balsamea*	1									X			
white spruce	*Picea glauca*	7	X	X	X		X			X	X	X		
Colorado spruce	*Picea pungens*	1	X											
Austrian pine	*Pinus nigra*	3	X				X					X		
red pine	*Pinus resinosa*	1	X											
Scot's pine	*Pinus sylvestris*	1	X											
CYPRESS FAMILY	*CUPRESSACEAE*													
eastern white cedar	*Thuja occidentalis*	6	X					X	X	X	X	X		
WATER-LILY FAMILY	*NYMPHACEAE*													
fragrant water-lily	*Nymphaea odorata spp. Odorata*	1												X
WATER-SHIELD FAMILY	*CABOMBACEAE*													
water-shield	*Brasenia schreberi*	1												X
BUTTERCUP FAMILY	*RANUNCULACEAE*													
Canada anemone	*Anemone canadensis*	2						X	X					
virgin's bower	*Clematis virginiana*	1					X							
tall buttercup	*Ranunculus acris*	8	X	X	X		X		X	X	X	X		
hooked buttercup	*Ranunculus recurvatus*	1						X						
cursed crowfoot	*Ranunculus sceleratus*	1					X							
MOONSEED FAMILY	*MENISPERMACEAE*													
moonseed	*Menispermum canadense*	1						X						
ELM FAMILY	*ULMACEAE*													
AMERICAN Elm	*Ulmus americana*	4			X		X	X			X			

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
NETTLE FAMILY	*URTICACEAE*													
false nettle	*Boehmeria cylindrica*	1					X							
European stinging nettle	*Urtica dioica L. ssp.dioica*	1					X							
American stinging nettle	*Urtica dioica ssp. Gracilis*	2	X				X							
small nettle	*Urtica urens*	1	X											
WALNUT FAMILY	*JUGLANDACEAE*													
black walnut	*Juglans nigra*	1									X			
hybrid butternut	*Juglans x sp.*	1				X								
BIRCH FAMILY	*BETULACEAE*													
white birch	*Betula papyrifera*	3						X	X		X			
PINK FAMILY	*CARYOPHYLLACEAE*													
bouncing bet	*Saponaria officinalis*	1		X										
white campion	*Silene latifolia*	3	X	X	X									
bladder campion	*Silene vulgaris*	4	X	X	X		X							
BUCKWHEAT FAMILY	*POLYGONACEAE*													
water smartweed	*Polygonum amphibium*	1					X							
curled dock	*Rumex crispus*	3	X		X		X							
ST. JOHN'S-WORT FAMILY	*GUTTIFERAE*													
common St. John's-wort	*Hypericum perforatum*	1			X									
LINDEN FAMILY	*TILIACEAE*													
American basswood	*Tilia americana*	4	X						X	X		X		
small leaf linden	*Tilia cordata*	1										X		
VIOLET FAMILY	*VIOLACEAE*													
dog violet	*Viola conspersa*	1				X								
GOURD FAMILY	*CUCURBITACEAE*													
wild cucumber	*Echinocystis lobata*	4	X						X	X	X			

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
WILLOW FAMILY	*SALICACEAE*													
balsam poplar	*Populus balsamifera*	5	X				X		X		X	X		
trembling aspen	*Populus tremuloides*	4	X						X		X	X		
Carolina poplar	*Populus X canadensis*	1	X											
white willow	*Salix alba L.*	1									X			
weeping willow	*Salix babylonica*	2	X				X							
Bebb's willow	*Salix bebbiana*	1					X							
pussy willow	*Salix discolor*	2					X	X						
Missouri willow	*Salix eriocephala*	1					X							
crack willow	*Salix fragilis*	1							X					
slender willow	*Salix petiolaris*	1					X							
MUSTARD FAMILY	*BRASSICACEAE*													
garlic mustard	*Alliaria petiolata*	5					X	X	X	X	X			
shepherd's purse	*Capsella bursa-pastoris*	1			X									
dame's rocket	*Hesperis matronalis*	1		X										
common peppergrass	*Lepidium densiflorum*	2	X		X									
watercress	*Nasturtium officinale*	1					X							
PRIMROSE FAMILY	*PRIMULACEAE*													
starflower	*Trientalis borealis*	1						X						
GOOSEBERRY FAMILY	*GROSSULARIACEAE*													
American black currant	*Ribes americanum*	1						X						

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
ROSE FAMILY	*ROSACEAE*													
agrimony	*Agrimonia gryposepela*	1		X										
common strawberry	*Fragaria virginiana*	1		X										
yellow avens	*Geum aleppicum*	4		X		X			X	X				
sulfur cinquefoil	*Potentilla recta*	1		X										
old-field cinquefoil	*Potentilla simplex*	1			X									
choke cherry	*Prunus virginiana*	2						X	X					
wild red raspberry	*Rubus idaeus*	7	X	X	X	X	X	X	X					
thimbleberry	*Rubus occidentalis*	1	X											
purple-flowering raspberry	*Rubus odoratus*	1	X											
PEA FAMILY	*FABACEAE*													
everlasting pea	*Lathyrus sylvestris*	1		X										
bird's-foot trefoil	*Lotus corniculatus*	2	X		X									
black medick	*Medicago lupulina*	3	X	X	X									
alfalfa	*Medicago sativa ssp. Sativa*	3	X	X	X									
white sweet-clover	*Melilotus alba*	1			X									
red clover	*Trifolium pratense*	1		X										
white clover	*Trifolium repens*	2	X		X									
cow vetch	*Vicia cracca*	3	X	X	X									
WATER-MILFOIL FAMILY	*HALORAGACEAE*													
Eurasian water-milfoil	*Myriophyllum spicatum*	1	X											
EVENING PRIMROSE FAMILY	*ONAGRACEAE*													
Canada enchanter's nightshade	*Circaea lutetiana L. ssp.canadensis*	5					X	X	X	X	X			
DOGWOOD FAMILY	*CORNACEAE*													
alternate-leaf dogwood	*Cornus alternifolia*	2						X	X					
red-osier dogwood	*Cornus stolonifera*	3					X				X		X	
BUCKTHORN FAMILY	*RHAMNACEAE*													
European buckthorn	*Rhamnus cathartica*	9	X	X	X	X		X	X	X	X	X		

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
GRAPE FAMILY	*VITACEAE*													
Virginia creeper	*Parthenocissus inserta*	6		X	X	X		X	X		X			
wild grape	*Vitis riparia*	3		X	X						X			
MAPLE FAMILY	*ACERACEAE*													
Manitoba maple	*Acer negundo*	10	X	X	X	X	X	X	X	X	X	X		
Norway maple	*Acer platanoides*	3	X		X	X								
red maple	*Acer rubrum*	3	X				X	X						
silver maple	*Acer saccharinum*	3	X	X			X							
sugar maple	*Acer saccharum ssp.saccharum*	1	X											
Freeman's maple	*Acer x freemanii*	2	X				X							
CASHEW FAMILY	*ANACARDIACEAE*													
staghorn sumac	*Rhus typhina*	2			X				X					
GERANIUM FAMILY	*GERANIACEAE*													
herb Robert	*Geranium robertianum*	2							X	X				
TOUCH-ME-NOT FAMILY	*BALSAMINACEAE*													
spotted jewelweed	*Impatiens capensis*	5					X	X	X		X		X	
pale snapweed	*Impatiens pallida*	1					X							
GINSENG FAMILY	*ARALIACEAE*													
wild sarsaparilla	*Aralia nudicaulis*	2						X	X					
CARROT FAMILY	*APIACEAE*													
Queen-Anne's lace	*Daucus carota*	4	X	X	X		X							
MILKWEED FAMILY	*ASCLEPIADACEAE*													
swamp milkweed	*Asclepias incarnata*	3					X		X				X	
common milkweed	*Asclepias syriaca*	5	X	X	X		X				X			
swallow-wort	*Cynanchum rossicum*	9	X	X	X	X	X	X	X		X	X		
NIGHTSHADE FAMILY	*SOLANACEAE*													
bitter nightshade	*Solanum dulcamara*	6	X				X	X		X	X		X	
BORAGE FAMILY	*BORAGINACEAE*													
Viper's bugloss	*Echium vulgare*	1	X											

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
MINT FAMILY	*LAMIACEAE*													
ground ivy	*Glechoma hederacea*	3	X				X		X					
American water-horehound	*Lycopus americanus*	2					X	X						
wild mint	*Mentha arvensis*	1					X							
PLANTAIN FAMILY	*PLANTAGINACEAE*													
narrow-leaved plantain	*Plantago lanceolata*	2	X		X									
broad-leaved plantain	*Plantago major*	3	X	X	X									
OLIVE FAMILY	*OLEACEAE*													
black ash	*Fraxinus nigra*	1									X			
green ash	*Fraxinus pennsylvanica var. subinteg*	2						X	X					
lilac	*Syringa vulgaris*	1			X									
FIGWORT FAMILY	*SCROPHULARIACEAE*													
butter-and-eggs	*Linaria vulgaris*	1			X									
common mullein	*Verbascum thapsus*	3	X	X			X							
American brooklime	*Veronica americana*	1					X							
MADDER FAMILY	*RUBIACEAE*													
rough bedstraw	*Galium asprellum*	2					X	X						
white bedstraw	*Galium mollugo*	3	X		X		X							
marsh bedstraw	*Galium palustre*	1					X							
HONEYSUCKLE FAMILY	*CAPRIFOLIACEAE*													
tartarian honeysuckle	*Lonicera tatarica*	2	X								X			
Guelder rose	*Viburnum americanum*	1										X		

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
ASTER FAMILY	*ASTERACEAE*													
common yarrow	*Achillea millefolium*	5	X	X	X		X		X					
common burdock	*Arctium minus*	6	X	X	X	X	X			X				
ox-eye daisy	*Chrysanthemum leucanthemum*	2	X		X									
field thistle	*Cirsium discolor*	3	X					X	X					
bull thistle	*Cirsium vulgare*	2	X	X										
daisy fleabane	*Erigeron annuus*	3	X	X	X									
Philadelphia fleabane	*Erigeron philadelphicus ssp. philadel*	5	X	X			X	X	X					
spotted joe-pyeweed	*Eupatorium maculatum*	2					X						X	
boneset	*Eupatorium perfoliatum*	3							X		X		X	
grass-leaved goldenrod	*Euthamia graminifolia*	2	X				X							
pineapple weed	*Matricaria discoidea*	1			X									
king devil hawkweed	*Pilosella floribunda*	1	X											
Russian knapweed	*Rhaponticum repens*	1	X											
tall goldenrod	*Solidago altissima*	6	X	X	X	X	X				X			
Canada goldenrod	*Solidago canadensis*	8	X	X			X	X	X	X		X	X	
rough goldenrod	*Solidago radula*	1									X			
field sow thistle	*Sonchus arvensis*	4	X	X	X		X							
panicled aster	*Symphyotrichum lanceolatum*	1									X			
calico aster	*Symphyotrichum lateriflorum var.later*	1					X							
New England aster	*Symphyotrichum novae-angliae*	2		X			X							
purple-stemmed aster	*Symphyotrichum puniceum*	3					X				X		X	
common dandelion	*Taraxacum officinale*	7	X	X	X	X	X	X		X				
goat's-beard	*Tragopogon dubius*	2	X		X									
coltsfoot	*Tussilago farfara*	6	X	X			X	X	X		X			
WATER-PLANTAIN FAMILY	*ALISMATACEAE*													
common waterplantain	*Alisma plantago-aquatica*	1					X							
broad-leaved arrowhead	*Sagittaria latifolia*	1					X							

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
PONDWEED FAMILY	*POTAMOGETONACEAE*													
common floating pondweed	*Potamogeton natans*	1												X
sago pondweed	*Potamogeton pectinatus*	1					X							
straight-leaved pondweed	*Potamogeton strictifolius*	1					X							
ARUM FAMILY	*ARACEAE*													
Jack-in-the-pulpit	*Arisaema triphyllum*	1							X					
water arum	*Calla palustris*	1					X							
DUCKWEED FAMILY	*LEMNACEAE*													
common duckweed	*Lemna minor*	3					X	X	X					
star duckweed	*Lemna trisulca*	1							X					
RUSH FAMILY	*JUNCACEAE*													
Canadian rush	*Juncus canadensis*	2					X						X	
path rush	*Juncus tenuis*	2					X						X	
SEDGE FAMILY	*CYPERACEAE*													
porcupine sedge	*Carex hystericina*	1											X	
common lake sedge	*Carex lacustris*	1					X							
hop sedge	*Carex lupulina*	1					X							
awl-fruited sedge	*Carex stipata*	2					X						X	
needle spike-rush	*Eleocharis acicularis*	2					X						X	
black bulrush	*Scirpus atrovirens*	1											X	
wool-grass	*Scirpus cyperinus*	3					X				X		X	

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
GRASS FAMILY	*POACEAE*													
redtop	*Agrostis gigantea*	1											X	
creeping bent grass	*Agrostis stolonifera*	2	X				X							
marsh foxtail	*Alopecurus geniculatus*	1											X	
awnless brome grass	*Bromus inermis ssp.inermis*	2		X	X									
Canada bluejoint grass	*Calamagrostis canadensis*	2		X			X							
common reed grass	*Calamagrostis deschampioides*	1					X							
orchard grass	*Dactylis glomerata*	3	X	X	X									
quack grass	*Elymus repens*	2	X		X									
red fescue	*Festuca rubra*	1	X											
fowl manna grass	*Glyceria striata*	4						X	X		X		X	
rice cut grass	*Leersia oryzoides*	2							X		X			
reed canary grass	*Phalaris arundinacea*	6		X	X		X	X	X		X			
timothy	*Phleum pratense*	4	X	X	X		X							
common reed	*Phragmites australis*	1					X							
fowl meadow grass	*Poa palustris*	3	X				X				X			
Kentucky blue grass	*Poa pratensis*	5	X	X	X		X		X					
foxtail millet	*Setaria italica*	1	X											
BUR-REED FAMILY	*SPARGANIACEAE*													
broad-fruited bur-reed	*Sparganium eurycarpum*	1							X					
CATTAIL FAMILY	*TYPHACEAE*													
narrow-leaved cattail	*Typha angustifolia*	2					X		X					
common cattail	*Typha latifolia*	6					X	X	X		X		X	X
LILY FAMILY	*LILIACEAE*													
orange day-lily	*Hemerocallis fulva*	2	X		X									
Canada mayflower	*Maianthemum canadense*	1						X						
IRIS FAMILY	*IRIDACEAE*													
wild blue flag	*Iris versicolor*	1							X					

Common Name	*Scientific Name*	Total	COMMUNITY NUMBER											
			1	2	3	4	5	6	7	8	9	10	11	12
ORCHID FAMILY	*ORCHIDACEAE*													
helleborine	*Epipactis helleborine*	2	X						X					
Total Number of Plant Speci	183		73	43	47	12	84	39	50	16	39	13	19	5
			Number of Plant Species Per Community											

Appendix B

List of Significant Plant Species

APPENDIX C List of Significant Plant Species

Plant species observed by GHD with significant status on national, provincial and relevant regional lists are listed with status codes and where applicable the most current year of publication. Three standard reference works were used for the botanical nomenclature and taxonomy (Newmaster et. al., 1998; Gleason and Cronquist 1991; Voss 1980; 1985). Other published works for botanical names included; ferns (Cody and Britton 1989); grasses (Dore and McNeill 1980); orchids (Whiting and Catling 1986); shrubs (Soper and Heimburger 1982) and trees (Farrar 1995).

NATIONAL RANKING

Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Government of Canada

Species at Risk Act (SARA), SCHEDULE 1 (Subsections 2(1), 42(2) and 68(2)), Government of Canada

PROVINCIAL RANKING

Species at Risk in Ontario (COSSARO), Government of Ontario

Provincial Rank (SRANK), Natural Heritage Information Center, Government of Ontario

REGIONAL RANKING

Riley, Simcoe Riley,1989, Simcoe

STATUS CODES

COSEWIC **COSSARO** **SARA**	**END *** - Endangered Species **THR *** - Threatened Species **SC *** - Species of Concern	***Year of Status Publication included in Code**
SRANK	**S1** - Extremely Rare **S2** - Very Rare **S3** - Rare to Uncommon	**Other national or provincial codes not listed**
Regional Lists	**R** - Rare native species **RS** -Regional significant **EXP** - Extirpated native species	**Other Regional codes not listed**

		NATIONAL RANKINGS		PROVINCIAL RANKINGS			REGIONAL RANKINGS			
Common Name	**Scientific Name**	**COSEWIC**	**SARA**	**COSSARO**	**SRank**		**Riley, Simcoe**			
black walnut	Juglans nigra						R			
old-field cinquefoil	Potentilla simplex						R			
purple-flowering raspberry	Rubus odoratus						R			
black ash	Fraxinus nigra	THR Nov/18		END Oct/20						
field thistle	Cirsium discolor				S3		R			
tall goldenrod	Solidago altissima						R			
straight-leaved pondweed	Potamogeton strictifolius						R			

Common Name	Scientific Name		COSEWIC	SARA	COSSARO	SRank		Riley, Simcoe			
Plants with Ranking	**Total:** 7	**Status List Totals**	1	0	1		0	6	0	0	0

Appendix C

Bird Status Report

APPENDIX C Bird Status Report - Comprehensive

Bird species observed by GHD are listed in the order followed the American Ornithologists' Union (AOU) Check-list of North American birds (7th edition, 1999, 47th Supplement). Common and scientific nomenclature are based on those used by AOU. Breeding status and breeding evidence code are listed when observed. Any significant status for a species on national and provincial lists is displayed as well as those from relevant regional lists.

List Status :		
	END - endangered	A wildlife species facing imminent extirpation or extinction.
	END-R -endangered regulated	A wildlife species facing imminent extirpation or extinction in Ontario which has been regulated under Ontario's Endangered Species Act (ESA).
	THR - threatened	A wildlife species likely to become endangered if limiting factors are not reversed.
	SC - special concern	A wildlife species that may become threatened or an endangered species because of a combination of biological characteristics and identified threats.
	YES - Area Sensitive	A wildlife species that requires large areas of suitable habitat in order to sustain their population numbers.

*** Other status levels are not displayed**

List Sources:		
	COSEWIC	The Committee on the Status of Endangered Wildlife in Canada, 2024.
	COSSARO	The Committee on the Status of Species at Risk in Ontario, 2023.
	SARA	Species At Risk Act, Schedule 1, Government of Canada,2023.
	Area Sensitive	Significant Wildlife Technical Guide, Appendix C, OMNR, Oct. 2000
	Region 6	Southern Ontario Wetland Evaluation Appendix 11B, Version 3.2, March 2013

Breeding Status: (Observed By GHD)

B -species observed in breeding season in suitable habitat with some evidence of breeding (confirmed, probable or possible as per Ontario Breeding Bird Atlas, 2002).
F -species observed in breeding season but no evidence of breeding or suitable nest sites available on the study site (includes flyovers, migrants and foraging colonial breeders).
M -species observed outside of breeding season for that species and in area outside of the known breeding range for that species.

Breeding Evidence Code: (Observed By GHD)

OBSERVED
X -species observed in its breeding season (no evidence of breeding).

POSSIBLE BREEDING
H -species observed in its breeding season in suitable nesting habitat
S -singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat

PROBABLE BREEDING
P -pair observed in their breeding season in suitable nesting habitat
T -permanent territory presumed through registration of territorial song on at least 2days, a week or more apart, at the same place
D -courtship or display between a male and a female or 2 males, including courtship feeding or copulation
V -visiting probable nest site
A -agitated behaviour or anxiety calls of an adult
B -brood patch on adult female or cloacal protuberance on adult male
N -nest-building or excavation of nest hole

CONFIRMED BREEDING
DD -distraction display or injury feigning
NU -used nest or egg shell found (occupied or laid within the period of study)
FY -recently fledged young or downy young, including young incapable of sustained flight
AE -adults leaving or entering nest site in circumstances indicating occupied nest
FS -adult carrying fecal sac
CF -adult carrying food for young
NE -nest containing eggs
NY -nest with young seen or heard

SOURCE: Ontario Breeding Bird Atlas March 2001

AOU Code	Common Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive	Region 6		
WODU	Wood Duck	*Aix sponsa*	B	None				No			
GBHE	Great Blue Heron	*Ardea herodias*	B	None				No			
GRHE	Green Heron	*Butorides virescens*	B	H				No			
TUVU	Turkey Vulture	*Cathartes aura*	B	None				No			
OSPR	Osprey	*Pandion haliaetus*	B	S				No			
RTHA	Red-tailed Hawk	*Buteo jamaicensis*	B	H				No			
KILL	Killdeer	*Charadrius vociferus*	B	None				No			
MODO	Mourning Dove	*Zenaida macroura*	B	S				No			
BEKI	Belted Kingfisher	*Megaceryle alcyon*	B	None				No			
YBSS	Yellow-bellied Sapsucker	*Sphyrapicus varius*	B	H				Yes			
NOFL	Northern Flicker	*Colaptes auratus*	B	P				No			
ALFL	Alder Flycatcher	*Empidonax alnorum*	B	S				No			
EAPH	Eastern Phoebe	*Sayornis phoebe*	B	S				No			
GCFL	Great Crested Flycatcher	*Myiarchus crinitus*	B	H				No			
EAKI	Eastern Kingbird	*Tyrannus tyrannus*	B	H				No			
WAVI	Warbling Vireo	*Vireo gilvus*	B	S				No			
REVI	Red-eyed Vireo	*Vireo olivaceus*	B	S				No			
BLJA	Blue Jay	*Cyanocitta cristata*	B	S				No			
AMCR	American Crow	*Corvus brachyrhynchos*	B	S				No			
CORA	Common Raven	*Corvus corax*	B	None				No			
NRWS	Northern Rough-winged S	*Stelgidopteryx serripenni*	B	None				No			
BCCH	Black-capped Chickadee	*Poecile atricapillus*	B	S				No			
WBNU	White-breasted Nuthatch	*Sitta carolinensis*	B	S				No			
HOWR	House Wren	*Troglodytes aedon*	B	V				No			
AMRO	American Robin	*Turdus migratorius*	B	S				No			
GRCA	Gray Catbird	*Dumetella carolinensis*	B	S				No			

EUST	European Starling	*Sturnus vulgaris*	B	CF				No				
CEWX	Cedar Waxwing	*Bombycilla cedrorum*	B	P				No				
YEWA	Yellow Warbler	*Dendroica petechia*	B	S				No				
COYE	Common Yellowthroat	*Geothlypis trichas*	B	S				No				
CHSP	Chipping Sparrow	*Spizella passerina*	B	S				No				
SASP	Savannah Sparrow	*Passerculus sandwichens*	B	S				No				
SOSP	Song Sparrow	*Melospiza melodia*	B	S				No				
WTSP	White-throated Sparrow	*Zonotrichia albicollis*	B	S				No				
NOCA	Northern Cardinal	*Cardinalis cardinalis*	B	S				No				
INBU	Indigo Bunting	*Passerina cyanea*	B	S				No				
RWBL	Red-winged Blackbird	*Agelaius phoeniceus*	B	S				No				
COGR	Common Grackle	*Quiscalus quiscula*	B	S				No				
AMGO	American Goldfinch	*Carduelis tristis*	B	P				No				
TOTAL SPECIES OBSERVED:	**39**	**BREEDING SPECIES OBSERVED:**	**39**		**0**	**0**	**0**	**1**	**0**	**0**	**0**	

Appendix D

Herpetozoa Status Report by Station

Appendix D Breeding Herpetozoa Survey -Detailed Station Report

This report summarizes all herpetozoa (amphibian and reptiles) observations recorded by GHD for each visit to survey stations established within a project site. Details for each visit include station physical and spatial descriptions as well as sampling conditions and timing. Observations will note type of observation, quantity, call index, life stage and location when applicable.

AMPHIBIAN CALLING INDEX

1 - Individuals can be counted; there is space between calls
2 - Calls of individuals can be distinguished but there is some overlapping calls
3 - Full chorus, calls are constant, continuous and overlapping

Project ID: 17-076 Location: Zephyr

Project Name: Zephyr Development Project Remarks

Number of Herp Species Observed in Project: 4

Station No.: **MMP1**

/egetation Community No. (if applicable): **0**

Habitat Description: Golf Course Pond

UCLatitude: 0 Corrected Latitude: 0 UTM:

UCLongitude: 0 Corrected Longitude: 0 Way Point #:

Date: **5/9/2022**

SampleID: 532 Survey Method: Auditory Wind Conditions: 4 Background Noise: 1

Visit No.: 2 Survey Type: MMP CloudCover: 70 Remarks:

StatWayPt: Start Time: 9:00:00 PM Precipitation None

End Time: 9:05:00 PM Precipitation (within 24hrs) None

Temp Start: 15 Recorder:

Water Temp Start: Observers: JB EN

OBSERVATIONS

ObsID	Common Name	Observation Code	Call Index	Quantity	Life Stage	Distance (m)	Direction	AreaLoc	HWFName	Comment
1344	American Toad	Call	3		Adult			Out		in distant PSW
1343	Spring Peeper	Call	3		Adult			Out		in distant PSW

Number of Herp Species Observed in Sample: **2**

Date: 6/7/2022

SampleID:	535	Survey Method:	Auditory	Wind Conditions	2	Background Noise:	1
Visit No.:	3	Survey Type:	MMP	CloudCover:	90	Remarks:	
StatWayPt:		Start Time:	9:40:00 PM	Precipitation	None		
		End Time:	9:45:00 PM	Precipitation (within 24hrs)	Heavy Rai		
				Temp Start	14	Recorder:	JB
				Water Temp Start:		Observers:	JB EN

OBSERVATIONS

ObsID	Common Name	Observation Code	Call Index	Quantity	Life Stage	Distance (m)	Direction	AreaLoc	HWFName	Comment
1345	Green Frog	Call	1	2	Adult	10	180	In		

Number of Herp Species Observed in Sample: 1

Number of Herp Species Observed in Station 3

Station No.: **MMP2**

/egetation Community No. (if applicable): **0**

Habitat Description: Golf Course Pond and PSW

UCLatitude: 0 Corrected Latitude: 0 UTM:

UCLongitude: 0 Corrected Longitude: 0 Way Point #:

Date: **4/21/2022**

SampleID: 530
Visit No.: 1
StatWayPt:

Survey Method: Auditory
Survey Type: MMP
Start Time: 8:52:00 PM
End Time: 8:55:00 PM

Wind Conditions 2
CloudCover 100
Precipitation Light Rain
Precipitation (within 24hrs) Light Rain
Temp Start 11
Water Temp Start:

Background Noise: 2
Remarks:

Recorder:
Observers: CT

OBSERVATIONS

ObsID	Common Name	Observation Code	Call Index	Quantity	Life Stage	Distance (m)	Direction	AreaLoc	HWFName	Comment
1338	Spring Peeper	Call	3	50	Adult	25	323	In		

Number of Herp Species Observed in Sample: **1**

Date: 5/9/2022

SampleID:	533	Survey Method:	Auditory	Wind Conditions	3	Background Noise:	1
Visit No.:	2	Survey Type:	MMP	CloudCover:	70	Remarks:	
StatWayPt:		Start Time:	9:10:00 PM	Precipitation	None		
		End Time:	9:15:00 PM	Precipitation (within 24hrs)	None		
				Temp Start	14	Recorder:	JB
				Water Temp Start:		Observers:	JB EN

OBSERVATIONS

ObsID	Common Name	Observation Code	Call Index	Quantity	Life Stage	Distance (m)	Direction	AreaLoc	HWFName	Comment
1340	Green Frog	Call	1	1	Adult	10		In		
1339	Spring Peeper	Call	3		Adult	10	323	In		

Number of Herp Species Observed in Sample: 2

Date: 6/7/2022

SampleID:	536	Survey Method:	Auditory	Wind Conditions	2	Background Noise:	1
Visit No.:	3	Survey Type:	MMP	CloudCover:	90	Remarks:	
StatWayPt:		Start Time:	9:50:00 PM	Precipitation	None		
		End Time:	9:56:00 PM	Precipitation (within 24hrs)	Heavy Rai		
				Temp Start	14	Recorder:	JB
				Water Temp Start:		Observers:	JB EN

OBSERVATIONS

ObsID	Common Name	Observation Code	Call Index	Quantity	Life Stage	Distance (m)	Direction	AreaLoc	HWFName	Comment
1346	Green Frog	Call	1	2	Adult	5	160	In		

Number of Herp Species Observed in Sample: 1

Number of Herp Species Observed in Station 2

Station No.: **MMP3**

/egetation Community No. (if applicable): **0**

Habitat Description: PSW

UCLatitude: 0 Corrected Latitude: 0 UTM:

UCLongitude: 0 Corrected Longitude: 0 Way Point #:

Date: **4/21/2022**

SampleID: 529 Survey Method: Auditory Wind Conditions 0 Background Noise: 1

Visit No.: 1 Survey Type: MMP CloudCover 9 Remarks:

StatWayPt: Start Time: 8:43:00 AM Precipitation None

End Time: 8:40:00 AM Precipitation (within 24hrs) Light Rain

Temp Start: Recorder:

Water Temp Start: Observers: CT

OBSERVATIONS

ObsID	Common Name	Observation Code	Call Index	Quantity	Life Stage	Distance (m)	Direction	AreaLoc	HWFName	Comment
1337	Wood Frog	Visual			Egg	0	188	In		
1336	Wood Frog	Call	3	50	Adult	0	188	In		
1335	Spring Peeper	Call	3	50	Adult	0	188	In		

Number of Herp Species Observed in Sample: **2**

Date: 5/9/2022

SampleID:	534	Survey Method:	Auditory	Wind Conditions	1	Background Noise:	0
Visit No.:	2	Survey Type:	MMP	CloudCover:	70	Remarks:	
StatWayPt:		Start Time:	9:20:00 PM	Precipitation	None		
		End Time:	9:25:00 PM	Precipitation (within 24hrs)	None		
				Temp Start	13	Recorder:	JB
				Water Temp Start:		Observers:	JB EN

OBSERVATIONS

ObsID	Common Name	Observation Code	Call Index	Quantity	Life Stage	Distance (m)	Direction	AreaLoc	HWFName	Comment
1342	American Toad	Call	3		Adult			Out		
1341	Spring Peeper	Call	3	20	Adult	25	172	In		

Number of Herp Species Observed in Sample: 2

Date: 6/7/2022

SampleID:	537	Survey Method:	Auditory	Wind Conditions	1	Background Noise:	0
Visit No.:	3	Survey Type:	MMP	CloudCover:	90	Remarks:	
StatWayPt:		Start Time:	10:02:00 PM	Precipitation	None		
		End Time:	10:07:00 PM	Precipitation (within 24hrs)	Heavy Rai		
				Temp Start	14	Recorder:	JB
				Water Temp Start:		Observers:	EN JB

OBSERVATIONS

ObsID	Common Name	Observation Code	Call Index	Quantity	Life Stage	Distance (m)	Direction	AreaLoc	HWFName	Comment
1348	Spring Peeper	Call	1	3	Adult	10	60	In		
1347	Green Frog	Call	1	2	Adult	10	60	In		

Number of Herp Species Observed in Sample: 2

Number of Herp Species Observed in Station 4

Number of Herp Species Observed in Project: 4

Appendix E

Herpetozoa Status Report

APPENDIX E Herpetozoa Status Report

Project ID: 12562874

Herpetozoa (amphibian and reptile) species observed by GHD are listed by class then by family taxonomic grouping. These species are identified by the common and scientific name used by the Natural heritage information Centre (NHIC). Any significant status for a species on national and provincial lists is displayed as well as those from relevant regional lists.

List Status :	**END - endangered**	A wildlife species facing imminent extirpation or extinction.
	END-R -endangered regulated	A wildlife species facing imminent extirpation or extinction in Ontario which has been regulated under Ontario's Endangered Species Act (ESA).
	THR - threatened	A wildlife species likely to become endangered if limiting factors are not reversed.
	SC - special concern	A wildlife species that may become threatened or an endangered species because of a combination of biological characteristics and identified threats.
	YES - Area Sensitive	A wildlife species that requires large areas of suitable habitat in order to sustain their population numbers.

*** Other status levels are not displayed**

List Sources:	**COSEWIC**	The Committee on the Status of Endangered Wildlife in Canada, 2023.
	COSSARO	The Committee on the Status of Species at Risk in Ontario, 2024.
	SARA	Species At Risk Act, Schedule 1, Government of Canada, 2023.
	Area Sensitive	Significant Wildlife Technical Guide, Appendix C, OMNR, Oct. 2000.

Amphibian

Common Name	Scientific Name	COSEWIC	COSSARO	SARA	Area Sensitive
Toads	*Bufonidae*				
American Toad	*Anaxyrus americanus*				No
Treefrogs	*Hylidae*				
Spring Peeper	*Pseudacris crucifer*				No
Gray Treefrog	*Hyla versicolor*				No
True Frogs	*Ranidae*				
Wood Frog	*Lithobates sylvatica*				No
Northern Leopard Frog	*Lithobates pipiens*				No
Green Frog	*Lithobates clamitans*				No
American Bullfrog	*Lithobates catesbeiana*				Yes
No. of Species Observed: 7		**0**	**0**	**0**	**1**

Reptiles

Common Name	Scientific Name	COSEWIC	COSSARO	SARA	Area Sensitive
Snapping Turtles	*Chelydridae*				
Snapping Turtle	*Chelydra serpentina*	SC	SC	SC	No
Pond and Marsh Turtles	*Emydidae*				
Midland Painted Turtle	*Chrysemys picta marginata*	SC			No
Typical Snakes	*Colubridae*				
Milksnake	*Lampropeltis triangulum*	SC	NAR	SC	No
No. of Species Observed: 3		**3**	**2**	**2**	**0**

No. of Species Observed in Projec 10

Appendix F

Mammal Status Report

APPENDIX F Mammal Status Report

Mammal species observed by GHD are listed. These species are identified by the common and scientific name used by the Natural heritage information Centre (NHIC). Any significant status for a species on national and provincial lists is displayed as well as those from relevant regional lists.

List Status :	**END - endangered**	A wildlife species facing imminent extirpation or extinction.
	END-R -endangered regulated	A wildlife species facing imminent extirpation or extinction in Ontario which has been regulated under Ontario's Endangered Species Act (ESA).
	THR - threatened	A wildlife species likely to become endangered if limiting factors are not reversed.
	SC - special concern	A wildlife species that may become threatened or an endangered species because of a combination of biological characteristics and identified threats.
	YES - Area Sensitive	A wildlife species that requires large areas of suitable habitat in order to sustain their population numbers.

*** Other status levels are not displayed**

List Sources:	**COSEWIC**	The Committee on the Status of Endangered Wildlife in Canada, 2023.
	COSSARO	The Committee on the Status of Species at Risk in Ontario, 2024.
	SARA	Species At Risk Act, Schedule 1, Government of Canada, 2023.
	Area Sensitive	Significant Wildlife Technical Guide, Appendix C, OMNR, Oct. 2000

Common Name	Scientific Name	COSEWIC	COSSARO	SARA	Area Sensitive
White-tailed Deer	*Odocoileus virginianus*				No
Eastern Cottontail	*Sylvilagus floridanus*				No
Eastern Chipmunk	*Tamias striatus*				No
No. of Species Observed in Projec 3		**0**	**0**	**0**	**0**

Appendix G

Fish Species List to Zephyr Creek

Appendix G Table 1.1 Fish Species List for the Zephyr Creek

Family	Common Name	Scientific Name	Thermal Regime	Spawning Season
Centrarchidae	Pumkpinseed	*Lepomis gibbosus*	Warmwater	Spring-summer (May-August)
	Rock Bass	*Ambloplites rupestris*	Coolwater	Spring (May-June)
Gasterosteidae	Brook Stickleback	*Culaea inconstans*	Coolwater	Spring-summer (May-July)
Ictaluridae	Brown Bullhead	*Ameiurus nebulosus*	Warmwater	Spring (May-June)
Leuciscidae	Blacknose Dace	*Rhinichthys atratulus*	Warmwater	Spring-summer (May-August)
	Creek Chub	*Semotilus atromaculatus*	Coolwater	Spring (May-June)
	Northern Redbelly Dace	*Chrosomus eos*	Coolwater	Spring-summer (May-July)
Umbridae	Central Mudminnow	*Umbra limi*	Coolwater	Spring (April-May)

Note: Fish species listed under OMNR 2012 obtained from the Aquatic Resource Area Survey (OMNR, 2019) .Fish species spawning season obtained from the *Ontario Freshwater Fishes Life History Database* (Eakins, 2025).

Appendix H

Terms of Reference

347 Pido Road, Unit 29
Peterborough, Ontario K9J 6X7
Canada
www.ghd.com

22 September 2021 GHD Project No.:12562874

China Canada Jing Bei Xin Min International Co. Ltd.
c/o Andrew Marshall, B. ERS
EcoVue Consulting Services Inc.
311 George Street North Suite 200
Peterborough, Ontario
K9J3H3

Subject: **Hidden Ridge Golf Course property**
Phase 2, Draft Plan of Subdivision
Part of Lots 24 and 25, Concession 3 (Scott)
Town of Uxbridge, Region of Durham

Terms of Reference for Natural Heritage Evaluation Addendum

Dear Mr. Marshall:

GHD Limited has been retained to complete a Natural Heritage Evaluation Addendum (NHE) for Phase 2 of the Hidden Ridge Golf Course property draft plan of subdivision application. The enclosed Terms of Reference (ToR) includes a detailed outline of our proposed NHE workplan and summary of the previous biological work completed during Phase 1.

The ToR has been developed based on our review of the Phase 1 NHE, pre-consultation minutes, our knowledge of the site and surrounding area, applicable federal, provincial and municipal policies, and CLOCA regulations.

Please review and circulate to CLOCA and the Town. If there are any questions or additions, please contact our office.

Regards,

Chris Ellingwood
Senior Biologist

Candice Talbot
Terrestrial and Wetland Biologist

1. Introduction

This Natural Heritage Evaluation addendum is required as the proposed plan of subdivision 'development' is within the Greenbelt Plan area. The addendum must meet the requirements of the Greenbelt Plan and the Township of Uxbridge Official Plan and zoning bylaws.
The proposed work plan includes an addendum to the project Phase 1 NHE and it will address the Phase 2 updated development plan interaction and potential impacts of the proposed plan of subdivision to the natural environment. The work plan includes background review, terms of reference, and preparation of the NHE addendum report. Please note, all field inventories for Phase 2 were ompleted and reported on in the Phase 1 report. No additional field inventories are prospoed for the Phase 2 NHE report.

1.1 Background

The Township of Uxbridge requires that a Natural Heritage Evaluation be completed for Phase 2 of the proposed development. The project NHE will be reviewed by Lake Simcoe Region Conservation Authority (LSCA). As the site is currently a golf course, the use has a certain level of disturbance from golfers and maintenance crew. At the same time, there are birds, wildlife, wetland, and fish that have adapted to the golf course grounds.

The project Phase 1 NHE was completed by GHD (previously NEA), April 9th, 2020. The Phase 1 report included recommendations for Phase 2 constraints and buffers to assist in the detailed design process. As per the Phase 1 report recommendations, the Phase 2 submission will include an addendum report focusing the updated development plan effects on the natural environment.

Phase 2 is located directly south of Phase 1 and consists of 17 residential lots, as well as roads and servicing (Ecovue Consultation Services Inc., Hidden Ridge Gold Course, Draft Plan of Subdivision DP1, dated July 28, 2021).

The property is located within the boundaries of the Greenbelt Plan. Key Natural Heritage Features on the property or within 120 m of the property include:

- Protected Countryside designation
- Significant woodland
- Possible habitat for threatened or endangered species
- Watercourse and hydrological features (ponds)
- Provincially significant Zephyr-Egypt wetland complex
- Provincially significant Zephyr-Egypt Life Science ANSI
- Fish habitat

The Greenbelt Plan requires the completion of a Natural Heritage Evaluation when development is proposed within or in the area of influence of a key natural heritage feature. The property is also within the Regulated Area of LSRCA.

2. Approach

2.1 General Approach

The field inventories for the Phase 2 development area were completed in 2017 by GHD staff (formally NEA) and reported in Phase 1 NHE (2020). The following field assessments have been completed for the Phase 2 development area: background natural features review, vegetation communities, wildlife, breeding birds, fish community, fish habitat, surface water quality, and species at risk screening.

Our approach to preparation of the Phase 2 NHE will consist of three distinct phases.

In the first phase we will review and update the Phase 1 background information if required. The background review will include recent air photography, Township of Uxbridge Official Plan, Greenbelt Plan land use and key natural features GIS mapping, MNRF GIS database mapping and woodland layers and other correspondence or files.

Our second phase will consist of preparing a terms of reference report for the Phase 2 addendum report to verify no additional field inventories are required by the Township or Lake Simcoe Conservation Authority.

The final phase will consist of preparing the NHE addendum report based upon both the updated literature and development plan following the requirements in the Growth Plan for the Greater Golden Horseshoe, Provincial Policy Statement, Township of Uxbridge Official Plan, Town zoning bylaw and the Greenbelt Plan. The report will focus on the maintenance of these features and their functions.

The impact assessment and mitigation measures will focus on the wetland and ANSI, maintaining water infiltration, wildlife issues and natural linkage and corridors in the area. The report will identify planning, design and construction practices that will maintain or enhance the identified features and functions in this area of the Greenbelt. The NHE report will be submitted by Ecovue to the Township. They in turn will forward the report to LSRCA for environmental review and comments. As such, we need to ensure our report meets all of the requirements of the Official Plan, Greenbelt Plan and the conservation authority planning policies and EIS requirements.

2.2 Field Inventories

2.2.1 Timing and Schedule

The field surveys have already been completed and were undertaken in spring and summer of 2017. The surveys covered all portions of the Phase 2 study area and adjacent areas to assess the boundary of natural features such as wetlands and woodlands.

2.2.2 Detailed Methodology

Vegetation

All vegetation communities on and adjacent to the study lands were visited in July 2017 and species composition of dominant species determined. Community type criteria followed that of MNR's Ecological Land Classification for Southern Ontario (ELC) program (Lee et al., 1998) and was done to the vegetation type level.

National, provincial and regional significance will be re-determined from accepted status lists and published reference lists such as SARA (2021), COSEWIC (2021), SARO (2021), Ontario Endangered Species Act (2007), NHIC (2021), and Oldham (2000).

Birds

Two breeding bird surveys were conducted during the peak breeding season (May 28-June 30th) using a combination of point counts and area searches. The surveys took place on June 27 and July 6, 2017. The point counts followed the Ontario Breeding Bird Atlas point count methodologies. Surveys targeted all species, though emphasis will be on current listed species on the provincial SARO list and woodland birds. Surveys were conducted between dawn and 9 am on days with suitable weather conditions. Survey stations were established in all habitat types identified on site.

Wildlife

Incidental observations of mammals, amphibians, reptiles were made during all 2017 site visits. Observations included direct sightings and indirect evidence such as calls, scat, browse, burrows and nests. Any wildlife trees, those suitable for bats (Bat cavity trees), and raptor stick nests were recorded.

Species at Risk

The Ontario Endangered Species Act (ESA) places the onus on proponents and comply with the act. This is done by requiring surveys be conducted by a qualified biologist, typically as part of an Environmental Study, to determine whether Species at Risk are present through targeted in-season field surveys using species-specific protocols. GHD's 2017 site visits included an assessment of habitat for species identified by MECP as being potentially present in the area.

Wetland Boundary

The boundary of the PSW (Zephyr-Egypt PSW Complex) and any other wetlands on the site was confirmed in July 2018 using the methodologies in the Ontario Wetland Evaluation System, Southern Ontario Manual, Third Edition (OMNR, 2013 and updates) by an MNRF certified wetland evaluator. All communities within the study area were walked to determine the extent of the wetland. The

species composition of the vegetation within the wetland and any other wet pockets was completed. As LSRCA regulations include all wetlands (evaluated or unevaluated), GHD delineated any other wetland pockets on the property and determined if they can be complexed with the adjacent PSW or if they are isolated pockets of wetland. The ecological functions of each of the wetlands was assessed. An applicable buffer of 30 meters from the wetlands, as per MNRF, LSRCA and Township policies was recommended, as well as mitigation measures to protect the wetlands from hydrological changes or ecological functionality.

Woodland

The boundary any wooded area, species composition, including the age, diameter, species composition was examined during our field surveys. Only 1 woodland independent of the wetland communities was identified and determined not to be significant.

Aquatic

Fish Community

Due to potential impacts from construction, servicing, stormwater management and the lotting fabric, the ponds and watercourses were sampled by GHD fisheries biologists in August 2017.

Fish community data was collected using a Smith-Root Model 24 backpack electrofisher using the techniques outlined in the Ontario Stream Assessment Protocol (Stanfield, 2010). Fish community sampling was conducted using the single pass survey technique, allowing biologists to characterize the fish community and provide a qualitative assessment of species abundance at the site.

Aquatic Habitat Assessment

GHD biologists assessed the aquatic habitat by determining all existing aquatic habitat types based on substrate, riparian habitat, percent in-stream cover and unique features. Habitat types were identified on aerial imagery prior to the site visit, providing a site map characterize the existing aquatic habitat. Assessments were conducted using standardized provincial aquatic protocols (OSAP, MTO) in addition to GHD's standardized habitat analysis techniques.

Water Quality

Water temperature °C, dissolved oxygen mg/L, total dissolved solids mg/L, conductivity us/cm, salinity, pH, and water colour were recorded in the study area to establish a baseline. These parameters are collected in the event post construction stormwater monitoring is required by the CA and to determine the quality of the water in these features in terms of fish habitat and other aquatic organisms.

3. Report Preparation

3.1 Analysis, Discussion and Impact Assessment

An addendum to our initial Phase 1 Natural Heritage Evaluation (NHE) will be prepared to address to address the Phase 2 updated development plan using the field data collected from 2017. This addendum will also identify any Official Plan and policy updates since our initial report, as well as any possible changes to species at risk status that may have occurred.

Based on the site conditions, buffers and the proposed development type, we will recommend mitigation measures for the site-preparation, construction and post-construction phases of the project. Mitigation measures may include such items as sediment and erosion control, timing windows, protection areas, fencing and other measures to maintain infiltration, limit impervious surfaces and minimize grading. We will work with the other study team members, including the architect on any measures we feel should be incorporated into the site plan and building design.

4. Deliverables

GHD will provide .pdf files of the NHE to the proponent and the agencies unless otherwise stated. Hard copies may be requested at an extra charge. This report will be prepared as per the requirements in the Official Plans, standard NHE procedures, and the details outlined in this Terms of Reference (ToR). The NHE will act as supporting documentation for the development application. Our vegetation community layers and ELC boundary lines can be made available to the agencies to update their GIS mapping.

If you have any questions on this Terms of Reference please contact me. A formal response on the acceptance of the ToR would be appreciated.

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