



Environmental Impact Study

Scugog Line 6

WangZhe Corp.

22 January 2024

→ The Power of Commitment



GHD Ltd.

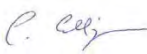
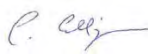
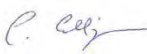
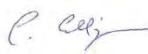
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1. Introduction

1.1 Background

GHD Limited has been retained to complete an Environmental Impact Study for a proposed industrial development on a property located on Scugog Line 6 (Roll number 1820010004279000) in the Township of Scugog, Region of Durham. The large parcel includes wetlands, woodlands and watercourse. As a result, The Township and Kawartha Region Conservation Authority (KRCA) require an EIS as part of the supporting documentation for a development proposal.

1.2 Location and Study Area

The Site is located on Scugog Line 6 (Roll number 1820010004279000) just west of Port Perry in the Township of Scugog. The Site is also known as Part Lot 14, Concession 6. The property is rectangular in shape with frontage on Scugog Line 6.

1.3 Scope and Limitations

This report: has been prepared by GHD for WangZhe Corp and may only be used and relied on by WangZhe Corp for the purpose agreed between GHD and WangZhe Corp as set out in section 1 of this report.

GHD otherwise disclaims responsibility to any person other than WangZhe Corp 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 (OPs) and official plan amendments that are applicable and relevant to the study area and the immediate vicinity. This includes policies that triggered the study. These documents may identify Species at risk, natural features and habitats or other features relevant to this study.

1.4.1 Federal Legislation

1.4.1.1 Fisheries Act

The purpose of the Fisheries Act is to maintain healthy, sustainable, and productive Canadian fisheries through the prevention of pollution, and the protection of fish and their habitat. The Fisheries Act provides protection provisions for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects in and near water. These provide guidance on how to avoid and mitigate impacts to fish and fish habitat and comply with the Fisheries Act to avoid causing the death of a fish or harmful alteration, disruption, or destruction (HADD) of fish habitat from your work, undertaking or activity.

Projects affecting waterbodies that support fish and fish habitat must comply with the provision of the Fisheries Act. The proponent is responsible for determining if the project is likely to cause impacts to fish and fish habitat and if these impacts can be avoided or mitigated. The proponent must gather information on the type and scale of impact on the fishery and determine if the impacts will result in the death of fish or a HADD of fish habitat. A Request for Review (RFR) should be submitted to Fisheries and Oceans Canada (DFO) if impacts cannot fully be avoided. Following DFO review, if it is determined that the impacts cannot be avoided or mitigated and will result in death of fish or a HADD of fish habitat, an authorization under Subsection 35 (2) of the *Fisheries Act* must be obtained from the DFO. Projects that have the potential to obstruct fish passage or affect flows needed by fish may require an authorization.

1.4.1.2 Migratory Birds Convention Act

The Migratory Birds Convention Act (MBCA 1994) and Migratory Birds Regulations (MBR – Government of Canada 2022) protect most species of migratory birds and their nests and eggs. Under the MBR 2022 it is now prohibited to damage, destroy, disturb, or remove migratory bird nests when they contain a live bird or viable egg and prohibit the deposit of harmful substances in waters and areas frequented by them. For 18 species of migratory birds identified on Schedule 1, the MBR 2022 provides year-round nest protection until they can be deemed abandoned. The Schedule includes certain migratory birds who either re-use their own nests from one year to the next (colonial species), or whose nests are commonly re-used by other species of migratory bird species, like Pileated Woodpeckers. If the nest of a Schedule 1 species has not been occupied by a migratory bird for the entirety of the waiting time indicated in the MBR 2022, it is considered to be abandoned, and to no longer have high conservation value for migratory birds.

Environment and Climate Change Canada (ECCC) implements policies and guidelines to protect migratory birds, providing guidance on the ECCC website to help to minimize the risk of detrimental effects to migratory birds and to achieve compliance with the law (Government of Canada 2022b). 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 on the ECCC website, such as the implementation of timing restrictions to ensure migratory birds and their young have left an area before it is disturbed due to construction or prior to vegetation removal.

The Study Area has been identified to be within Zone C2 (ECCC 2019) and as such this area of southern Ontario typically has migratory birds nesting between the time period of April 1st to August 31st of every year.

1.4.2 Provincial Legislation

1.4.2.1 Endangered Species Act, 2007

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

1. To identify species at risk based on the best available scientific information, including information obtained from community knowledge and indigenous traditional knowledge;
2. To protect species that are at risk and their habitats, and to promote the recovery of species that are at risk;
3. To promote stewardship activities to assist in the protection and recovery of species that are at risk. 2007, c. 6, s. 1. (Government of Ontario 2022)

The ESA clearly defines the five classifications of species status as extinct (EXT), extirpated (EXP), endangered (END), threatened (THR), or special concern (SC), 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 January 2023 (Government of Ontario 2023). Species status provided in the list is initially assessed by an independent body, the Committee on the Status of Species at Risk in Ontario (COSSARO), based on the best-available science and Indigenous 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 2022b). 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 how the purpose of the ESA is to be carried out (Government of Ontario 2022b).

1.4.2.2 Provincial Policy Statement, 2020

The Provincial Policy Statement, 2020 (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 policy 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 Policy Statement (Government of Ontario 2020).

Provincial plans, such as the Greenbelt Plan (2017) and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020) build upon the policy foundation provided by the PPS 2020 (Government of Ontario 2020). These provincial plans provide additional policies to address issues in certain geographic areas of Ontario (Government of Ontario 2020). Where the policy of a provincial plan addresses the same, similar, related or overlapping matters as the PPS 2020, the specific policies of the provincial plan may be used to satisfy the PPS 2020. However, where matters in the PPS 2020 and the provincial plan policies are not overlapping, the PPS 2020 must be independently satisfied (Government of Ontario 2020)

Portions of Sections 2.1.4-2.1.8 of the Provincial Policy Statement (PPS 2020) had the potential to apply to this project.

- 2.1.4 *Development and site alteration shall not be permitted in:*
 - a. **significant wetlands in Ecoregions 5E, 6E and 7E1; and**
 - b. *significant coastal wetlands.*
- 2.1.5 *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*

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

- 2.1.6 *Development and site alteration shall not be permitted in **fish habitat** except in accordance with provincial and federal requirements.*
- 2.1.7 *Development and site alteration shall not be permitted in the **habitat of endangered species and threatened species**, except in accordance with provincial and federal requirements.*
- 2.1.8 *Development and site alteration shall not be permitted on **adjacent lands** to the natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

1.4.2.3 Greenbelt Plan, 2017

The Greater Golden Horseshoe (GGH) is located in the heart of the Great Lakes region and contains many of Canada's most ecologically and hydrologically significant natural environments and scenic landscapes including the Oak Ridges Moraine and Niagara Escarpment (OMMAH 2017). The Greenbelt Plan was first introduced in 2005 but was revised in 2017 (after public consultation) to help shape the future growth in the region (i.e., the GGH). *"The Greenbelt Plan, together with the ORMCP and the NEP, identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological and hydrological features, areas and functions occurring on this landscape."* More specifically, the plan:

- Protects against the loss and fragmentation of the agricultural land base and supports agriculture as the predominant land use;
- Gives permanent protection to the natural heritage and water resource systems that sustain ecological and human health and that form the environmental framework around which major urbanization in south-central Ontario will be organized;
- Provides for a diverse range of economic and social activities associated with rural communities, agriculture, tourism, recreation and resource uses; and
- Builds resilience to mitigate climate change (OMMAH 2017).

The Site falls within the Protected Countryside of the Greenbelt Plan and is designated as 'Towns and Villages' (Government of Ontario 2023). The Greenbelt Plan states the following about this designation: *"Generally, this Plan does not apply to lands within the boundaries of Towns/Villages and Hamlets. Official plans will continue to govern land use within these settlement areas based on policy direction provided by the Growth Plan."* Section 3.4.3 of the Greenbelt Plan provides additional clarification about Town/Village Policies in the Protected Countryside.

1.4.2.4 A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020

A Place to Grow: Growth Plan for the Greater Golden Horseshoe 2020 came into effect on August 28th, 2020 replacing the Growth Plan for the Greater Golden Horseshoe 2019. The Growth Plan for the Greater Golden Horseshoe 2020 (herein referred to as the Growth Plan) is a strategic, long-range, comprehensive, and integrated approach to guide future growth in Ontario. It includes planning for infrastructure, land use, economic development, and population health.

Municipalities have been directed to incorporate the Natural Heritage System (NHS) as an overlay in official plans and to apply appropriate policies to maintain, restore, or enhance its diversity and connectivity as well as its ecological and hydrological functions. However, provincial mapping of the NHS does not apply until it has been implemented in the applicable upper or single-tier official plan (Government of Ontario 2022c).

According to Schedule A-1 (Land Use) of the Township of Scugog Official Plan, the Site falls within the Port Perry Urban Area and is mainly zoned as General Industrial. The western and northern portions of the Site have Open Space and Hazard Lands designations. Schedule I (Secondary Policy Areas) shows that the Site includes both 'Built Boundary' and 'Greenfield Areas',

The NHS for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017. As a result, some of the policies associated with Section 4.2.2 of the Growth Plan are not applicable to this project (e.g., 4.2.2 (3)). However, according to Section 4.2.2 (6), *"Beyond the Natural Heritage System for the Growth Plan, including within settlement areas, the Municipality: a) will continue to protect any other natural heritage features and areas in a manner that is consistent with the PPS; and b) may continue to protect any other natural heritage system or identify new systems in a manner that is consistent with the PPS."* Sections 4.2.3 and 4.2.4 of the Growth Plan are also not applicable since the Site falls within an identified settlement area.

1.4.3 Local and Other Regulatory Bodies

1.4.3.1 Township of Scugog Official Plan (Office Consolidation September 2017)

The Township of Scugog Official Plan designates the Site as within the Port Perry Urban Area (Schedule A – Rural Area Land Use). Schedule A-1, the Port Perry Urban Area Land Use map indicates the Site has areas designated as Prestige Industrial, General Industrial, Open Space, and Hazard Lands. Policies associated with the latter designations can be found in Section 4.9 and Section 4.8 of the Official Plan, respectively. The Industrial designations make up the bulk of the Study Area, primarily in the south and central portions. These are discussed in Section 4.7 of the Official Plan. Open Space Designations have been applied along the northern and western portions of the Site.

The Township's policies relating to natural heritage and resource management are contained in Section 2.2 of the Official Plan. Section 3.7 (Environmental Impact Studies) describes the purposes of an EIS and information that must be included in an EIS. GHD has prepared this document following those guidelines.

Section 4 of the OP applies to the Port Perry Urban Area. General development policies in Section 4.7 (Employment Areas) of the Official Plan indicate that no development shall be permitted within 120 metres of a wetland until an EIS has been completed and the recommendations incorporated into the development approval process. Section 4.8 (Hazard lands) encourages the protection of environmentally sensitive areas and indicate when the Township needs to consult with the Conservation Authority. Generally, no buildings or structures are permitted in Hazard Lands, though the Site falls under a Special Policy area, which permits development under certain conditions.

Section 4.8.4 – Special Policy area, applies to the study area:

“Notwithstanding any policies to the contrary under the Official Plan, the following special policy applies to the lands known as Part of Lot 14, Concession 6, being the lands assigned P.I.N. 26805-0035 (LT) as of March 31, 2011:

- a. Notwithstanding the Hazard overlay designation, development shall be permitted within those parts of the lands designated “General Industrial” provided that:*
 - i. No hazardous substances shall be stored on the site;*
 - ii. The floodplain storage capacity shall be maintained;*
 - iii. Any permanent structure shall be flood-proofed to ensure that the footprint thereof is above the floodplain, as well as other measures deemed necessary for the protection of the infrastructure; and,*
 - iv. Prior to development, but not land division:*
 - 1. Approval is obtained pursuant to Section 41 of the Planning Act, as amended; and,*
 - 2. The Conservation Authority has issued a permit subject to Ontario Regulation 182/06 and Conservation Authority policies in effect, which may include conditions requiring flood mitigation measures during any planning approval process.*
- b) Any zoning by-law amendment for the lands shall include a prohibition against development in the area designated “Open Space”.*
- c) Any approval granted pursuant to Sections 41, 51 or 53 of the Planning Act, as amended, shall be subject to a condition requiring that any fill added in the lands designated “Open Space” shall be excavated and moved to a location outside the floodplain in order to restore the flood storage capacity of those lands as it existed prior to the addition of such fill”.*

Open Space designation is discussed in Section 7 of the OP Permitted Uses:

- a. The Parks and Open Space designation includes Township Parks, Community Parks, Neighbourhood Parks, Parkettes and Open Space Linkages and Trails. Lands designated Parks and Open Section 7 – Parks and Open Space shall be used primarily for active and passive recreational purposes and accessory uses. Public and private parks, including golf courses are included in this designation.*

- b. *Community recreation facilities, community facilities such as public cemeteries and public community centres, stormwater management facilities, infrastructure and utilities may also be permitted, provided any adjacent natural features and functions are protected and enhanced and the scale of the use is compatible with the character of adjacent development.*

1.4.3.2 Kawartha Region Conservation Authority (Ontario Regulation 182/06)

The Conservation Authority whose jurisdiction the study area falls under is the Kawartha Region Conservation Authority (KRCA). Under the Conservation Authorities Act, Ontario Regulation 182/06 Development, Interference with Wetlands and Alterations to Shorelines and Watercourses is applicable. A permit is required from KRCA in order to complete any works in regulated areas, i.e., that are adjacent or close to the shoreline of the Great Lakes-St. Lawrence River System or inland lakes that may be affected by flooding, erosion or dynamic beach hazards; river or stream valleys; hazard lands; wetland; or other areas where the Minister identifies that development should be prohibited or regulated or would require the permission of the authority (Government of Ontario 2023b).

More specifically, KRCA regulates:

- the ability to straighten, change, divert or interfere with the existing channel of a river, creek, stream or watercourse, or for interfering in any way with a wetland;
- hazardous lands where development is proposed within their area of jurisdiction;
- other activities which should be prohibited or regulated as determine by the regulations.

1.5 Other Resources Referenced

Prior to field surveys, background information for the study area and surrounding lands from a variety of sources was reviewed to provide context for the setting and sensitivity of the site. Background information sources included:

1.5.1 Data Sources

- Aerial imagery
- Land Information Ontario (LIO) database mapping and Natural Heritage Information Centre (NHIC) Make-a-map tool (2023)
- Ontario Breeding Bird Atlas data (Bird Studies Canada, (BSC) 2001-2005 field data)
- Ontario Reptile and Amphibian Atlas data (Ontario Nature 2019)
- Ontario Ministry of Natural Resources Fish-On Line, Fish Species List (OMNR, 2022)
- Department of Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping (DFO, 2023)

1.5.2 Literature and Resources

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

1.6 Description of Development

The owners of Wangzhe Trade and Investment Corporation are proposing a commercial/industrial development at 1125 Scugog Line 6, Part Lot 1, Concession 6. The development would have frontage on Scugog Line 6. The proposal includes several development blocks, the creation of an access road from Scugog Line 6, a closed loop and another potential road to the east (**Appendix A**).

1.6.1 Scope of Report

The scope of work for the project includes the following:

- description of current and proposed land uses
- Ecological Land Classification (ELC) of all vegetation communities
- wetland delineation and setbacks; including confirmation of PSW boundaries and communication with MNRF regarding any boundary changes that may be present
- mapping of watercourse, fish habitat assessments and setbacks
- determination of fish habitat and setbacks
- breeding bird surveys (x2)
- incidental observations of amphibians, reptiles and other wildlife
- assessment of potential Significant Wildlife Habitat (SWH)
- targeted search for the presence of SAR, and SAR habitat. If found, conduct a habitat assessment.
- search for regionally rare plants species
- detailed plant inventory
- search for significant wildlife habitat features and sensitive habitats,
- assessment of the ecological functions of natural features on the site (e.g., woodlands and wetlands)
- analysis of possible impacts of the proposed development on natural features and their ecological functions,
- mitigation recommendations
- figure illustrating lot layout that respects all significant natural features and buffers/setbacks per EIS recommendations (note: minimum setback/buffer of 30 metres for wetlands and watercourses).

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. Any other approvals or constraints due to zoning, flood and fill regulations, health regulations, archaeology, slope stability studies, minimum distance separation or other approvals for the municipality and other agencies are the responsibility of the owner.

2. Study Methods

2.1 General Approach

Our approach to preparation of the EIS has consisted of several phases.

In the first phase we collected and reviewed available information about the Site including recent aerial photography, key natural features GIS mapping, wetland mapping, Township of Scugog Official plan schedules and other correspondence, and data or files available from KRCA. We also reviewed site information from other work done previously done in the area for different projects.

In the second phase, we prepared and submitted a Terms of Reference to KRCA for review and approval. The TOR included fieldwork being conducted, the scope of our work and the content/issues that would be included in the discussion, impact and recommendation sections of the EIS report. It was submitted on May 28, 2021 (**Appendix B**).

Our third phase consisted of site visits by our fisheries and terrestrial/wetland biologists in the spring and summer of 2021, the fall of 2022, and the winter of 2023 to confirm the data collected in the literature review and gather additional information. The boundary of natural features was delineated. Additional surveys are listed in Section 1.6.1, and included Ecological Land Classification (ELC) mapping, vegetation inventory, identification of wildlife corridors and linkages, search for the presence of significant species including Species at Risk (SAR), aquatic habitat assessments and surface water quality sampling. The surveys were completed across the Site, and focused on the fields, wetlands, woodland, and watercourse.

In the fall of 2022, GHD staff were in contact with MNRF regarding wetland habitats that had been located on the Site. Additional fieldwork was completed to ensure that MNRF had the materials they required to understand historical changes to these features. The data was collected and submitted, with MNRF's management biologist indicating, *"...rationales look good. Can you send over the shape file so that they can be used to update our digital database..."* These shapefiles were sent to MNRF on January 11, 2023.

The final phase has involved the preparation of this EIS based upon both the literature review and the field surveys that were conducted. We identified potentially negative impacts that could occur if the proposed development proceeded without mitigation. We then identified specific mitigation measures to protect wetlands, sensitive species, and other natural features on or adjacent to the study site.

The EIS follows requirements in the Township of Scugog OP and KRCA policies. Recommendations include planning, design and construction practices that would maintain and/or enhance identified natural features and functions. This report includes figures that show the location of all the natural features, vegetation communities, and any recommended setbacks and buffers. We have worked with a study team on the layout of the lots, roads and amenities to ensure that natural features are protected and that the final plans meet the recommendations of our EIS report, regional requirements and township policies.

2.2 Study Site Methodology

2.2.1 Physical Site Characteristics

Site characteristics were assessed during field visits. GHD's assessments included general documentation of existing disturbances, current property use, age of vegetation cover, topography, and soil sampling in portions of the Site.

2.2.2 Biophysical Inventory

2.2.2.1 Vegetation

ELC Survey Method

All vegetation encountered in the study area was inventoried during the site visits. Delineation and classification of the vegetation community types was based on the Ecological Land Classification for Southern Ontario (Lee et al., 1998). Classification was done to the finest scale possible: Vegetation type or Ecosite.

Rare, significant, and uncommon species were searched for. Species significance or rarity on a national, provincial, regional or local level was based on published literature and standard status lists. These included SARA (2023), COSEWIC (2022), SARO (2023) and Riley et al. (1989).

2.2.2.2 Birds

Breeding Bird Survey (BBS)

Bird surveys were conducted following the protocols of the Ontario Breeding Bird Atlas (OBBA) point count (Cadman and Kopysh, 2001). Four (4) point count stations were established in various portions of the Site (**Figure 1**). At each of these stations, two surveys were conducted during the peak breeding season (May 24th -July 10th) approximately 10-15 days apart. All birds seen or heard within each five-minute station period were documented and breeding evidence codes recorded. Surveys were conducted in the early morning (i.e., between dawn and 9am) at stations established in a variety of vegetation communities to adequately survey birds using all habitats on and adjacent to the Site.

Area Searches

In addition to breeding bird point counts, GHD biologists kept a record of any birds they detected while on site conducting other surveys; breeding evidence codes were also noted if known. The search area for these surveys included all the vegetation communities on the Site. Rare, significant, or unusual species were searched for. Species significance or rarity on a national, provincial, and regional level was based on published literature and standard status lists. These included SARA (2023), COSEWIC (2022), SARO (2023) and Government of Ontario (2022d).

2.2.2.3 Other Wildlife

In April 2021, an amphibian survey was conducted following a modified marsh monitoring protocol (MMP). Calling amphibians were recorded from 4 point count stations throughout the site. Most late-calling species inhabit areas where there is standing water later in the year. As this kind of habitat was not found, and GHD understood that the wetlands and woodlands on the north and west of the Site were being retained (and therefore any amphibian habitat in those areas would remain post-development), additional surveys were not conducted. Incidental observations of other calling amphibians were recorded other times that GHD was on the Site.

GHD biologists recorded observations of reptiles, mammals and other wildlife whenever they were encountered on the Site. Wildlife observations occurred in 2021, 2022 and 2023. 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).

2.2.2.4 Fish and Aquatic Habitat

Aquatic Habitat Assessment

An aquatic habitat assessment was conducted following standardized provincial aquatic methods from the Ontario Stream Assessment Protocol, Section 4, Module 11 (Les Stanfield, 2017 version 10) and Ontario Ministry of Transportation (MTO) Environmental Guide for Fish and Fish Habitat Protocol Section 4.0 (MTO, 2009). 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 Pro2030 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

Fish community sampling was not completed by GHD as a fish species list was available from Natural Resources and Forestry (NRF) (OMNR, 2024).

To ensure the project meets provincial and federal species at risk legislation, a full review of the current Ontario Endangered Species Act (ESA) and Canadian Species at Risk Act (SARA) was completed. The background literature review included Department of Fisheries and Oceans (DFO) Species at Risk maps to identify the presence of any endangered and/or threatened species and critical habitat on a federal level. The OMNRF-NHIC database was reviewed to identify the potential presence of endangered and/or threatened species which would receive individual protection (Section 9, ESA) or receive general habitat protection (Section 10, ESA) on a provincial level.

2.2.2.5 Wetlands

The presence of wetlands on the Site was confirmed in the field by GHD staff familiar with the methodologies described in the Ontario Wetland Evaluation System (OWES) Southern Manual, 3rd and 4th Editions (MNR 2014, 2022). Biologists first reviewed aerial photographs and available wetland mapping, including MNR GIS database layers. Subsequently, they walked the Site, checking plant species, soil type and soil moisture. The boundaries of wetlands were then delineated using a high-accuracy hand-held GIS unit. Information was collected/organized according to the direction received from MNR, with soils and wetland vegetation forms being identified according to OWES.

2.2.2.6 Woodlands

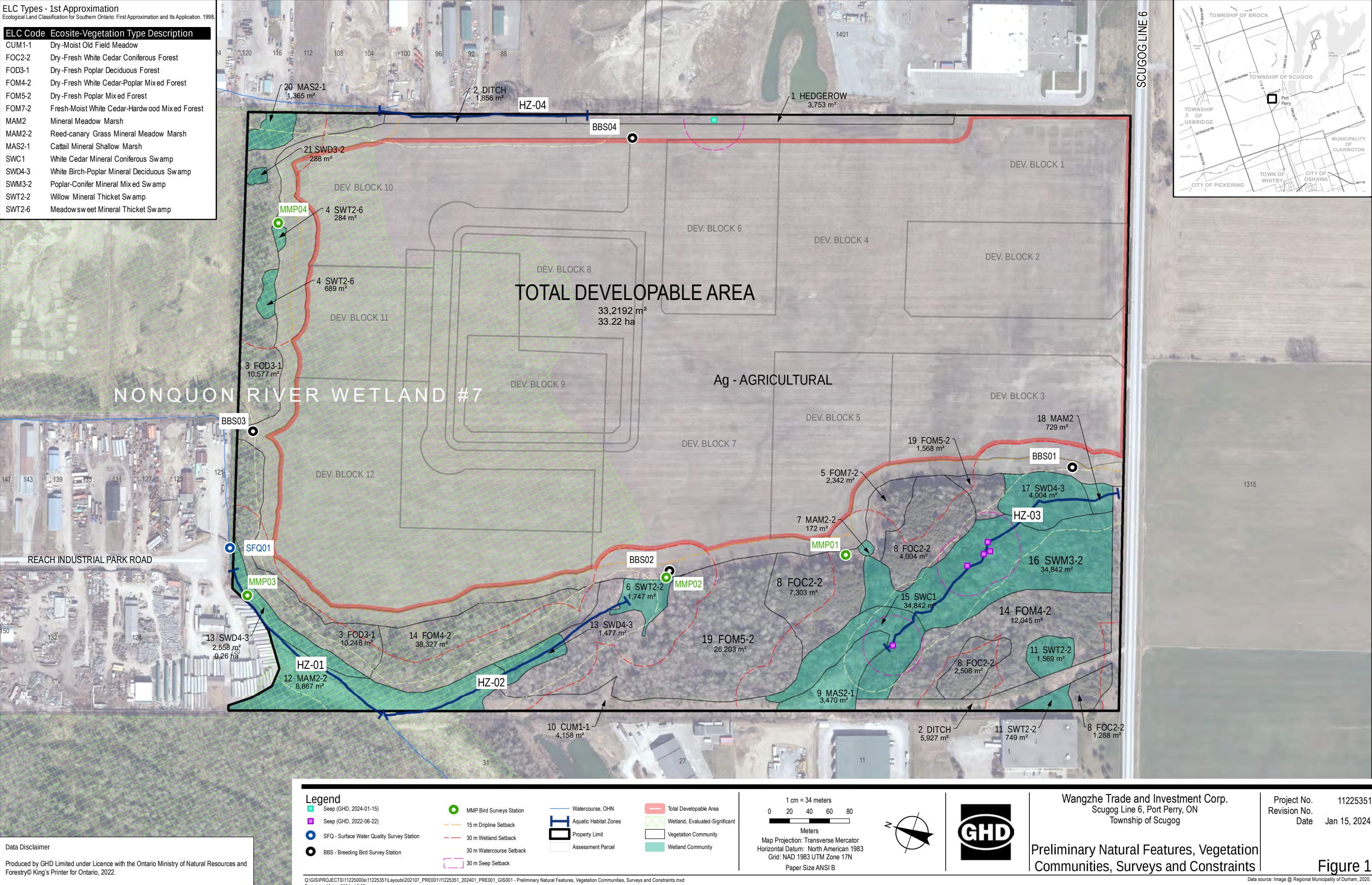
The treed communities that are on the Site were evaluated according to the Significant Woodland Evaluation Criteria and Standards in Table 7-2 of OMNR's Natural Heritage Reference Manual. The boundaries of these woodlands and associated woodland characteristics were delineated by GHD biologists in the field (**Figure 1**)

2.2.2.7 Significant Wildlife Habitat (SWH)

Prior to site visits, a candidate list of Significant Wildlife Habitat (SWH) features was created using the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E, 2015. During site visits, the confirmation (presence/absence) of those natural features was conducted. In particular, GHD biologists looked for: tree cavities or other evidence of bat maternity colonies; rock piles, large stick nests and other evidence of woodland raptors; seeps and springs; vernal pools, ponds and other potential amphibian habitat in woodlands and wetlands. All field survey data was reviewed and assessed to determine if additional SWH was present in the study area.

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
FOC2-2	Dry-Fresh White Cedar Coniferous Forest
FOD3-1	Dry-Fresh Poplar Deciduous Forest
FOM4-2	Dry-Fresh White Cedar-Poplar Mixed Forest
FOM5-2	Dry-Fresh Poplar Mixed Forest
FOM7-2	Fresh-Moist White Cedar-Hardwood Mixed Forest
MAM2	Mineral Meadow Marsh
MAM2-2	Reed-canary Grass Mineral Meadow Marsh
MAS2-1	Cattail Mineral Shallow Marsh
SWC1	White Cedar Mineral Coniferous Swamp
SWD4-3	White Birch-Poplar Mineral Deciduous Swamp
SWM3-2	Poplar-Conifer Mineral Mixed Swamp
SWT2-2	Willow Mineral Thicket Swamp
SWT2-6	Meadow sweet Mineral Thicket Swamp



3. Survey Results

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

3.1 Physical Site Characteristics

3.1.1 General

The Site is located on the north side of Scugog Line 6, in Scugog Township within the Port Perry Urban Area. At the time of GHD's site visits, the area was relatively flat, with the majority of the Site being used for agricultural purposes. Based on aerial photography, GHD was able to determine that the extent of farming (size of farm field) increased sometime between 2008 and 2013, including an area that had been evaluated by MNRF as evaluated wetland (PSW – Nonquon River Wetland #7). Currently, wetlands are restricted to pockets in the north and west, some of which also serve as drainage areas (**Figure 1**). Woodlands are also located along the northern and western extents of the Site. Watercourses were located along the eastern, western and southern property boundaries.

3.2 Biological Inventories

3.2.1 Vegetation

3.2.1.1 Level of Effort

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

Table 1 *Vegetation Surveys - Level of Effort*

Survey Date	Survey Type	Weather	Start Time	Effort (person hrs.)
June 7, 2021	Ecological Land Classification (ELC)	17°C, Cloud cover 20%, Beaufort Wind Scale 0, no precipitation	7:25 am	4 hours x 2 biologists
July 22, 2021	Aquatic Habitat Assessments	19°C, Cloud cover 10%, Beaufort Wind Scale 0-1, no precipitation	8:15am	4 hours x 2 biologists
November 24, 2022	Collection of additional information for wetlands on the west of the Site, including soil sampling.	N/A	9:40am	3 hours x 2 biologists
December 20, 2023	Collection of additional information about the northeast corner of the Site, including vegetation	0°C, Cloud cover 15%, Beaufort Wind Scale 0-1, no precipitation during surveys	10:00am	3 hours

3.2.1.2 ELC Code Descriptions

A total of twenty-one (21) vegetation communities were identified on the Site. Each community is described below and illustrated in **Figure 1**.

A total of 105 plant species were identified during field surveys. The dominant species in each community are described below and a complete plant list is found in **Appendix C**.

Community 1 Hedgerow (ELC Code: Not applicable)

The hedgerow was located along the east border of the Site. This community was dominated by trembling aspen (*Populus tremuloides*) and European buckthorn (*Rhamnus cathartica*). Other plants included tall buttercup (*Ranunculus acris*), rough cinquefoil (*Potentilla norvegica*), red clover (*Trifolium pratense*), Virginia creeper (*Parthenocissus inserta*), Canada goldenrod (*Solidago canadensis*) and Kentucky blue grass (*Poa pratensis*).



Photo 1: Community 1 – Hedgerow, looking South (Photo Date: June 7, 2021)

Community 2 Ditch (ELC Code: Not applicable)

Also located along the east border of the Site, this ditch community was dominated by pussy willow (*Salix petiolaris*) and common reed (*Phragmites australis*). Other plants were typical of ditches and included: purple loosestrife (*Lythrum salicaria*), narrow-leaved cattail (*Typha angustifolia*) and scouring-rush (*Equisetum hyemale*). A few trembling aspens were also noted growing on the periphery of the ditch.



Photo 2: Community 2 (Photo Date: June 7, 2021)

Community 3 Dry-Fresh Poplar Deciduous Forest (ELC Code: FOD3-1)

Situated in the north edges of the Site, this narrow band of woodland was dominated by trembling aspen and balsam poplar (*Populus balsamifera*). Other tree species noted were Norway spruce (*Picea abies*), Manitoba maple (*Acer negundo*) and eastern white cedar (*Thuja occidentalis*). The understory was dominated by a dense cover of European buckthorn. Ground cover was dominated by Canada goldenrod and swallow-wort (*Cynanchum rossicum*). Other species identified here were: awnless brome grass (*Bromus inermis*), cow vetch (*Vicia cracca*) and strawberry blite (*Chenopodium capitatum*).



Photo 3: Community 3 – FOD3-1 (Photo Date: June 7, 2021)

Community 4 Meadowsweet Mineral Thicket Swamp (ELC Code: SWT2-6)

Community 4 included two small wetland pockets located in the north of the Site. These two very small pockets were dominated by narrow-leaved meadowsweet (*Spiraea alba*). Although these pockets were fairly degraded due to previous land clearing for agricultural, other wetland plants included: common reed (*Phragmites australis*), narrow-leaved cattail and reed canary grass (*Phalaris arundinacea*). Also noted was spreading dogbane (*Apocynum androsaemifolium*) and small yellow lady slipper (*Cypripedium calceolus*).



Photo 4: Community 4 (Photo Date: June 7, 2021)

Community 5 Fresh-Moist White Cedar-Hardwood Mixed Forest (ELC Code: FOM7-2)

This large mixed forest community in the west area of the Site contained a codominant canopy of eastern white cedar and trembling aspen. Other trees located here included balsam fir (*Abies balsamea*), green ash (*Fraxinus pennsylvanica*), black cherry (*Prunus serotina*). Two young black ash (*Fraxinus nigra*) trees were identified on the edge of the community in the north. A number of shrubs were identified including: red-berried elderberry (*Sambucus racemos*), European high-bush cranberry (*Viburnum trilobum* var. *opulis*), alternate-leaved dogwood (*Cornus alternifolia*), choke cherry (*Prunus virginiana*) and wild red raspberry (*Rubus idaeus*).



Photo 5: Community 5 (Photo Date: June 7, 2021)

Community 6 Willow Mineral Thicket Swamp (ELC Code: SWT2-2)

This community is located on the west portion of the Site and contained the greatest biodiversity of flora on the site. This community was largely dominated by slender willow (*Salix petiolaris*). Ground cover contained a number of grass and forb species, such as: reed canary grass, spotted joe-pyeweed (*Eupatorium maculatum*), fox sedge (*Carex vulpinoidea*), graceful sedge (*Carex gracillima*), retrorse sedge (*Carex retrorsa*) and marsh bedstraw (*Galium palustre*). A portion of this community had a small pond with standing water.



Photo 6: Community 6 – Willow Mineral Thicket Swamp (Photo Date: June 7, 2021)

Community 7 Reed-Canary Grass Mineral Meadow Marsh (ELC Code: MAM2-2)

Community 7 is a small meadow marsh dominated by reed-canary grass. Several other species were recorded in this very small community such as: boneset (*Eupatorium perfoliatum*), swallow-wort, awl-fruited sedge (*Carex stipata*), curled dock (*Rumex crispus*), spear mint (*Mentha spicata*), purple loosestrife and northern lady fern (*Athyrium filix-femina*).



Photo 7: Community 7 (Photo Date: June 7, 2021)

Community 8 Dry-Fresh White Cedar Coniferous Forest (ELC Code: FOC2-2)

This community was relegated to several sections within the area of Community 5. The community is dominated by eastern white cedar. Other plant species are scarce, however contained northern lady fern, Canada mayflower (*Maianthemum canadense*), and ostrich fern (*Matteuccia struthiopteris*). A watercourse was also found to be meandering through the community. In the meander, spotted jewelweed (*Impatiens capensis*) and common strawberry (*Fragaria virginiana*) were identified.



Photo 8: Community 8 (Photo Date: June 7, 2021)

Community 9 Cattail Mineral Shallow Marsh (ELC Code: MAS2-1)

Community 9 is a series of cattail marshes located on the west border of the Site. Narrow-leaved cattail dominated these communities. Pussy willow (*Salix discolor*) and red-osier dogwood (*Cornus stolonifera*) was also scattered through-out these marshes. Herbaceous plants found here included spotted joe-pye weed, sensitive fern (*Onoclea sensibilis*), swamp milkweed (*Asclepias incarnata*), reed-canary grass, and bristly sedge (*Carex comosa*).



Photo 9: Community 9 (Photo Date: June 7, 2021)

Community 10 (ELC Code: CUM1-1)

Community 10 is an old field meadow and disused access route along the west border of the Site. The community was dominated by Canada goldenrod and various forbs such as white bedstraw (*Galium mollugo*), cow vetch, tall buttercup (*Ranunculus acris*), field horsetail (*Equisetum arvense*) and common milkweed (*Asclepias syriaca*). Trees were scattered and contained balsam poplar and trembling aspen. A very small, rutted area where rainwater pooled contained a number of wetland plants such as sensitive fern, boneset, and bristly sedge.



Photo 10: Community 10 (Photo Date: June 7, 2021)

Community 11 Willow Mineral Thicket Swamp (ELC Code: SWT2-2)

Dominated by Bebb's willow (*Salix bebbii*) and pussy willow is Community 11 located in the south of the Site. Other species identified were largely a mix of typical wetland species and meadow species. Species identified included: marsh bedstraw, western poison-ivy (*Rhus rydbergii*), tussock sedge (*Carex stricta*), meadow sedge (*Carex granularis*), retrorse sedge, wild mint (*Mentha arvensis*) and field horsetail.



Photo 11: Community 11 (Photo Date: June 7, 2021)

Community 12 Reed-Canary Grass Mineral Meadow Marsh (ELC Code: MAM2-2)

The large wetland community is located in the northeast section of the Site and is dominated by reed-canary grass. Trembling aspen was noted on the periphery of this community. Other plant species were scarce in the community owing to dominance of the reed-canary grass. The few species that were observed included: spotted joe-pyeweed, sensitive fern, and bitter nightshade (*Solanum dulcamara*).



Photo 12: Community 12 (Photo Date: June 7, 2021)

Community 13 *White Birch- Poplar Mineral Deciduous Swamp (ELC Code: SWD4-3)*

Community 13 was a riparian swamp located adjacent to the north watercourses. This community contained open water portions of deep wetland, as well as watercourses (refer to Section 3.2.3 for watercourse information) that terminated into Community 9. Plant species found in water included broad-leaved arrowhead (*Sagittaria latifolia*), Nuttall's waterweed (*Elodea nuttallii*), narrow-leaved cattail, and common duckweed (*Lemna minor*). Riparian species included spotted jewelweed, common reed, Japanese knotweed (*Polygonum cuspidatum*), trembling aspen, eastern white cedar, sensitive fern and bitter nightshade.



Photo 13: Community 13 (Photo Date: June 7, 2021)

Community 14 *Dry-Fresh White Cedar – Poplar Mixed Forest (ELC Code: FOM4-2)*

Community 14 is an upland mixed community in the south portion of the Site. The community is dominated by eastern white cedar, balsam fir and trembling aspen, with some wild red raspberry and European buckthorn in the understory.

Community 15 *White Cedar Mineral Coniferous Swamp (ELC Code: SWC1)*

Community 15 is an eastern white cedar dominated swamp, acting as transitional zone to the lower elevation of Community 9. The community is also dominated by European buckthorn in the understory. Herbaceous plants were scarce, with only bulbet-bladder fern being noted.

Community 16 Poplar – Conifer Mineral Mixed Swamp (ELC Code: SWM3-2)

This community is a riparian swamp and floodplain associated with the watercourse (HZ-03). This large wetland was dominated by eastern white cedar, balsam poplar, trembling aspen, red-osier dogwood, and occasional occurrences of black and green ash.

Community 17 White Birch – Poplar Mineral Deciduous Swamp (ELC Code: SWD4-3)

Community 17 is a young deciduous swamp dominated by trembling aspen and European buckthorn. It is likely that this community was disturbed recently, potentially from past agricultural practices.

Community 18 Mineral Meadow Marsh (ELC Code: MAM2)

This marsh community is located at the extreme south of the Site where HZ-03 meets a culvert under Scugog Line 6. The community is dominated by narrow-leaved cattail and common wetland forb and grass species such as spotted joe-pye weed, reed canary grass (*Phalaris arundinacea*) and Japanese knotweed.

Community 19 Dry – Fresh Poplar Mixed Forest (ELC Code: FOM5-2)

Community 19 is a large upland community dominated by eastern white cedar, eastern white pine, balsam fir, and trembling aspen. Other species encountered include: American elm, northern lady fern (*Athyrium filix-femina*), bulbet bladder fern, sensitive fern, herb Robert and helleborine.

Community 20 Cattail Mineral Shallow Marsh (ELC Code: MAS2-1)

Community 20 was a cattail swamp located along the most northeastern Site boundary and was hydrologically connected to habitat zone 4 watercourse. Tree species identified in the community included, white birch (*Betula papyrifera*), green ash (*Fraxinus pennsylvanica*), eastern white cedar (*Thuja occidentalis*). In addition, one black ash (*Fraxinus nigra*) tree was identified within the community. Plant species found in water included sensitive fern (*Onoclea sensibilis*), reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), and red-osier dogwood (*Cornus stolonifera*).



Photo 14: Community 20 (Photo Date: December 20, 2023)

Community 21 Silver Maple Swamp (ELC Code: SWD3-2)

Community 21 was a mid-aged silver maple swamp located in the northeastern portion of the Site. This community contained an offline open water pond. Plant species found within the pond and the riparian area red-osier dogwood (*Cornus stolonifera*), trembling aspen (*Populus tremuloides*) and silver maple (*Acer saccharinum*).



Photo 15: Community 21 (Photo Date: December 20, 2023)

3.2.2 Birds

3.2.2.1 Level of Effort

Surveys for breeding birds were conducted in the study area 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 has been provided in **Table 2**.

Table 2 Bird Surveys – Level of Effort

Survey Date	Survey Type	Weather	Start Time	Effort (Person hrs.)
May 19, 2021	Breeding Bird Surveys	15°C, Cloud cover 0%, Beaufort Wind Scale 1, no precipitation	7:05	0.75
June 7, 2021	Breeding Bird Surveys	23°C, Cloud cover 100%, Beaufort Wind Scale 2	7:31	0.75

3.2.2.2 Breeding Bird Surveys

Thirty-six (36) bird species were identified during breeding bird surveys conducted on May 19 and June 7, 2021 (**Appendix D**). Of these, twenty-seven (27) were detected during point count surveys. Point count survey stations were established throughout the Site to capture all habitat types, including hedgerows, open fields, woodlands, and wetlands (**Figure 1**). Identified field and hedgerow associated species included: killdeer (*Charadrius vociferus*), mourning dove (*Zenaidura macroura*), American redstart (*Setophaga ruticilla*), song sparrow (*Melospiza melodia*) and American goldfinch (*Carduelis tristis*). Birds identified in the woodlands and wetlands included: common yellowthroat

(*Geothypis trichas*), eastern wood-pewee (*Contopus virens*), great-crested flycatcher (*Myiarchus crinitus*), wild turkey (*Meleagris gallopavo*), and black-and-white warbler (*Mniotilta varia*).

3.2.2.2.1 Incidental Birds

GHD biologists recorded nine (9) additional species of bird during 'incidental' observations. Some of the species observed included: American woodcock (*Scolopax minor*), broad-winged hawk (*Buteo platypterus*), brown thrasher (*Toxostoma rufum*) and pileated woodpecker (*Dryocopus pileatus*).

3.2.2.3 Herpetofauna

Four amphibian species were detected both visually and by call during site visits. Amphibians were heard and seen in the swamp and marsh habitats (Communities 4, 6, 9, 12 and 20). These species were: spring peeper (*Pseudacris crucifer*), wood frog (*Lithobates sylvatica*), green frog (*Lithobates clamitans*) and American toad (*Anaxyrus americanus*).

Two reptiles were also found on the Site: midland painted turtle (*Chrysemys picta marginata*) and eastern garter snake (*Thamnophis sirtalis*) - juvenile.

Please refer to **Appendix E** for additional information about the reptiles and amphibians observed on site.

3.2.2.4 Other Wildlife

Other wildlife species detected included: common raccoon (*Procyon lotor*) and meadow vole (*Microtus pennsylvanicus*).

3.2.2.5 Provincially Significant Wetlands and Unevaluated Wetlands

Communities 4, 12, 13, 20 and 21 (**Figure 1**) are within the boundaries of the Nonquon River Wetland #7 Provincially Significant Wetland as mapped by the OMNRF. Communities 6, 7, 9, 11, 15, 16, and 17 are located outside of the PSW boundaries and are unevaluated wetlands. GHD collected information including vegetation forms and soils to document the changes to the wetland boundaries depicted in current mapping and worked with MNRF to request updates to the boundary of the PSW (**Appendix B**)

3.2.2.6 Woodlands

Four woodland communities were identified on the Site (Communities 3, 5, 8, 14 and 19). Community 3 was a mid-aged poplar woodland, which is a remnant of a larger woodland that formerly extended south into the area that is now agricultural fields. Communities 14 and 8/19 made up the largest extent of woodland on the Site and consisted of young to mid-aged mixed and coniferous forest (i.e., FOM5-2, FOC2-2).

3.2.2.7 Significant Wildlife Habitat

Prior to site visits, a candidate list of Significant Wildlife Habitat (SWH) features was created based on aerial photography and the criteria identified in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (2015). Our list included the following candidate SWH features as potentially present on site: bat maternity colonies, woodland raptor nesting, seeps and springs, amphibian breeding habitat (woodland), amphibian breeding habitat (wetland), woodland area-sensitive bird breeding habitat, and habitat for Special Concern and Rare Wildlife species. During site visits, the confirmation (presence/absence) of those natural features was conducted.

GHD did not identify any snags or cavity trees that would provide suitable habitat for bat maternity use, nor did they locate any woodland raptor nests. Only a single woodland area sensitive bird species was detected during GHD's breeding bird surveys, which is not sufficient to meet SWH criteria for that habitat type. A single seepage area was documented in the northeastern portion of the Site (Habitat Zone 4). Seepage areas were also documented along the southwestern part (Habitat Zone 3) of the Site (**Figure 1**). GHD did not find sufficient amphibians to indicate there was significant amphibian breeding habitat (woodland or wetland) on the Site, but did detect wood frog (*Lithobates*

sylvaticus), spring peeper (*Pseudacris crucifer*) and green frog (*Lithobates clamitans*) in wetlands in the western and northwestern portions of the Study Area. An eastern wood-pewee (*Contopus virens* – Special Concern) was also detected to the north and west of point count station 2 and a midland painted turtle was in the vicinity of Community 9 (**Figure 1**).

3.2.3 Fish and Aquatic Habitat

3.2.3.1 Level of Effort

Surveys for fish and aquatic habitat were conducted within the Site by GHD biologists on July 22, 2021, and December 20, 2023 (**Figure 1**). Surveys were conducted following the methodologies outlined in Section 2.2.2.4. A summary of the level of effort and environmental conditions at the time of assessment have been provided in **Table 3**.

Table 3 Fish and Aquatic Habitat Surveys – Level of Effort

Survey Date	Survey Type	Weather	Start Time	Effort (Person hrs.)
July 22, 2021	Aquatic Habitat Assessment and Surface Water Quality Sampling.	Sunny (10% cloud cover), BWS 0-1, no precipitation during surveys, air temperature 18.9°C and water temperature 16.9°C.	08:15	4 (x2 staff)
December 20, 2023	Aquatic Habitat Assessment	Sunny (15% cloud cover), BWS 0-1, no precipitation during surveys, air temperature 0°C and water temperature 4°C.	10:00	3 (x2 staff)
Note: BWS-Beaufort Wind Scale (Government of Canada, 2017).				

3.2.3.2 Aquatic Habitat

Several unnamed headwater tributaries and two ponds were located within the Site. The unnamed headwater tributaries will be referred to as “watercourse” from here on in. The watercourses were classified into four aquatic habitat zones. Habitat zones were determined and differentiated based on presence of barriers, substrate composition, channel morphology, riparian habitat, percent in-stream cover, hydrological connection and unique features. The habitat zone locations have been illustrated in **Figure 1** and attributes summarized in **Table 4**.

Habitat Descriptions

Habitat Zone 1 was located within the watercourse along the northwestern portion of the Site. The watercourse originated west of the Site and flowed in a northeastern direction for approximately 300 m until it flowed off the property (**Figure 1**) and eventually into the Nonquon River approximately 1, 000 m north of the Site.

At the time of assessments, the watercourse had standing water and showed indicators of minimal sediment deposition (**Photo 14**). The entire watercourse had a naturally defined channel until it transitioned into wetland habitat in the north end of the Site (**Figure 1**). The in-stream substrate was dominated by fine organics, with an average water depth of 0.75 m and wetted width of 0.8 m. The in-stream cover was densely dominated by aquatic vegetation and the channel morphology was completely composed of flats. The canopy cover was dense, covering 50-74% of the water's surface. The overhead cover was moderate and dominated by shrubs and woody debris. Refer to Vegetation Community 12 for detailed riparian habitat details (**Section 3.2.1**).



Photo 14: Habitat Zone 1, photo showing wetland portion at the northern extent and riparian habitat. Photo facing downstream (northeast) (Photo Date: July 22, 2021)

Habitat Zone 2 was located south of Habitat Zone 1 and measured approximately 270 m. The watercourse originated from a small wetland pocket (refer to Vegetation Community 6), flowed northwest through the forest, entered another wetland (refer to Vegetation Community 13) connecting to Habitat Zone 1, and the Nonquon River approximately 1,000 m north of the Site (**Figure 1**).

At the time of assessment, the watercourse had minimal flows and moderate sediment deposition (**Photo 15**). The in-stream substrate was dominated by sand, with an average water depth of 0.21 m and wetted width of 0.5 m. The in-stream cover was moderate and dominated by woody debris. The canopy cover was dense, covering 75-100% of the water's surface. The overhead cover was dominated by non woody vegetation. Refer to Vegetation Communities 6, 13 and 19 in **Section 3.2.1** for riparian habitat details.



Photo 15: Habitat Zone 2, photo showing watercourse and riparian habitat (Photo Date: July 22, 2021)

Habitat Zone 3 originated off the property south of Scugog Line 6 from the agricultural land to the south. The watercourse flowed north into the Site through one corrugated steel culvert (CSP) and two grated plastic culverts located on either side of the CSP. The culverts were not perched and did not function as a barrier to fish movement; however, two plastic culverts were full of debris and litter (**Photo 16**). The watercourse flowed northwest for approximately 330 m through wetland communities 15, 16, and 17 before terminating at Community 9. Habitat Zone 3 likely contributes flow to Habitat Zone 1 and 2. Given the confluence was off-site and not previously mapped, hydrological connection could not be verified. Several groundwater seeps were identified along the watercourse and have been identified in **Figure 1**.

The watercourse had a naturally defined channel with minimal flow and moderate feature roughness (**Photo 16 and Photo 17**). In-stream substrate was dominated by a sand, gravel, clay mixture with an average water depth of 0.35 m and wetted width of 0.2 m. The in-stream cover was moderately dominated by woody debris and the channel morphology was dominated by run habitat. The canopy cover was high, covering 50-74% of the water's surface. The overhead cover was moderate and composed of trees, shrubs, woody debris, and non woody vegetation. Refer to Vegetation Communities in **Section 3.2.1** for riparian habitat details.



Photo 16: Habitat Zone 3, photo showing CSP, and plastic culvert blocked with debris and litter. Photo facing upstream (south) (Photo Date: July 22, 2021)



Photo 17: Habitat Zone 3, photo showing watercourse and riparian habitat. Photo facing downstream (north) (Photo Date: July 22, 2021)

Habitat Zone 4 originated off the Site at the northeast corner of the lot and extended approximately 127m south. At this point the watercourse was then considered on the Site. The watercourse ran along the eastern Site boundary south for approximately 211m and terminated at a confluence. Flows were introduced via a wetland off Site. (**Figure 1 and Photo 19**).

The watercourse had a naturally defined channel with minimal flow and moderate feature roughness. In-stream substrate was dominated by sand, silt, and fine organics with an average water depth of 0.10 m and wetted width of 1.6 m. The in-stream cover was low dominated by small woody debris and the channel morphology was dominated by flats. The canopy cover was low, covering 0-24% of the water's surface. The overhead cover was moderate and composed of trees and shrubs.

In Addition, a spring was identified approximately 126m south of habitat zone 4 and was conveying ground water into the agricultural lands (**Figure 1**).

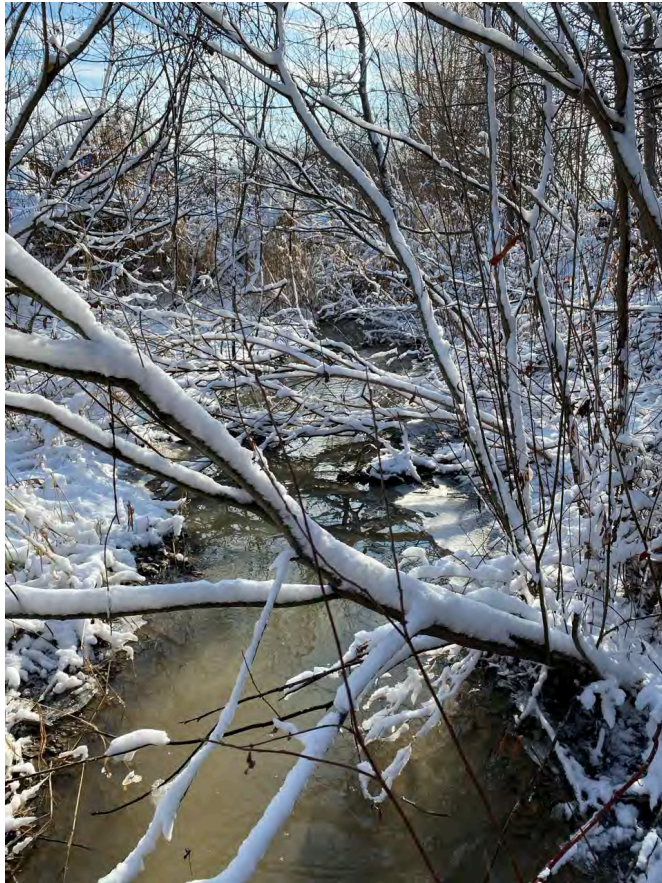


Photo 18: Habitat Zone 4, photo showing watercourse and riparian habitat. Photo facing upstream (south)
(Photo Date: December 20, 2023)



Photo 19: South of habitat zone 4, photo showing spring discharging into adjacent agricultural lands. Photo facing south (Photo Date: December 20, 2023)

In addition, two ponds (west pond and east pond) were located in the northeast corner of the Site divided by a farming access road (**Figure 1**). The east pond located alongside the Site boundary was hydrologically connected to the habitat zone 4 watercourse (off property). The west pond was not hydrologically connected to any watercourse on the Site and was considered offline. The east and west ponds were approximately 1,483m² and 279m² in size respectively. Refer to Vegetation Community 20 for the east pond and Vegetation Community 21 for the west pond for riparian habitat details.

Table 4 *Aquatic Habitat Observations*

Habitat Zone	Substrate Composition	Instream Cover	Canopy Cover (%)	Overhead Cover	Channel Morphology	Average Water Depth (m)	Average Wetted Width (m)	Zone Length (m)
01	30% clay 70% fine organics	10% large woody debris 15% small woody debris 30% emergent aquatic vegetation 30% floating aquatic vegetation	50-74	20% shrubs 5% trees 10% woody debris 20 % non woody vegetation	100% flats	0.75	0.80	300
02	70% sand 20% silt 10% fine organics	10% large woody debris 20% small woody debris 15% emergent aquatic vegetation	75-100	20% shrubs 5% trees 70% non woody vegetation	5% run 10% pool 80% flats	0.21	0.5	270
03	10% cobble 20% gravel 30% sand 20% clay 20% fine organics	15% large woody debris 15% small woody debris 5% undercut banks	50-74	20% shrubs 10% trees 20% woody debris 10% non woody vegetation	60% run 20% pool 20% riffle	0.20	0.35	330
04	30% sand 30% silt 40% fine organics	20% small woody debris	0-24	20% shrubs 10% non-woody vegetation	10% riffle 90% flats Areas of standing water	0.10	1.6	211

Surface water quality was collected in Habitat Zone 1 (**Figure 1**) approximately 0.2 m below the surface of the water. A summary of results and information on the parameter specifics has been provided in **Table 5**.

Table 5 **Surface Water Quality Results**

Water Quality Parameters	Habitat Zone	Accepted Parameter Range
	01	
Date (dd/mm/yy)	22/07/21	N/A
Time (hh:mm)	12:14	N/A
Weather conditions	Sunny (50% cloud cover), BWS 0-1, no precipitation during surveys.	N/A
Sample Depth (m)	0.2	N/A
Air Temperature (°C)	24.1	N/A
Water Temperature (°C)	17.5	N/A
Dissolved Oxygen (mg/L)	8	8-10*
Total Dissolved Solids (mg/L)	611	N/A
Conductivity (SPC·us/cm)	943	N/A
Salinity (ppt)	0.48	N/A
pH	7.48	8-10**
Turbidity (NTU)	163	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)

3.2.3.3 **Fish Community**

As previously mentioned in Section 2.2.2.4, fish community surveys were not conducted by GHD. Refer to **Section 4.3.4** for existing fish community details.

4. Discussion and Analysis

4.1 Physical Site Characteristics

4.1.1 Soils

According to the Ontario Soils survey, the Study Area was previously underlain by both the Brighton Sandy Loam and Simcoe Clay Loam, which is known to provide good drainage and has been used historically for agricultural purposes. In general, such soils have low natural fertility and low moisture holding capacity. As such, manure and plowing of old crops was used to maintain organic matter contents (Ontario Soil Survey).

As part of the process of documenting wetland habitat on the Site, GHD conducted soil sampling in nine locations. The dominant soil types were SiCL and SiC in wetland areas, and fSiS and vfSiS in upland areas. Soil moistures ranged from fresh (2) in Community 8 and Community 19 to very moist (6) in Community 6. Areas in the vicinity of the aquatic features discussed in Section 3.2.3 were most indicative of wetland conditions.

4.2 Species and Communities

4.2.1 Vegetation

GHD biologists found one species that is classified as federally and/or provincially significant in the study area, the black ash (SARA 2023; COSEWIC 2022; SARO 2023). A total of two black ash trees were identified on the edge of Community 3 adjacent to the agricultural field. One additional black ash tree was identified on the edge of the eastern pond (Community 20) located in the northeastern portion of the Site.

No regionally rare plant species (Riley, 1989) were detected on Site.

The Ontario Natural Heritage Information Centre (NHIC) square summaries for the Site (17PJ6184; 17PJ6185; 17PJ6284) do not include any plants that are listed as SAR, or rare (NHIC 2023). Similarly, none of the ecological communities (i.e., ELC ecosites or vegetation communities) found in the study are considered provincially rare (NHIC 2021).

4.2.2 Birds

One bird species, the eastern wood-pewee (*Contopus virens*), a species of Special Concern provincially and federally, was detected during GHD's breeding bird survey (SARA 2023; COSEWIC 2022; SARO 2023). This species was heard calling from north and west of point count station 2 (**Figure 1**) in the wetland and woodland communities.

One species detected during field inventories is considered area sensitive as per MNRF Significant Wildlife Habitat Technical Guide (2015) definitions. This species, the Blackburnian warbler (*Dendroica fusca*) was identified in the woodlands Community 19. Area-sensitive species are those that require a minimum area of suitable habitat to successfully breed.

The Ontario NHIC square summary for the predominant square on the Site (17PJ6184) does not list any SAR birds. Squares to the north and northeast of the Site (17PJ6185; 17PJ6285) contained records of six SAR birds, three of which inhabit early successional habitats with tall grasses: eastern meadowlark (*Sturnella magna*), bobolink (*Dolichonyx oryzivorus*) and grasshopper sparrow. Suitable nesting habitat for these species was absent, as the Site consisted mainly of a regularly ploughed agricultural field, with treed habitats to the west and north. The observation of least bittern (*Ixobrychus exilis*) is likely associated with portions of the Nonquon River PSW, as suitable habitat for this species (marshes with open water and cattails) was absent from the Site. Habitat that appeared suitable for the remaining two species, eastern wood-pewee (*Contopus virens*) and wood thrush (*Hylocichla mustelina*) was in the

northwestern portion of the Site as well as further northwest in the Study Area. Wood-pewee was detected during GHD's breeding bird surveys.

The Ontario Breeding Bird Atlas (OBBA – 2nd atlas) records for the 10 km by 10km square that overlaps the Site (17PJ68) included twelve (12) bird species that listed nationally or provincially as species at risk (SARO 2023; SARA 2023; COSEWIC 2022). These records were of least bittern, black tern (*Chlidonias niger*), common nighthawk (*Chordeiles minor*), whip-poor-will (*Antrostomus vociferus*), red-headed woodpecker (*Melanerpes erythrocephalus*), eastern wood-pewee, bank swallow (*Riparia riparia*), barn swallow (*Hirundo rustica*), wood thrush, golden-winged warbler (*Vermivora chrysoptera*), grasshopper sparrow (*Ammodramus savannarum*), bobolink (*Dolichonyx oryzivorus*), and eastern meadowlark (*Sturnella magna*).

Appropriate habitat was not present for black tern, common nighthawk, whip-poor-will, wood thrush, bank swallow, barn swallow, grasshopper sparrow, bobolink or eastern meadowlark (i.e., no grasslands, no banks, no structures appropriate for nesting). Suitable habitat for Canada warbler and golden-winged warbler may exist in Community 3, 14, 19, although no individuals were detected during breeding bird surveys. Potentially suitable red-headed woodpecker habitat was observed in some areas of the Site, including the hedgerow and Communities 13, 14 and 19, but no specific cavity trees were identified,, and the species was not detected during surveys.

4.2.3 Herpetofauna

One reptile SAR, midland painted turtle (*Chrysemys picta*), a species of Special Concern federal, was detected in the northwestern portion of the Site (COSEWIC 2022; SARO 2023; SARA 2023). It was located along habitat zone 1 in Community 12 (**Figure 1**). The Ontario NHIC square summary for the predominant square on the Site (17PJ6184) also includes records of midland painted turtle.

The Ontario Reptile and Amphibian Atlas list Blanding's turtle (*Emydoidea blandingii*), midland painted turtle, snapping turtle (*Chelydra serpentina*), and western chorus frog (*Pseudacris triseriata*) in the 10km-by-10km square that overlaps the Site. The northern section of Community 9 and the associated watercourse was confirmed to provide habitat for midland painted turtles, however GHD did not find appropriate habitat for other turtle species on the Site. Although there were terrestrial (e.g. moist woods) and aquatic habitats near each other on the Site, no temporary ponds were located on the Site during the suitable breeding season for the species. None were detected during any of GHD's visits to the Site.

4.2.4 Other Wildlife

No other federal or provincial species at risk were recorded on the Site during the site visit (SARA 2023; COSEWIC 2022; SARO 2023). Our background review using the Ontario Natural History Information Centre did not identify any significant wildlife species on the Site. Habitat for foraging bats may exist on the Site, but GHD did not identify any cavity trees or snags that would provide maternity roost habitat on Site.

4.3 Natural Features

4.3.1 Provincially Significant Wetlands

Wetland communities 4, 12, 13, 20 and 21 are within the boundaries of the Provincially Significant Wetlands known as the Nonquon River Wetland #7. The boundaries of this wetland cover much of the northern half of the Site, however nearly all this area had been converted to farmland in the past, leaving on the fragments of wetland that are seen in Figure 1. The Port Perry These wetlands include swamp and marsh types, as well as portions of open water.

The Provincial Policy Statement (2020) defines a Coastal Wetland as:

- a. any wetland that is located on one of the Great Lakes or their connecting channels (Lake St. Clair, St. Marys, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or

- b. *any other wetland that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located 2 kilometres upstream of the 1:100-year floodline (plus wave run-up) of the large water body to which the tributary is connected.*

Coastal wetlands, like those identified on site, 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 (See Section 4.3.3)

4.3.2 Woodlands

The Natural Heritage Reference Manual (2010) recommends four different criteria be considered to confer significance: woodland size, ecological functions, uncommon characteristics, and economic and social values. The woodlands on the Site are part of a contiguous natural area that is approximately 42 ha in size. Recommended size criteria to confer significance are based on the percentage/proportion of woodland cover in an a given area (Natural Heritage Reference Manual 2010). Where woodland land cover is 15-30% woodlands 20ha in size are considered significant, and where woodland land cover is 30-60%, woodlands 50ha in size or larger are considered significant. Although GHD does not have the % land covered by woodlands in the Township of Scugog, or the Nonquon River watersheds, the size of the contiguous natural area leads GHD to consider it to be significant. Assuming this is true, the woodlands would be considered significant given their proximity to the Nonquon River PSW (with many of the swamps being considered part of the woodlands) and water protection functions. The woodlands also provide cover and nesting habitat for birds and other wildlife species.

4.3.3 Significant Wildlife Habitat

Significant Wildlife Habitat often occurs within other natural heritage features and areas covered by Policy 2.1 of the Provincial Policy 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 analyzed the information collected from the ecological communities on the Site using the criteria for Significant Wildlife Habitat in Ecoregion 6E (2015) and confirmed two on the Site: Seeps and Springs, and habitat for Special Concern and Rare Wildlife Species. See **Table 6** for rationale. Seeps and springs were in Communities 1, 15, 16. The Special Concern and Rare Wildlife SWH Species refer to midland painted turtle (Community 9) and eastern wood-pewee (to the north and west of point count station 2: Community 14 and 19).

Table 6 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 Study Area	Confirmed Habitat found within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources			
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. Information Sources – Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records – Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their Site. – OMNRF Districts and wetland evaluations – Field Naturalist clubs – Canadian Wildlife Service Amphibian Road Call Survey – Ontario Vernal Pool Association: http://www.ontariovernalpools.org	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.	Evening surveys identified call level 3 of only one of the listed species (wood frog). These calls were coming from the identified wetland communities of 6, 7 and 12. Call level 1 of spring peeper was noted In Community 6. It is possible that SWH may be present in these areas.	Not confirmed
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. – The 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. Information Sources – Ontario Herpetofaunal Summary Atlas (or other similar atlases) – Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. – OMNRF Districts and wetland evaluations. Reports and other information available from Conservation Authorities.	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.	Possible – Green frog and American toad were seen and heard in wetlands on site. There is a high probability that this SWH occurs on site in Community 9, 12, 13 and 20. As well as the pond identified in the north-east of the Study Area.	Not confirmed.
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. Information Sources – Local birder clubs. – Canadian Wildlife Service (CWS) for the location of forest bird monitoring. – Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species Reports and other information available from Conservation Authorities.	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 (blackburnian warbler) was detected on site by call during breeding bird surveys. The probability of another listed species breeding on the Site is moderate to high.	Not confirmed

	– 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 Information Sources NHIC will have Special Concern and Provincially Rare (S1–S3, SH) species lists with element occurrences data. – NHIC Website “Get Information”: http://nhic.mnr.gov.on.ca – Ontario Breeding Bird Atlas Expert advice should be sought as many of the rare spp. have little information available about their requirements.	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, and eastern wood-pewee identified on site.
Seeps and Springs Rationale: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	– Wild Turkey – Ruffed Grouse – Spruce Grouse – White-tailed Deer – Salamander spp.	Seeps/Springs are areas where groundwater comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	– Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. – Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species	Field Studies confirm: – The presence of a site with two or more seeps/springs should be considered SWH. – The area of an ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.		Yes – more than 2 seeps identified on west portion of Site within riparian corridor of HZ-03, a forested swamp area. Wild turkey was also identified on Site.
Bat Maternity Roost Colonies Rationale: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes	– Big Brown Bat – Silver-haired bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	– Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). – Maternity roosts are not found in caves and mines in Ontario. – Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha largediameter (>25 cm dbh) wildlife trees – Female Bats prefer wildlife tree (snags) in early stages of decay, class 1–3 or class 1 or 2 – Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred	– Maternity Colonies with confirmed use by: – >10 Big Brown Bats – >5 Adult Female Silver-haired Bats – The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. – Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects.	Not identified on Site. Woodlands were young to midaged, and not mature. Lack of appropriate cavities and snags density.	Not confirmed

4.3.4 Fish and Aquatic Habitat

Fish and Aquatic Habitat

The two northern watercourses (Habitat Zone 1, 2, 4 and Community 20) provided direct and indirect fish habitat and the southern watercourse (Habitat Zone 3) provided indirect and potentially, direct fish habitat. All watercourses provide a source of hydrological and groundwater connections to the downstream coldwater fish community of the Nonqoun River. Habitat Zone 1, 2, 4 and the eastern pond (Vegetation Community 20) also provided cover and feeding habitat, spawning and overwintering habitat, nutrients, and food supply to fish. These attributes are important for the sustainability of the local fish community and downstream fish habitat of the Nonqoun River.

Fish habitat in Ontario is managed federally by the Minister of Fisheries and Oceans Canada, therefore, the Fisheries Act applies to the subject watercourses. No critical habitat for Aquatic Species at Risk (DFO, 2023) was identified within the Site.

The surface water quality parameters collected within the subject lands were within the above acceptable range listed above in **Table 5**. The baseline data may be used for construction and post construction effectiveness monitoring if required.

Fish Community

The fish community of the watercourses (Habitat Zone 1, 2 and 4) is composed of fish that prefer both cool and warm water thermal regimes. Cumulatively, nine fish species have been documented in the watercourses including Bluntnose minnow, Central Mudminnow, Common shiner, Creek chub, Largemouth bass, Longnose dace, Northern redbelly dace, Pumpkinseed, White sucker, and Yellow perch. Latin fish species names have been provided Appendix F. The fish species are common and are widely distributed throughout southern Ontario (**Appendix F**). The literature review found no provincially and/or nationally rare aquatic species documented within the study area (COSSARO, 2023; COSEWIC, 2022). A fish species list was not available for Habitat Zone 3 and fish sampling was not completed.

5. Impact Assessment and Recommendations

The following section provides a description of the predicted impacts that may result from the proposed development (**Table 7**). It also identifies 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 of this report.

The wetland boundary, woodland and watercourse boundaries and our recommended buffers were delineated early in the process. Those GIS layers were sent to the planning team to define the limit of development. Those constraint lines are shown on our Figure 1.1 but also on the site plan drawings.

5.1 Natural Features

5.1.1 Provincially Significant Wetland and Unevaluated Wetland

All wetlands on site were delineated by GHD Biologists (Communities 4, 6, 7, 9, 11, 12, 13, 15, 16, 17, 18, 20 and 21 - **Figure 1**). A minimum 30-metre setback area will be implemented adjacent to the wetlands so that their ecological functions are not negatively affected by the proposed development. In parts of the Site, an effective buffer is partially in place (e.g., around Community 9, 11, 12, 13, 15 and 16). These zones are in the northwest and southwest portions of the Site and are buffered by Communities 3, 5, 8, 19). The trees and shrubs that comprise this buffer would mitigate the noise and activity associated with industrial development. Some portions of the buffer areas around Community 4, 6, 7, 17, 20 and 21 are currently agricultural fields. It is recommended that the buffer areas be supplemented with self-

sustaining trees and shrubs that are indigenous to the Study Area wherever vegetation is absent. GHD can assist with the preparation of a planting plan or compensation plan at the detailed design phase. As a result, no negative impacts on natural features or ecological functions of the wetland are predicted.

GHD recommends that silt fencing be installed around all building envelopes at the buffer line defined on each lot prior to the commencement of construction or potential placement of fill on the Site to protect the surrounding wetlands from any potential sediment run off in the event of heavy rains or snow melts.

Highly invasive Japanese knotweed (*Reynoutria japonica*) was observed in the riparian zones of the northern watercourse (HZ-01) and the south watercourse near the existing culvert (HZ-03). Where feasible, GHD recommends that this species be removed and taken off site and be properly disposed of to prevent the species from invading all wetlands onsite and potential invasion into the greater area of the PSW offsite. It is recommended that removal follow the best management practices guidelines provided by the Ontario Invasive Species Council (Hayley 2012).

5.1.2 Woodland

GHD is recommending a buffer of variable width: the greater of either 30-metres from wetland areas (e.g., swamps, which are sometimes included) or 15-metres from upland treed habitats (e.g., Communities 3, 5, 8, 14 and 19 – **Figure 1**). To the extent possible, this area will be planted with self-sustaining species indigenous to the Study Area anywhere existing vegetation is absence. Consideration should be given to removal of select non-native/invasive species that could spread to the north of the Site.

5.1.3 Significant Wildlife Habitat

Two types of Significant Wildlife Habitat were confirmed in the Study Area: Seeps and Springs and Habitat for Species of Special Concern and Rare Wildlife. The additional candidate Significant Wildlife Habitat types that GHD had considered prior to fieldwork were not confirmed during GHD's survey efforts. The southwestern portion of the Site that had multiple seeps is well away from the woodland edge, and will be afforded protection by existing forest communities and the proposed woodland buffer.

Regarding Habitat for Special Concern and Rare Wildlife Species, mitigation measures for SAR turtles and eastern wood-pewee are as follows: The midland painted turtle is a species of Special Concern on a federal level. It was identified in Habitat Zone 1/Community 12 in the northwestern part of the Site. This species and its habitat will be protected by the proposed 30-metre watercourse and wetland setbacks.

The eastern wood-pewee is a species of Special Concern on a federal and provincial level. Eastern wood-pewee was identified by call calling from Community 5 during breeding bird surveys on June 7, 2021. The habitat of this species will be protected by a 15-metre dripline setback. Additionally, no tree and vegetation clearing are to occur within the core breeding bird time period (April 15th to August 15th).

5.1.4 Fish and Aquatic Habitat

The watercourses within the Site provide direct and indirect fish habitat. The form of function of the watercourses will be protected by a 30 m natural vegetative buffer from the high-water mark for any new development. The watercourse on the eastern side of the Site does not extend to the proposed road connection, therefore no impacts are anticipated. No in-water or near water works are proposed. The eastern pond (Vegetation Community 20) will be protected by a 30m wetland buffer.

An Erosion and Sediment Control (ESC) plan should be developed for the work that will prevent the entry of sediment into the watercourses. Temporary ESC measures should be included on the contract drawing and installed prior to construction and maintained throughout construction. These measures will be routinely inspected, including following storms, and repaired, as required. All erosion and sediment control measures must remain in place until restoration is complete and disturbed areas are stabilized against erosion. The ESC plan should be reviewed by a certified erosion and sediment control inspector.

During the detailed design phase of the project, if stormwater management facilities or any work near or in-water (i.e. road crossings) are proposed. The design shall be reviewed by a professional biologist, additional permitting may be required by the CA and DFO. Any stormwater design should include low impact development (LID) practices to minimize the impacts to the watercourse and natural features.

Additional mitigation measures have been provided to further protect fish and fish habitat including, sediment and erosions control, DFO measures to protect fish, operation of machinery, and the use of concrete leachate and other potential contaminates, see Section 7.0. No negative impacts to fish or fish habitat are anticipated to occur from the proposed development.

5.2 Species at Risk

The provincially endangered and federally threatened black ash was identified on the Site. Two specimens of this species were identified in the north on the edge of Community 3 and another single stem in Community 20. This species will be protected within a 15-meter dripline setback.

The provincial government has temporarily suspended protections for black ash for a period of two years from the time the species was added to the Species at Risk in Ontario List (Ontario Regulation 230/08). During this time, proponents will not need to seek authorizations for activities that impact black ash or its habitat. This period is scheduled to end in 2024. Therefore, should any removal of this species need to occur, MECP shall be contacted for advice on how to proceed.

Table 7 *Impact Assessment and Recommendation Summary*

Feature or Function	Impact to Feature of Function	Mitigation	Residual Effect
Provincially Significant Wetlands and Unevaluated Wetlands	Potentially negative impacts from sedimentation during construction as well as loss of habitat/function if hydrological changes are made to those portions of the Site.	30m buffer (setback) from all wetland boundaries. Buffer areas shall be either retained indigenous vegetation or supplemented with native species in areas where vegetation is absent. Silt fencing be installed around the development envelope(s) during construction and remain in place after construction until area within construction envelope is vegetated. Obtain relevant permits from KRCA should vegetation clearing near wetlands be needed.	None
Woodlands	Potential loss of woodland area. Potentially negative impacts as a result of construction occurring within the development envelope.	The greater of a 15-metre dripline setback (buffer) or a 30-metre wetland buffer to either be retained as indigenous vegetation or supplemented with self-sustaining native species in areas where vegetation is absent.	None
Significant Wildlife Habitat – Habitat for Special Concern and Rare Species Species at Risk – SAR turtles	Potential disturbance to eastern wood-pewee and midland painted turtle.	The greatest of the 30-metre wetland setback or the 15-metre dripline setback will afford protection to these species. GHD recommends the setback be supplemented with self-sustaining indigenous species in those areas of the Site where vegetation is absent. Installation of exclusion fencing around the development envelope to prevent SAR turtles from entering in search of suitable nesting sites.	None

Feature or Function	Impact to Feature of Function	Mitigation	Residual Effect
		Should turtles, or other SAR be identified within the development envelope after the installation of exclusion fencing, workers must contact MECP. No tree and vegetation clearing during the migratory bird window for this region (from early April to late August).	
Species at Risk – Black Ash	No impact to black ash	15-metre dripline and 30-metre wetland setbacks around black ash habitat. Setback to be left to naturally revegetate and/or be supplemented with self-sustaining indigenous species where vegetation is currently absent.	None
Fish and Aquatic Habitat	Potential movement of disturbed sediment from construction into watercourse	No development within 30 watercourses natural vegetated buffer. Develop a sediment and erosion control plan. No in-water work Respect all DFO mitigation measures to comply with the Fisheries Act Section 7.0. General recommendations provided in Section 7.0	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 study area and the immediate vicinity.

6.1 Federal Legislation

6.1.1 Migratory Birds Convention Act

The core breeding period in Ontario for migratory birds under the MBCA for Bird Conservation Region 13 (i.e., the one the Site falls within) extends from April 15th to August 15th (Environment Canada 2014). As such clearing of the trees and other vegetation for the development cannot occur during this timing window. According to Environment and Climate Change Canada 2018, the Site falls within Nesting Zone C2. The regional nesting period for Nesting Zone C2 extends from early April to late August. As a result, GHD recommends that within the period of April 1st to August 31st, should development be proposed, a nest search is conducted by an experienced avian biologist to ensure compliance with the Migratory Bird Regulations (2022).

6.1.2 Fisheries Act

The proposed development will avoid all in-water works and implement the *DFO Measures to Protect Fish and Fish Habitat*. The project undertakings will: prevent the death of fish, maintain riparian vegetation, conduct work on land only, maintain fish passage, ensuring proper sediment control, and prevent entry of deleterious substances in water. Therefore, the proposed development is in compliance with the Fisheries Act and further project review by DFO is not required.

During the detailed design phase of the project, if stormwater management facilities or road crossing are proposed, they must comply with the Fisheries Act, all project work near and below the high-water mark must follow the

protective provisions of the Fisheries Act by implementing the *DFO Measures to Protect Fish and Fish Habitat*. If all project undertakings can: 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, then a Fisheries Act review and Authorization may not be required.

If proposed in-water works cannot integrate the DFO protective measures and have the potential to cause the harmful alteration, disruption, or destruction of fish habitat (such as infilling of the watercourse) a DFO Request for Review document must be submitted to DFO for formal project assessment to determine the next steps in project compliance.

6.2 Provincial Legislation

6.2.1 Endangered Species Act, 2007

The only provincially endangered or threatened species detected on the Site was black ash. At present, protections for this species under the ESA have been suspended. We have recommended a minimum set-back of 15-metres from locations where the species was located. If any removal of the species is proposed, the client must immediately contact MECP for guidance on how to proceed. It is possible that an authorization of permit may be required. We have also recommended measures regarding exclusion fencing to prevent SAR from entering the active development area. If any SAR are detected by on-Site personnel during construction, work must cease and MECP be immediately contacted to determine how to proceed.

6.2.2 Provincial Policy Statement, 2020

The Site does not contain any significant coastal wetlands. It also does not contain significant wetlands north of Ecoregions 5E, 6E and 7E or significant areas of natural and scientific interest. As a result, Section 2.1.4b) and 2.1.5 a), e) and f) are not applicable to this project. For mitigation measures that would permit the proposed development to proceed while complying with the PPS, please refer to Sections 5.1, 5.2 and Table 7. Additional recommendations are also contained in Section 7.

6.2.3 Greenbelt Plan

Although the Site falls within the Protected Countryside of the Greenbelt Plan, it is designated as 'Towns and Villages' and thus is subject to policies relating to settlement areas (Government of Ontario 2023). The Greenbelt Plan indicates that it does not typically apply to lands within the boundaries of Towns/Villages and Hamlets. Rather, Official plans will govern land use within these settlement areas based on policy direction provided by the Growth Plan. GHD has prepared this EIS report, including recommendations based on the requirements of the Township of Scugog Official Plan.

6.2.4 A Place to Grow: Growth Plan for the Greater Golden Horseshoe

As was discussed in Section 1.4.2, the Site is primarily composed of lands that are within existing settlement areas that were approved and in effect as of July 1, 2017. As a result, some of the policies associated with Section 4.2.2, 4.2.3 and 4.2.4 of the Growth Plan are not applicable to this project. GHD has prepared this EIS identifying mitigation measures and recommendations that would permit the development to proceed while continuing to protect natural heritage features and areas in a manner that is consistent with the PPS.

6.3 Local and Other Regulatory Bodies

6.3.1 Township of Scugog Official Plan (Office Consolidation September 2017)

In this EIS report, Section 5.1.1 (Provincially Significant Wetlands and Unevaluated Wetlands), Section 5.1.2 (Woodlands), Section 5.1.3 (Significant Wildlife Habitat), Section 5.1.4 (Fish and Aquatic Habitat), Section 5.2 (Species at Risk) and Section 7.0 (Summary of Recommendations) describe measures that would permit the proposed development application to proceed in a manner consistent the Township of Scugog Official Plan (2017). Provided these measures are followed, there should be no negative impacts on Natural Features on the site.

It is GHD's understanding that identified hazard lands on the Site will not have buildings or structures placed upon them and the proposal will comply with the special policy section of the Township of Scugog Official Plan for this Site (Section 4.8.4). For example, the floodplain storage capacity will be retained and KRCA conducted a review of the EIS Terms of Reference and will be engaged in permitting measures, as appropriate.

6.3.2 Kawartha Region Conservation Authority (Ontario Regulation 182/06)

KRCA regulates designated hazards lands within their jurisdiction when there are development proposals that involve straightening, changing, diverting, or interfering with existing channels, or interfering with wetlands. GHD has prepared this EIS report taking into consideration the presence of wetlands, seepage areas and watercourses. It is GHD's understanding that development does not include a proposal to either a) straighten, change, divert or interfere with the watercourse or b) change or interfere with the wetland in the Study Area. GHD has identified a 30-metre wetland and watercourse setback to protect the unnamed tributary to the Nonquon River as well as all wetlands on site (whether they were previously evaluated or not). A permit will be sought from KRCA should there be alterations to the plan that would directly impact those features. We have other recommendations in Sections 5 and 7 of this EIS report that would satisfy KRCA regulations and ensure that potentially negative impacts have been minimized in order to be compliant with their policies.

7. Summary of Recommendations

7.1 General

1. The development limit must be clearly defined and delineated with a clearly marked line staked in the field prior to any development activities occurring on the site. Grading of the Site and removal or addition of fill shall be restricted to the proposed work area.
2. Functioning erosion and sediment control measures shall be installed along the development limit prior to the commencement of any site preparation activities (e.g., grading, placement of fill). The silt fence should be inspected and maintained throughout the construction phase and remain in place until the soil is stabilized and re-vegetated. The silt fence also serves as a visual and physical barrier for construction crews.
3. The overall existing drainage patterns for the lot will be maintained.
4. No development within a 30 m setback from the normal high-water mark of all watercourses.
5. A detailed sediment and erosion control plan will be completed for the site.
6. No in-water work
7. The greatest setback (wetland, woodland, or watercourse) will apply. With this area vegetation shall be enhanced with self-sustaining species indigenous to the Site in those areas where vegetation is currently absent.
8. Removal of vegetation within the building envelope (development limit) shall be done outside of the peak breeding bird season (April 15th – August 15th) as per Environment and Climate Change Canada's guidelines, with nest surveys being conducted prior to development/site activity that occurs between April 1st and August 31st.
9. Any areas outside of buildings and built infrastructure shall be vegetated as soon as possible after construction to stabilize the soils and re-establish vegetation cover.
10. Where feasible, self-sustaining trees, shrubs, grasses and/or wildflower seed mixes native to the Study Area shall be used to maintain and or enhance vegetation cover. Consideration should be given to incorporating such vegetation into the landscape plan.
11. Client to obtain relevant permits from the Township, KRCA and/or the MECP as required.
12. To the extent possible, there will be incorporation of Low Impact Development practices into the proposed development, such as directing downspouts onto grassed or gravel surfaces from the roof(s), and using bricks or stone instead of pavement/ asphalt.

7.2 Wetland

1. A 30 m setback shall be established from the outermost edges of any wetlands identified on the Site. No development, grading, or site alteration activities are to occur within this area (i.e., it is a “no touch” zone for construction).

7.3 Woodland

1. There is to be no development within the 15-metre setback established from the dripline of the woodlands.
2. Vegetation cover (of species indigenous to the Study Area) shall be allowed to grow wild, and downed woody debris (i.e., fallen sticks, logs) shall not be removed from woodland habitat retained on site.

7.4 Species at Risk

1. Ensure that on-site personnel are aware of Species at Risk that may be found in the study area and are able to recognize these species and their habitat(s).

2. Should any Species at Risk (SAR) be encountered during work related activities, or if there is potential to negatively impact SAR, or wildlife more generally, MECP shall be immediately contacted for guidelines on how to proceed.
3. In the active season for turtles (April 1-October 30) a thorough sweep shall be done of the area before beginning work to ensure no individuals are within the development envelope (which could be injured and/or killed).
4. Silt fencing installed must not have an open plastic mesh or netting that could lead to entanglement of wildlife.
5. The fencing shall be designed to serve a dual purpose (as exclusion fencing for turtles) along the western and northern portions of the development.

7.5 Other Wildlife Habitat

1. A 30-metre buffer (setback) will be established from each of the identified seeps on the Site (refer to **Figure 1**). The buffer area will protect the functions of the seep (i.e., as a source of drinking water for wildlife).
2. The 30-metre buffers (setbacks) relating to the wetland communities on the Site will protect any potential functions they provide as amphibian habitat.
3. Self-sustaining species indigenous to the Study Area shall be retained outside of the proposed development envelope. These species should be permitted to grow wild.
4. To the extent possible, self-sustaining species indigenous to the Study Area shall be incorporated in any plans to revegetate portions of the Site post-development (i.e. planting plans for the buffer/setback). Consideration should also be given to incorporating such species in any proposed landscaping.
5. Downed woody debris (i.e., fallen sticks, logs) shall be retained on the Site (i.e., in their current location) to the extent possible.
6. GHD recommends that consideration be given to using dark-sky friendly lighting shall be in proposed buildings. This will reduce the likelihood of bird collisions on the Site. Factors to be considered include whether the light serves a clear purpose/is required, or whether reflective paints or other markers should be incorporated to reduce the need for additional outdoor light fixtures; the direction of the light (i.e., it should primarily be aimed downwards); the feasibility of including warmer coloured lights where possible (i.e., minimize the use of blue-violet lights).

7.6 Sediment and Erosion Control

1. An Erosion and Sediment Control (ESC) Plan will be developed and implemented for the Site that minimizes risk of sedimentation of the bay and watercourse during all phases of the project.
2. The ESC will be reviewed by a professional biologist.
3. Track pads, concrete wash stations, refueling stations, and stockpile locations should be identified on the SEC plan and isolated using sediment control materials.
4. 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 manufacturer's guidelines.
5. Sediment control measures shall be installed prior to the commencement of work and shall be maintained throughout the project to prevent the entry/outward flow of sediment into the watercourse.
6. All sediment and erosion control measures shall be inspected daily during the construction phase and periodically thereafter to ensure they are functioning properly, maintained, and upgraded as required. Sediment fence to 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.
7. Disturbed soils will be immediately stabilized and re-vegetated with native species suitable for the site.
8. If 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 documented by the site inspector and provided to a qualified biologist.

9. Construction should be undertaken during normal weather conditions, to the extent possible, and the project shall be designed to appropriate specifications to withstand variable weather conditions.
10. Erosion and sediment control measures will be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin and runoff water is clear.
11. Biodegradable sediment and erosion control products should be used over non-biodegradable products. Specifically, erosion control blankets.

7.7 Fish Protection (DFO measures to protect fish and fish habitat)

1. All work to avoid killing fish by means other than fishing.
2. No development within a 30m setback of the high water mark. The setback will maintain riparian vegetation between areas of land activity and the high watermark of the watercourses.
3. Maintain riparian vegetation by using existing trails or roads where possible and prevent soil compaction by using swamp pads or mats where possible.
4. No use of explosives in or near water. The use of explosives will be avoided in or near water to avoid damage to fish internal organs and eggs or larvae.
5. 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 unless permitted.
6. No disturbance of bank material or building structures in the area that may result in erosion or scouring.
7. The Project Manager/Contractor shall ensure proper sediment control and not allow any deleterious substances as defined in the Canadian Fisheries Act (such as silt), caused by the work, to enter or re-enter the watercourse or lake. See Sediment and Erosion Control section.
8. 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

7.8 Operation of Machinery

1. No machinery shall enter the shoreline or watercourse.
2. 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.
3. 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).
4. 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.
5. The Project Manager/Contractor shall not allow any deleterious substances as defined in the Fisheries Act (such as silt), caused by the work, to enter or re-enter the watercourse.
6. 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.

7. 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.

7.9 Concrete Leachate

1. 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.
2. 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.
3. 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 Limited has prepared this Environmental Impact Study report to address potential environmental issues associated with a proposed industrial development on Scugog Line 6, Township of Scugog. The location of this development is Scugog Line 6, Part Lot 1, Concession 6.

Within the Study Area, GHD staff confirmed the boundaries of key natural features, assessed the ecological functions on the Site, conducted an assessment for Species at Risk habitat and have made recommendations that would prevent negative impacts from the proposed development. The greatest of the following buffers/setbacks will be applied: 30-metre setback from the outer extent of all wetlands; a 30-metre setback from all watercourses to protect fish and fish habitat; a 15-metre setback from the dripline to protect the woodland and black ash. 30-metre setbacks have been established from identified seeps. Mitigation measures have been recommended for significant wildlife habitat.

Based on our analysis, there will be little to no negative impact(s) to the natural features on, or adjacent to the Site (i.e., including wetlands, woodlands, SWH habitat and aquatic habitat) provided the mitigation measures and recommendations (as described in Sections 5 and 7 of this report) are implemented. Negative impacts on Species at Risk and/or area sensitive species are not anticipated.

GHD has made recommendations to minimize potential negative impacts to species, natural features and environmental functions during the site preparation, construction and post-construction periods. Additional discussions with KRCA and the Township need to occur so that appropriate permitting processes are followed.

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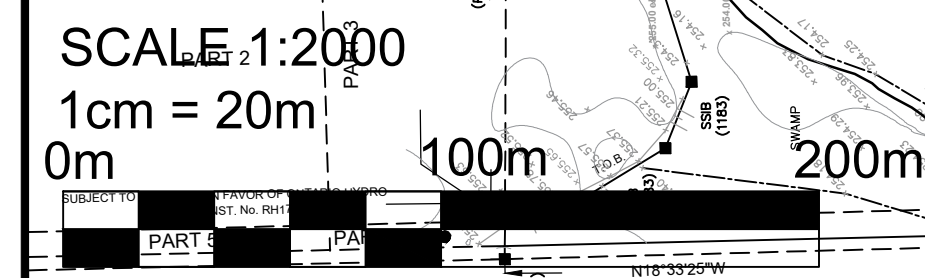
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Appendices

Appendix A

Site Plan

- x 315.58 EXISTING ELEVATION
- x 315.58 PROPOSED ELEVATION
- x 315.58 INV EXISTING PIPE INVERT ELEVATION
- x 315.58 INV PROPOSED PIPE INVERT ELEVATION
- EXISTING SURFACE FLOW ROUTE
- PROPOSED SURFACE FLOW ROUTE
- - - x 315.00 EXISTING ELEVATION CONTOUR LINES
- - - -2.0% SWALE DRAINAGE
- PROPOSED SANITARY MANHOLE



1. CONTRACTOR TO BE RESPONSIBLE TO ENSURE THAT THIS LOT AND ADJOINING AREAS OF SITE ARE KEPT CLEAN AND FREE OF CONSTRUCTION DEBRIS, AND THAT ROADWAYS ARE KEPT CLEAN OF MUD AND DEBRIS
2. SEE "EROSION AND SEDIMENT CONTROL PLAN" FOR CONTROL INSTALLATION PRIOR TO CONSTRUCTION AND STOCKPILE MANAGEMENT
3. ALL MEASUREMENTS STATED IN METERS, PIPE SIZES IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED EQUIVALENTS
4. GRASS SWALES SHALL BE CONSTRUCTED WITH 3:1 SIDE SLOPES, WITH AN AVERAGE DEPTH OF 600MM BELOW DRIVEWAY. SWALES SHALL HAVE A MINIMUM OF 50MM OF TOPSOIL, THEN SEEDED WITH LAWN GRASS DURING MAY - SEPTEMBER, WATERED WEEKLY UNTIL FULLY ROOTED, DETAILS REFER TO EGR 1.5
5. CONTRACTOR SHALL CHECK AND VERIFY ALL GIVEN GRADE ELEVATIONS AND DRAINAGE PRIOR TO CONSTRUCTION
6. MAIN PROPERTY SURVEY ELEVATIONS ARE DERIVED FROM "MANDARIN SURVEYORS LIMITED" ON NOV. 01, 2021; ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE TOWNSHIP OF SCUGOG BENCHMARK NO.386-71 HAVING AN ELEVATION OF 259.346 M. DATUM: CGVD28/78. LOCATED AT TWO-STOREY RED BRICK HOUSE ON WEST SIDE OF HWY 7 AND 12, 1.9 KM NORTH OF JCT OF HWY 7 AND 12 AND HWY 7A AT MANCHESTER, 0.5 KM NORTH OF SCUGOG 6TH LINE AND 29.6M WEST OF CENTRELINE OF HWY 7 AND 12. TABLET IS SET HORIZONTALLY IN NORTH FACE OF STONE FOUNDATION, 1.40 M WEST OF NORTHEAST CORNER AND 43 CM BELOW BRICKWORK. 1401 SCUGOG LINE 6 ELEVATIONS ARE DERIVED FROM "A.R.(SANDY) WAKELING SURVEYING TECHNICAL SERVICES" ON AUG. 17, 2021; ELEVATIONS SHOWN HERE ON ARE GEODETIC IN ORIGIN AND ARE REFERENCED TO GEODETIC BENCH MARK NUMBER 08019828097 CGVD 28/78 ELEVATION-269.263 COORDINATES HAVE BEEN DERIVED FROM GPS OBSERVATIONS ON THE POWER NET GPS REAL TIME NETWORK, UTM ZONE 17, NAD83 (CSRS), EPOCH (2010).
10. DRIVEWAY SHALL BE CONSTRUCTED USING THE FOLLOWING:

- 100MM HL8 BASECOURSE ASPHALT
- 50MM HL3 SURFACE COURSE ASPHALT
- 450MM GRANULAR "B" AND 150MM GRANULAR "A"
- GRANULAR SHALL BE 98% COMPACTION



KL

AUG. 03, 2022

KING EPC M

570 Hood Rd, Unit 26
Markham, ON, L3R 4G7
www.KingEPCM.com
647-459-5647
General@KingEPCM.com

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DEVELOPMENT LTD.**

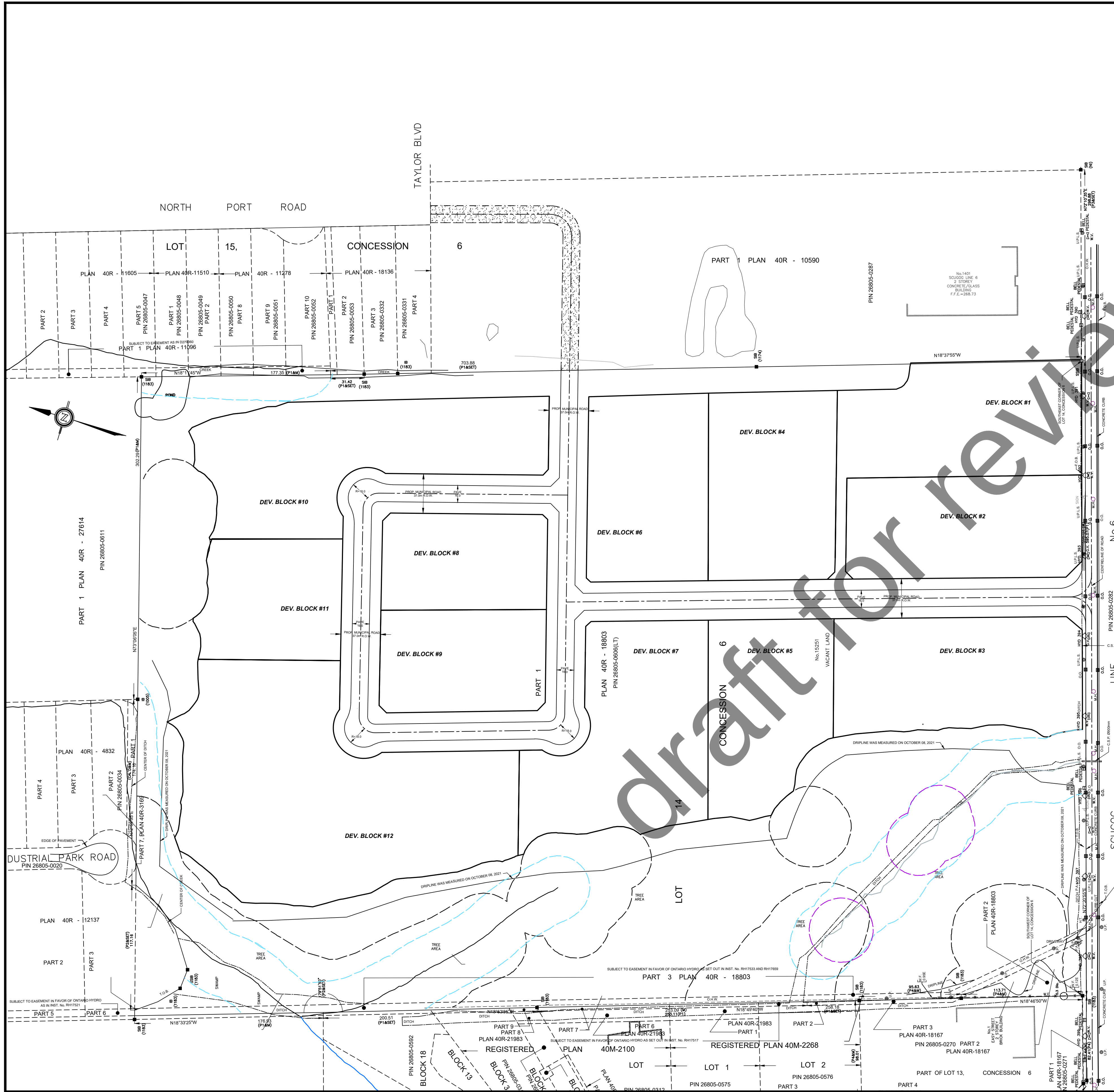
**INDUSTRY DEVELOPMENT
BLOCKS LAND PLAN & SITE
SERVICE**

**SCUGOG LINE 6, PORT
PERRY, ON
PART-1, PLAN 40R - 18803**

ROAD GRADING PLAN

EGR 1.2

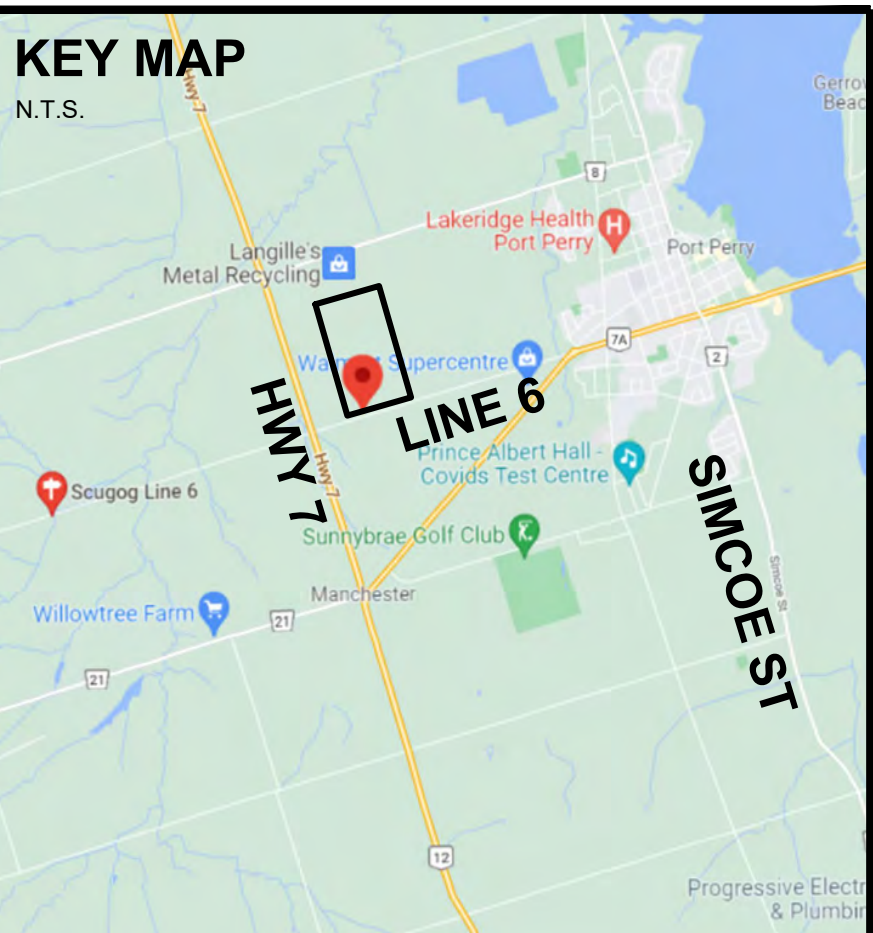
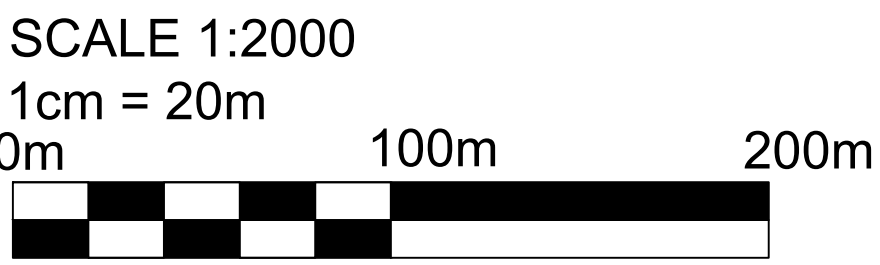
No.	ISSUED FOR:	DATE	DRAW BY	CHECK
V1	ISSUED FOR PERMITS	AUG. 25, 2022	ZW	TW
V19	ISSUED FOR PERMITS	OCT. 12, 2023	KL	TW



LEGEND:

- BLOCK BOUNDARY
- 15M DRIP LINE SETBACK
- 30 M WETLAND SETBACK
- 30 M CREEK SETBACK
- 30 M SEEP SETBACK
- VEGETATION COMMUNITY
- WATERCOURSE/DRAINAGE, OHN

- NOTE:
- SITE SURVEYS WERE CONDUCTED BY "MANDARIN SURVEYORS LIMITED" ON NOV. 01, 2021 AND "A.R. (SANDY) WAKELING SURVEYING TECHNICAL SERVICES" ON AUG. 17, 2021
 - NATURAL HERITAGE INFORMATION (DEVELOPABLE AREA) WAS CONDUCTED BY "GHD" ON JUL. 27, 2021.



DRAWN	STAMP
KL	
DATE	
AUG. 03, 2022	

KING EPCM

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570 Hood Rd. Unit 26
Markham, ON, L3R 4G7
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General@KingEPCM.com

CLIENT
WANLONG REAL ESTATE DEVELOPMENT LTD.

PROJECT NAME
INDUSTRY DEVELOPMENT BLOCKS LAND PLAN & SITE SERVICE

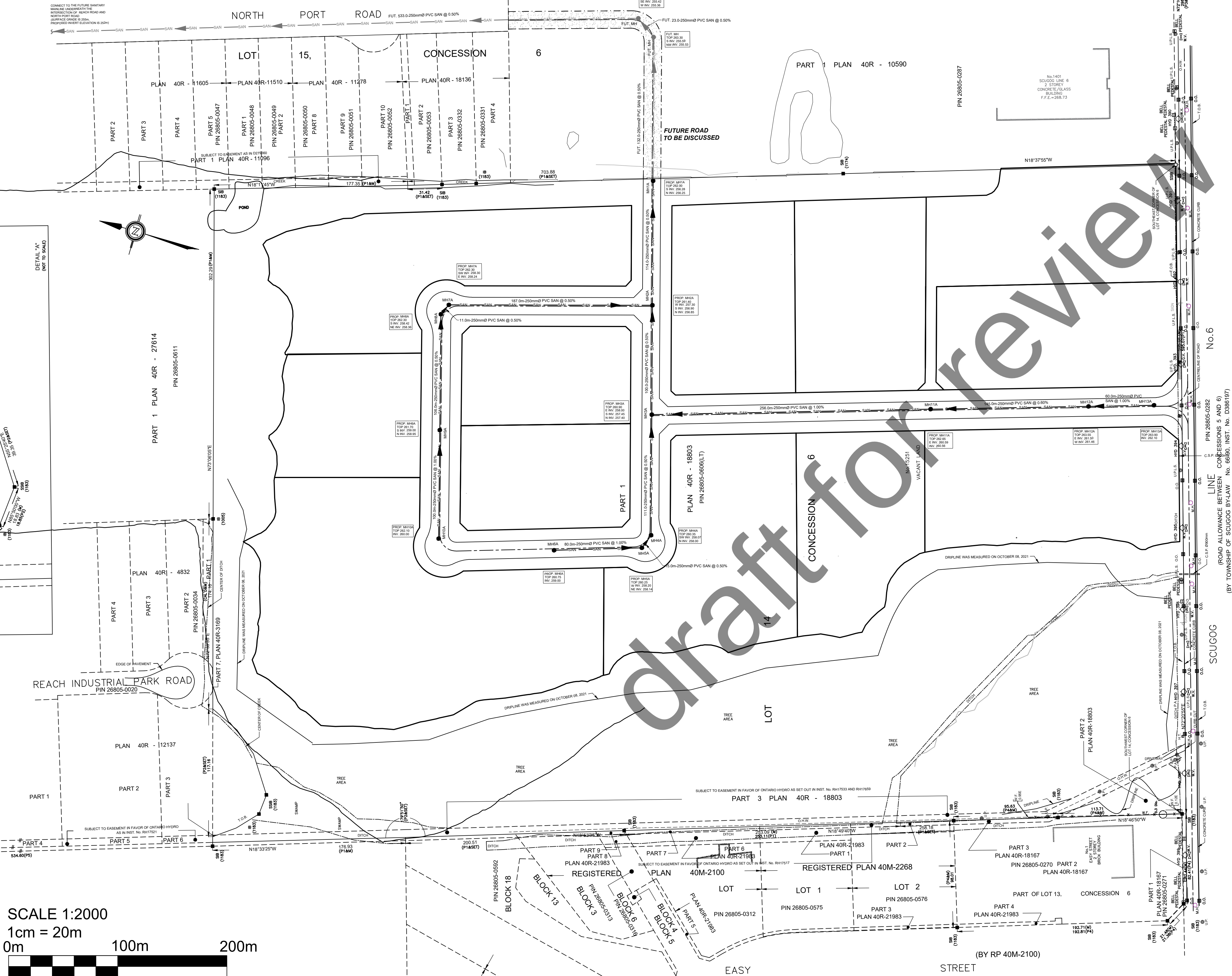
PROJECT LOCATION
SCUGOG LINE 6, PORT PERRY, ON PART-1, PLAN 40R - 18803

PRINT TITLE
SITE PLAN

FILE No.
EGR 1.1

No.	ISSUED FOR:	DATE	DRAW BY	CHECK
V1	ISSUED FOR PERMITS	AUG. 25, 2022	ZW	TW
V19	ISSUED FOR PERMITS	OCT. 12, 2023	KL	TW

- GENERAL NOTES
- THE SANITARY SEWER OUTLET CONNECTS TO THE FUTURE SEWER MAINLINE UNDERNEATH THE INTERSECTION OF REACH ROAD AND NORTH PORT ROAD
 - THE BURIAL DEPTH OF THE OUTLET PIPE IS ASSUMED AS 3.0M
 - THE SANITARY SEWER PIPE SLOP IS CALCULATED BY 0.5%
 - THE PROPOSED BURIAL DEPTH AT THE START POINT OF THE PIPE SYSTEM IS 1.8M
 - THE MAXIMUM BACKFILL IS 5.05M TO MEET GRAVITY DRAINAGE REQUIREMENT



LEGEND:

- PROPOSED SANITARY MANHOLE
- FUTURE SANITARY MANHOLE
- SAN — SAN — PROPOSED SANITARY SEWER
- SAN — SAN — FUTURE SANITARY SEWER
- INV. 315.58 PIPE INVERT ELEVATION



DRAWN

Q.C / K.L

DATE

JUL. 10, 2023

STAMP

KING

EPC
M

King EPCM

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Markham, ON, L3R 4G7

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General@KingEPCM.com

CLIENT

WANLONG REAL ESTATE
DEVELOPMENT LTD.

PROJECT NAME

INDUSTRY DEVELOPMENT
BLOCKS LAND PLAN & SITE
SERVICE

PROJECT LOCATION

SCUGOG LINE 6, PORT
PERRY, ON
PART-1, PLAN 40R - 18803

PRINT TITLE

SITE SERVICE PLAN
SANITARY SEWER

FILE No.

EGR 1.3

No.	ISSUED FOR:	DATE	DRAW BY	CHECK
V19	ISSUED FOR PERMITS	JUL. 10, 2023	QC	TW
V19	ISSUED FOR PERMITS	OCT. 12, 2023	KL	TW

Appendix B

**Terms of Reference and Agency
Correspondence**



May 27th, 2021

Hong Wei Zhao
Authorized by Wangzhe Trade and Investment Corp.

RE: Commercial/Industrial site plan
1125 Scugog Line 6
Part Lot 14, Concession 6
Township of Scugog

TERMS OF REFERENCE FOR ENVIRONMENTAL IMPACT STUDY

GHD Limited has been retained by Hong Wei Zhao of Wangzhe Trade and Investment Corporation to complete an Environmental Impact Study (EIS), as required for the application to develop a commercial/industrial facility on the property. The enclosed Terms of Reference (ToR) includes a detailed outline of our proposed workplan.

The ToR has been developed based on our background review, knowledge of the site and surrounding area, applicable federal, provincial and municipal policies, and City of Kawartha Lakes and Kawartha Region Conservation Authority regulations.

Please review and circulate to KRCA and the Township. If there are any questions or additions, please contact me.

Yours very truly

A handwritten signature in blue ink, appearing to read "C. Ellingwood", with a long horizontal flourish extending to the right.

Chris Ellingwood, B.E.S
Sr. Biologist
GHD



Commercial/Industrial site plan
1125 Scugog Line 6
Part Lot 14, Concession 6
Township of Scugog

TERMS OF REFERENCE FOR ENVIRONMENTAL IMPACT STUDY

1.0 Introduction and Background

GHD Limited has been retained by Wangzhe Investment Corporation to complete an Environmental Impact Study (EIS) for a proposed commercial/industrial site plan at 1125 Scugog Line 6, Part Lot 1, Concession 6, Township of Scugog. Access to the property is Concession 6.

The property is adjacent to a provincially significant wetland. In accordance with the Growth Plan, the Township Official Plan, and KRCA policies, an EIS is required to evaluate the development proposal in relation to potential impacts on the wetland, and the watercourse and any other natural heritage features.

GHD (previously Niblett Environmental Associates) had conducted a site visit in 2019 and prepared a constraints memo and figure. These showed the boundary of the natural heritage features and our recommended buffers from those features. No applications were pending at the time. The constraints memo was strictly to determine roughly the net developable area of the property for any future land uses proposed.

As such, additional site visits are necessary as part of a development application and the EIS, to confirm the wetland boundary, as per the definitions in the KRCA regulations and the Ontario Wetland Evaluation System. The boundary of the wetlands, woodlands and intermittent watercourses and the need for a buffer from those features will be mapped as part of our work. The confirmation of a development envelope that minimizes any impacts to the wetland will be a major part of our field work and analysis.

Key Natural Heritage Features on the property or within 120 m of the property include:

- Woodland
- Watercourse (30 m and 120 m zone of influence in KRCA policy)
- Possible habitat for threatened or endangered species
- Provincially significant wetland (PSW)
- Other unevaluated, but KRCA regulated wetlands
- Significant Wildlife Habitat and corridors

The Township of Scugog Official Plan requires the completion of an EIS when development is proposed within or in the area of influence (120 m) of a key natural heritage feature.

2.0 Approach

2.1 General Approach

Our approach to preparation of the EIS will consist of three distinct phases. In the first phase we will collect available information on the site including recent air photography, Township of Scugog



Official Plan, KRCA mapping and policies and key natural features GIS mapping, MNRF GIS database mapping and significant woodland/wetland layers and other correspondence or files.

This Terms of Reference is the second phase, which will be submitted to the Township and KRCA for their review and approval. This terms of reference outlines the field work being conducted, the scope of our work and the content/issues to be included in the discussion, impact and recommendation sections of the EIS report.

Our third phase will consist of a site visit by our terrestrial biologists. KRCA does require 3 season surveys. As we were there in the fall of 2019, that will be our fall visit. Additional detailed spring/summer field work is required to document the following:

- Delineation and mapping of Ecological Land Classification vegetation types
- Breeding bird surveys (x2) - June
- Incidental observations of amphibians, snakes and other wildlife
- Presence of significant trees or rare plants (butternut)
- Detailed plant inventory (spring and summer)
- Assessment of woodland designation (significance)
- Assessment of habitat for wildlife including wildlife linkages
- Ecological functions of the woodland and wetland
- Presence of habitat of threatened or endangered species
- Search for raptor nests in trees and bat cavity trees
- Confirmation of MNRF official wetland boundary and other wetlands
- Watercourse confirmation and fish habitat assessments

The final phase will consist of preparing the EIS report based upon both the literature and field surveys completed and following the requirements in the Township of Scugog and Region of Durham Official Plan, zoning bylaw and the KRCA for an EIS report. As there are several features identified we will map all of the features, the report will focus on the maintenance of these features and their functions.

The impact assessment and mitigation measures will focus on trees, woodland edge, maintaining water infiltration to the wetland, a wetland buffer, 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.

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 policies. Any other approvals or constraints due to zoning, official plans, flood and fill regulations, MDS, health regulations, archaeology, tree cutting bylaws or other approvals for the municipality and other agencies are the responsibility of the owner. The report will follow the content requirements of the Township of Scugog Official Plan and KRCA planning and procedural policies for an EIS report

2.2 Field Inventories

2.2.1 Timing and Schedule



We will get started as soon as possible on the background and contacting KRCA. The EIS will be undertaken in the spring and summer of 2021 to conduct our field investigations. The surveys will cover all portions of the study property and adjacent areas to assess the boundary of natural features such as any wetlands and woodland.

2.2.2 Detailed Methodology

Vegetation

All vegetation communities on and adjacent to the study lands will be visited and species composition of dominant species determined. Community type criteria will follow that of MNR's Ecological Land Classification for Southern Ontario (ELC) program (Lee et al., 1998) and will be done to the vegetation type level. The presence of rare species or significant communities, if any, will be documented and locations mapped. Soil sampling may be conducted in each community to describe the moisture, soil type and organic content of soils according to the ELC manual. Timing of vegetation surveys will coincide with peak growing seasons; with visits occurring in the late spring ephemeral and summer flowering plants seasons. Fall plant inventories have already been completed in 2019.

Photographs and/or specimens will be taken of plants requiring verification of identification..

National, provincial and regional significance will be determined from accepted status lists and published reference lists such as SARA (2019), COSEWIC (2019), SARO (2019), Ontario Endangered Species Act (2007), NHIC (2019), and Varga (2000).

Birds

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

Wildlife

Incidental observations of mammals, amphibians, reptiles will be made during all site visits. Observations will include 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 will be recorded. Incidental frogs will be recorded during spring ephemeral searches, however concerted, targeted spring frog surveys will not be conducted since no ponds, waterbodies or vernal pools are found where the development is to occur.

Species at Risk

The presence or absence of identified species at risk and/or their habitat will be assessed. The Ontario Endangered Species Act places more responsibility on municipalities to prove presence/absence of species at risk when reviewing development proposals. GHD will review the list of potential Species At Risk and determine which have potential suitable habitat on the property. We will conduct targeted surveys for those species only. In this case, butternut, Blanding's turtle, other turtles and woodland birds are the most likely species.



Wetland Boundary:

The boundary of any wetland will be confirmed in the field by our wetland biologist using the protocols in the Ontario Wetland Evaluation System Manual- Southern Ontario (Third Edition, MNRF, version 3.3, 2014) and KRCA Regulations. Due to the proximity of Provincially Significant Wetland (PSW), the wetlands on and adjacent to the property may be complexed into PSW.

Woodland

The boundary of wooded area, species composition, including the age, diameter, species composition and dripline will be examined during field surveys. The significance of the woodland based on MNRF criteria laid out in the Natural Heritage Reference Manual (MNRF, 2010) and ORM Technical Paper No. 7, will be assessed from our field surveys, GIS mapping and the size of the treed area on site.

Aquatic Habitat

GHD biologists will assess the aquatic habitat of Proctors Creek, which is located in the northern portion of the property and any other watercourses identified within or adjacent to the subject property. A general aquatic assessment will be conducted to verify the location of the creek and habitat type(s) present so that appropriate mitigation measures are implemented to protect fish and fish habitat.

Aquatic habitat types will be based on substrate, riparian habitat, percent in-stream cover and unique features. Habitat types will be identified on aerial imagery and site map providing the existing aquatic habitat characteristics will be provided. Assessments will be conducted using standardized provincial aquatic protocols (OSAP, MTO).

Surface Water Quality

Water temperature, dissolved oxygen, total dissolved solids, conductivity, salinity, pH, and water colour will be recorded to obtain a baseline for construction and post construction reference.

Fish Community

Due to potential impacts from construction and servicing the creek will be sampled by our fisheries biologists if there is a sufficient amount of flow during surveys. Fish community data will be collected using a Smith-Root Model 24 backpack electrofisher using the techniques outlined in the Ontario Stream Assessment Protocol (Stanfield, 2010). Fish community sampling will be 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. This method requires a high shocking intensity (7-15 sec/m²) and typically captures 60% of the population when all habitats are sampled. If site conditions are not feasible to use an electrofisher, other gear types will be chosen on site and may include seine nets.



2.3 Resource Significance

Following field surveys, the significance of all natural heritage features and species found on site will be assessed in light of the relevant policies and regulations. Species lists from our field work will be compared to the most current federal, provincial and regional plant and wildlife lists.

2.4 Impact Assessment

In this component of the EIS, the details of the proposed development plan will be considered in the context of the significance of the key natural heritage features and species at risk present in the area. All potential impacts to the Natural Heritage System will be identified on site will be outlined.

We will review our field data and mapping, as well as our assessment of the functions to recommend an appropriate building envelope size and shape that meets the Township policies. This would include minimizing the building envelope and selecting a portion of the site that would have the least impact on the surrounding natural features.

The impact assessment will assess the impacts from grading, septic, potential tree removal, and access points.

We will also work with the other study team members to ensure that all features that pose a constraint to the development envelope are shown on the site plan. This would include the mapping of key natural heritage features including the various forest types. In addition, the required setbacks/VPZ from all the features as per the Township Official Plan.

2.5 Mitigation Recommendations

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.

2.6 Conclusions and Recommendations

Project conclusions will be summarized in a concise manner at the end of the NHE report to ensure readability of the document and clear transference of information to the project team. This will include compliance with Official Plan policies and KRCA regulations and policies.

3.0 Deliverables

GHD will provide .pdf files of the EIS 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 EIS 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.

Sincerely,

A handwritten signature in blue ink, appearing to read "C. Ellingwood", with a long horizontal flourish extending to the right.

Chris Ellingwood
Sr. Terrestrial and Wetland Biologist

From: Permits <permits@kawarthaconservation.com>
Sent: Monday, May 31, 2021 9:31 AM
To: Kari Van Allen
Cc: Robert Stavinga
Subject: RE: Terms of Reference for 1125 Scugog Line 6 EIS

Hi Kari,

Thank you for clarifying.

Just an FYI – based on our mapping neither of the parcels we have on file for 1125 Scugog Line 6 matches the parcel you have indicated. It appears it has not yet been assigned an address. For reference, the Roll # is 1820010004279000

The Terms of Reference are acceptable in this case. We look forward to reviewing the report.

Best regards,

Ashley Chlebak, B.Sc., Dipl.(Env. Tech)
Regulation & Permitting Technician
KAWARTHA CONSERVATION
277 Kenrei Road
Lindsay, ON K9V 4R1

Tel: 705.328.2271 ext. 231
Fax: 705.328.2286

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From: Kari Van Allen <Kari.VanAllen@ghd.com>
Sent: May 28, 2021 12:36 PM

To: Permits <permits@kawarthaconservation.com>

Subject: RE: Terms of Reference for 1125 Scugog Line 6 EIS

Hello Ashley,

I apologize for the confusion. I'm hoping this map will help you to locate the property we have prepared the Terms of Reference for. If you need further information, don't hesitate to email me again. I can't seem to find a roll number in my files, but if you need one, I can reach out to the client.



Thanks again,
Kari

Kari Van Allen, M.F.C.
Terrestrial & Wetland Biologist

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E: Kari.VanAllen@ghd.com

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From: Permits <permits@kawarthaconservation.com>
Sent: Friday, May 28, 2021 12:20 PM
To: Kari Van Allen <Kari.VanAllen@ghd.com>
Cc: Robert Stavinga <rstavinga@kawarthaconservation.com>
Subject: RE: Terms of Reference for 1125 Scugog Line 6 EIS

Hi Kari,

Can you please confirm the property location? We have two properties that come up with that address and neither of them match exactly the image you attached.

Please provide the Roll # or a map with the property highlighted.

Thank you,

Ashley Chlebak, B.Sc., Dipl.(Env. Tech)
Regulation & Permitting Technician
KAWARTHA CONSERVATION
277 Kenrei Road
Lindsay, ON K9V 4R1

Tel: 705.328.2271 ext. 231
Fax: 705.328.2286

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From: Kari Van Allen <Kari.VanAllen@ghd.com>
Sent: May 28, 2021 11:30 AM
To: Permits <permits@kawarthaconservation.com>
Subject: Terms of Reference for 1125 Scugog Line 6 EIS

Hello,

Please find attached a completed Terms of Reference for an EIS on the property at 1125 Scugog Line 6. We would appreciate your review and comments on our proposed plan of fieldwork. If you have any questions or concerns, do not hesitate to contact me.

Regards,
Kari

Kari Van Allen, M.F.C.
Terrestrial & Wetland Biologist

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E: Kari.VanAllen@ghd.com

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Appendix C

Plant Species by Community

APPENDIX C 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 Heimbürger 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	13	14	15
HORSETAIL FAMILY	<i>EQUISETACEAE</i>																
field horsetail	<i>Equisetum arvense</i>	4		X					X			X	X				
scouring rush	<i>Equisetum hyemale</i>	1		X													
WOOD FERN FAMILY	<i>DRYOPTERIDACEAE</i>																
northern lady fern	<i>Athyrium filix-femina</i>	3							X	X							
bulbet bladder fern	<i>Cystopteris bulbifera</i>	1															
marginal wood-fern	<i>Dryopteris marginalis</i>	1															X
ostrich fern	<i>Matteuccia struthiopteris</i>	3							X	X							
sensitive fern	<i>Onoclea sensibilis</i>	8							X	X	X	X		X	X		
PINE FAMILY	<i>PINACEAE</i>																
balsam fir	<i>Abies balsamea</i>	3					X									X	
Norway spruce	<i>Picea abies</i>	1			X												
white spruce	<i>Picea glauca</i>	1															

Common Name	Scientific Name	Total	COMMUNITY NUMBER														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CYPRESS FAMILY	CUPRESSACEAE																
eastern white cedar	<i>Thuja occidentalis</i>	9			X		X			X	X					X	X
BUTTERCUP FAMILY	RANUNCULACEAE																
virgin's bower	<i>Clematis virginiana</i>	1						X									
tall buttercup	<i>Ranunculus acris</i>	3	X						X			X					
ELM FAMILY	ULMACEAE																
American elm	<i>Ulmus americana</i>	1															
NETTLE FAMILY	URTICACEAE																
European stinging nettle	<i>Urtica dioica</i> L. ssp.dioica	1					X										
BIRCH FAMILY	BETULACEAE																
yellow birch	<i>Betula alleghaniensis</i> Britt.	1								X							
white birch	<i>Betula papyrifera</i>	1															
GOOSEFOOT FAMILY	CHENOPODIACEAE																
strawberry blite	<i>Chenopodium capitatum</i>	1			X												
BUCKWHEAT FAMILY	POLYGONACEAE																
Japanese knotweed	<i>Polygonum cuspidatum</i>	2													X		
curled dock	<i>Rumex crispus</i>	1							X								
LINDEN FAMILY	TILIACEAE																
American basswood	<i>Tilia americana</i>	1								X							
GOURD FAMILY	CUCURBITACEAE																
wild cucumber	<i>Echinocystis lobata</i>	1					X										
WILLOW FAMILY	SALICACEAE																
balsam poplar	<i>Populus balsamifera</i>	6			X			X		X	X	X					
trembling aspen	<i>Populus tremuloides</i>	12	X	X	X		X	X				X			X	X	
pussy willow	<i>Salix discolor</i>	5		X							X		X	X	X		
slender willow	<i>Salix petiolaris</i>	1						X									
MUSTARD FAMILY	BRASSICACEAE																
yellow rocket	<i>Barbarea vulgaris</i>	2					X		X								
dame's rocket	<i>Hesperis matronalis</i>	2	X		X												

Common Name	Scientific Name	Total	COMMUNITY NUMBER														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ROSE FAMILY	ROSACEAE																
woodland strawberry	<i>Fragaria vesca</i>	1							X								
common strawberry	<i>Fragaria virginiana</i>	3			X					X							
yellow avens	<i>Geum aleppicum</i>	2										X					
rough cinquefoil	<i>Potentilla norvegica</i>	1	X														
black cherry	<i>Prunus serotina</i>	1					X										
choke cherry	<i>Prunus virginiana</i>	1					X										
wild red raspberry	<i>Rubus idaeus</i>	7				X	X	X	X		X					X	
narrow-leaved meadowsweet	<i>Spiraea alba</i>	2				X		X									
PEA FAMILY	FABACEAE																
alfalfa	<i>Medicago sativa ssp. Sativa</i>	1			X												
red clover	<i>Trifolium pratense</i>	2	X	X													
white clover	<i>Trifolium repens</i>	1	X														
cow vetch	<i>Vicia cracca</i>	3			X							X	X				
LOOSESTRIFE FAMILY	LYTHRACEAE																
purple loosestrife	<i>Lythrum salicaria</i>	4		X				X	X								
EVENING PRIMROSE FAMILY	ONAGRACEAE																
Canada enchanter's nightshade	<i>Circaea lutetiana L. ssp.canadensis</i>	1								X							
DOGWOOD FAMILY	CORNACEAE																
alternate-leaf dogwood	<i>Cornus alternifolia</i>	1					X										
red-osier dogwood	<i>Cornus stolonifera</i>	10				X	X	X			X	X	X		X		
BUCKTHORN FAMILY	RHAMNACEAE																
European buckthorn	<i>Rhamnus cathartica</i>	11	X		X		X			X		X			X	X	X
GRAPE FAMILY	VITACEAE																
Virginia creeper	<i>Parthenocissus inserta</i>	3	X		X		X										
wild grape	<i>Vitis riparia</i>	2			X		X										
MAPLE FAMILY	ACERACEAE																
Manitoba maple	<i>Acer negundo</i>	1			X												
silver maple	<i>Acer saccharinum</i>	2			X												

Common Name	Scientific Name	Total	COMMUNITY NUMBER														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CASHEW FAMILY	ANACARDIACEAE																
western poison-ivy	<i>Rhus rydbergii</i>	4			X								X	X			
GERANIUM FAMILY	GERANIACEAE																
herb Robert	<i>Geranium robertianum</i>	2					X										
TOUCH-ME-NOT FAMILY	BALSAMINACEAE																
spotted jewelweed	<i>Impatiens capensis</i>	3						X		X	X						
CARROT FAMILY	APIACEAE																
Queen-Anne's lace	<i>Daucus carota</i>	1			X												
cow parsnip	<i>Heracleum lanatum</i>	2			X			X									
DOGBANE FAMILY	APOCYNACEAE																
spreading dogbane	<i>Apocynum androsaemifolium</i>	1				X											
MILKWEED FAMILY	ASCLEPIADACEAE																
swamp milkweed	<i>Asclepias incarnata</i>	2									X				X		
common milkweed	<i>Asclepias syriaca</i>	1										X					
swallow-wort	<i>Cynanchum rossicum</i>	3			X				X			X					
NIGHTSHADE FAMILY	SOLANACEAE																
bitter nightshade	<i>Solanum dulcamara</i>	2												X	X		
MINT FAMILY	LAMIACEAE																
American water-horehound	<i>Lycopus americanus</i>	1											X				
wild mint	<i>Mentha arvensis</i>	1											X				
spear mint	<i>Mentha spicata</i>	1							X								
OLIVE FAMILY	OLEACEAE																
black ash	<i>Fraxinus nigra</i>	3			X												
green ash	<i>Fraxinus pennsylvanica</i> var. <i>subinteg</i>	3													X		
FIGWORT FAMILY	SCROPHULARIACEAE																
water speedwell	<i>Veronica catenata</i>	1													X		
MADDER FAMILY	RUBIACEAE																
white bedstraw	<i>Galium mollugo</i>	3							X			X	X				
marsh bedstraw	<i>Galium palustre</i>	3						X				X	X				

Common Name	Scientific Name	Total	COMMUNITY NUMBER														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
HONEYSUCKLE FAMILY	CAPRIFOLIACEAE																
tartarian honeysuckle	<i>Lonicera tatarica</i>	1					X										
red-berried elderberry	<i>Sambucus racemosa</i>	1					X										
European high bush cranberry	<i>Viburnum trilobum</i> var. <i>opulis</i>	3					X	X							X		
ASTER FAMILY	ASTERACEAE																
common yarrow	<i>Achillea millefolium</i>	1										X					
Canada thistle	<i>Cirsium arvense</i>	1									X						
bull thistle	<i>Cirsium vulgare</i>	1							X								
Philadelphia fleabane	<i>Erigeron philadelphicus</i> ssp. <i>philadel</i>	1										X					
spotted joe-pyeweed	<i>Eupatorium maculatum</i>	4						X						X			
boneset	<i>Eupatorium perfoliatum</i>	2							X			X					
field hawkweed	<i>Hieracium caepitosum</i> ssp. <i>caespitos</i>	1											X				
Canada goldenrod	<i>Solidago canadensis</i>	5	X		X	X					X	X					
New England aster	<i>Symphotrichum novae- angliae</i>	1	X														
purple-stemmed aster	<i>Symphotrichum puniceum</i>	2						X	X								
common dandelion	<i>Taraxacum officinale</i>	1			X												
coltsfoot	<i>Tussilago farfara</i>	1						X									
WATER-PLANTAIN FAMILY	ALISMACEAE																
common waterplantain	<i>Alisma plantago-aquatica</i>	1													X		
broad-leaved arrowhead	<i>Sagittaria latifolia</i>	1													X		
FROG'S-BIT FAMILY	HYDROCHARITACEAE																
western elodea	<i>Elodea nuttallii</i>	1													X		
DUCKWEED FAMILY	LEMNACEAE																
common duckweed	<i>Lemna minor</i>	2									X				X		

Common Name	Scientific Name	Total	COMMUNITY NUMBER														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SEDGE FAMILY	CYPERACEAE																
Bebb's sedge	<i>Carex bebbii</i>	1											X				
bristly sedge	<i>Carex comosa</i>	1									X						
graceful sedge	<i>Carex gracillima</i>	3						X			X	X					
meadow sedge	<i>Carex granularis</i>	4						X			X	X	X				
retorse sedge	<i>Carex retrorsa</i>	2						X					X				
stellate sedge	<i>Carex rosea</i>	1						X									
awl-fruited sedge	<i>Carex stipata</i>	2						X	X								
tussock sedge	<i>Carex stricta</i>	1											X				
fox sedge	<i>Carex vulpinoidea</i>	2						X	X								
GRASS FAMILY	POACEAE																
awnless brome grass	<i>Bromus inermis ssp.inermis</i>	1			X												
reed canary grass	<i>Phalaris arundinacea</i>	9				X		X	X		X	X	X	X			
common reed	<i>Phragmites australis</i>	4		X		X					X				X		
fowl meadow grass	<i>Poa palustris</i>	1						X									
Kentucky blue grass	<i>Poa pratensis</i>	2	X		X												
CATTAIL FAMILY	TYPHACEAE																
narrow-leaved cattail	<i>Typha angustifolia</i>	5		X		X					X				X		
common cattail	<i>Typha latifolia</i>	1															
LILY FAMILY	LILIACEAE																
Canada mayflower	<i>Maianthemum canadense</i>	1								X							
ORCHID FAMILY	ORCHIDACEAE																
small yellow lady's slipper	<i>Cypripedium calceolus var. parvifloru</i>	3				X		X				X					
helleborine	<i>Epipactis helleborine</i>	2					X										
Total Number of Plant Species		105	11	8	23	9	19	24	19	12	17	21	15	6	17	5	3

Number of Plant Species Per Commu

APPENDIX C Communities 16 - 21

Common Name	Scientific Name	COMMUNITY NUMBER						
		Total	16	17	18	19	20	21
HORSETAIL FAMILY	EQUISETACEAE							
field horsetail	<i>Equisetum arvense</i>	4						
scouring rush	<i>Equisetum hyemale</i>	1						
WOOD FERN FAMILY	DRYOPTERIDACEAE							
northern lady fern	<i>Athyrium filix-femina</i>	3				X		
bulbet bladder fern	<i>Cystopteris bulbifera</i>	1				X		
marginal wood-fern	<i>Dryopteris marginalis</i>	1						
ostrich fern	<i>Matteuccia struthiopteris</i>	3	X					
sensitive fern	<i>Onoclea sensibilis</i>	8				X	X	
PINE FAMILY	PINACEAE							
balsam fir	<i>Abies balsamea</i>	3				X		
Norway spruce	<i>Picea abies</i>	1						
white spruce	<i>Picea glauca</i>	1				X		
CYPRESS FAMILY	CUPRESSACEAE							
eastern white cedar	<i>Thuja occidentalis</i>	9	X			X	X	
BUTTERCUP FAMILY	RANUNCULACEAE							
virgin's bower	<i>Clematis virginiana</i>	1						
tall buttercup	<i>Ranunculus acris</i>	3						
ELM FAMILY	ULMACEAE							
American elm	<i>Ulmus americana</i>	1				X		
NETTLE FAMILY	URTICACEAE							
European stinging nettle	<i>Urtica dioica</i> L. ssp. <i>dioica</i>	1						
BIRCH FAMILY	BETULACEAE							
yellow birch	<i>Betula alleghaniensis</i> Britt.	1						

		COMMUNITY NUMBER						
Common Name	Scientific Name	Total	16	17	18	19	20	21
white birch	<i>Betula papyrifera</i>	1					X	
GOOSEFOOT FAMILY	CHENOPODIACEAE							
strawberry blite	<i>Chenopodium capitatum</i>	1						
BUCKWHEAT FAMILY	POLYGONACEAE							
Japanese knotweed	<i>Polygonum cuspidatum</i>	2			X			
curled dock	<i>Rumex crispus</i>	1						
LINDEN FAMILY	TILIACEAE							
American basswood	<i>Tilia americana</i>	1						
GOURD FAMILY	CUCURBITACEAE							
wild cucumber	<i>Echinocystis lobata</i>	1						
WILLOW FAMILY	SALICACEAE							
balsam poplar	<i>Populus balsamifera</i>	6	X					
trembling aspen	<i>Populus tremuloides</i>	12	X	X		X		X
pussy willow	<i>Salix discolor</i>	5						
slender willow	<i>Salix petiolaris</i>	1						
MUSTARD FAMILY	BRASSICACEAE							
yellow rocket	<i>Barbarea vulgaris</i>	2						
dame's rocket	<i>Hesperis matronalis</i>	2						
ROSE FAMILY	ROSACEAE							
woodland strawberry	<i>Fragaria vesca</i>	1						
common strawberry	<i>Fragaria virginiana</i>	3	X					
yellow avens	<i>Geum aleppicum</i>	2	X					
rough cinquefoil	<i>Potentilla norvegica</i>	1						
black cherry	<i>Prunus serotina</i>	1						
choke cherry	<i>Prunus virginiana</i>	1						
wild red raspberry	<i>Rubus idaeus</i>	7	X					
narrow-leaved meadowsweet	<i>Spiraea alba</i>	2						
PEA FAMILY	FABACEAE							
alfalfa	<i>Medicago sativa ssp. Sativa</i>	1						

		COMMUNITY NUMBER						
Common Name	Scientific Name	Total	16	17	18	19	20	21
red clover	<i>Trifolium pratense</i>	2						
white clover	<i>Trifolium repens</i>	1						
cow vetch	<i>Vicia cracca</i>	3						
LOOSESTRIFE FAMILY	LYTHRACEAE							
purple loosestrife	<i>Lythrum salicaria</i>	4					X	
EVENING PRIMROSE FAMILY	ONAGRACEAE							
Canada enchanter's nightshade	<i>Circaea lutetiana</i> L. ssp. <i>canadensi</i>	1						
DOGWOOD FAMILY	CORNACEAE							
alternate-leaf dogwood	<i>Cornus alternifolia</i>	1						
red-osier dogwood	<i>Cornus stolonifera</i>	10	X				X	X
BUCKTHORN FAMILY	RHAMNACEAE							
European buckthorn	<i>Rhamnus cathartica</i>	11	X	X			X	
GRAPE FAMILY	VITACEAE							
Virginia creeper	<i>Parthenocissus inserta</i>	3						
wild grape	<i>Vitis riparia</i>	2						
MAPLE FAMILY	ACERACEAE							
Manitoba maple	<i>Acer negundo</i>	1						
silver maple	<i>Acer saccharinum</i>	2						X
CASHEW FAMILY	ANACARDIACEAE							
western poison-ivy	<i>Rhus rydbergii</i>	4	X					
GERANIUM FAMILY	GERANIACEAE							
herb Robert	<i>Geranium robertianum</i>	2				X		
TOUCH-ME-NOT FAMILY	BALSAMINACEAE							
spotted jewelweed	<i>Impatiens capensis</i>	3						
CARROT FAMILY	APIACEAE							
Queen-Anne's lace	<i>Daucus carota</i>	1						
cow parsnip	<i>Heracleum lanatum</i>	2						
DOGBANE FAMILY	APOCYNACEAE							
spreading dogbane	<i>Apocynum androsaemifolium</i>	1						

Common Name	Scientific Name	Total	COMMUNITY NUMBER					
			16	17	18	19	20	21
MILKWEED FAMILY	ASCLEPIADACEAE							
swamp milkweed	<i>Asclepias incarnata</i>	2						
common milkweed	<i>Asclepias syriaca</i>	1						
swallow-wort	<i>Cynanchum rossicum</i>	3						
NIGHTSHADE FAMILY	SOLANACEAE							
bitter nightshade	<i>Solanum dulcamara</i>	2						
MINT FAMILY	LAMIACEAE							
American water-horehound	<i>Lycopus americanus</i>	1						
wild mint	<i>Mentha arvensis</i>	1						
spear mint	<i>Mentha spicata</i>	1						
OLIVE FAMILY	OLEACEAE							
black ash	<i>Fraxinus nigra</i>	3	X				X	
green ash	<i>Fraxinus pennsylvanica</i> var. <i>subint</i>	3	X				X	
FIGWORT FAMILY	SCROPHULARIACEAE							
water speedwell	<i>Veronica catenata</i>	1						
MADDER FAMILY	RUBIACEAE							
white bedstraw	<i>Galium mollugo</i>	3						
marsh bedstraw	<i>Galium palustre</i>	3						
HONEYSUCKLE FAMILY	CAPRIFOLIACEAE							
tartarian honeysuckle	<i>Lonicera tatarica</i>	1						
red-berried elderberry	<i>Sambucus racemosa</i>	1						
European high bush cranberry	<i>Viburnum trilobum</i> var. <i>opulis</i>	3						
ASTER FAMILY	ASTERACEAE							
common yarrow	<i>Achillea millefolium</i>	1						
Canada thistle	<i>Cirsium arvense</i>	1						
bull thistle	<i>Cirsium vulgare</i>	1						
Philadelphia fleabane	<i>Erigeron philadelphicus</i> ssp. <i>philad</i>	1						
spotted joe-pyeweed	<i>Eupatorium maculatum</i>	4	X		X			
boneset	<i>Eupatorium perfoliatum</i>	2						

		COMMUNITY NUMBER						
Common Name	Scientific Name	Total	16	17	18	19	20	21
field hawkweed	<i>Hieracium caepitosum ssp.caespit</i>	1						
Canada goldenrod	<i>Solidago canadensis</i>	5						
New England aster	<i>Symphyotrichum novae- angliae</i>	1						
purple-stemmed aster	<i>Symphyotrichum puniceum</i>	2						
common dandelion	<i>Taraxacum officinale</i>	1						
coltsfoot	<i>Tussilago farfara</i>	1						
WATER-PLANTAIN FAMILY	ALISMATACEAE							
common waterplantain	<i>Alisma plantago-aquatica</i>	1						
broad-leaved arrowhead	<i>Sagittaria latifolia</i>	1						
FROG'S-BIT FAMILY	HYDROCHARITACEAE							
western elodea	<i>Elodea nuttallii</i>	1						
DUCKWEED FAMILY	LEMNACEAE							
common duckweed	<i>Lemna minor</i>	2						
SEDGE FAMILY	CYPERACEAE							
Bebb's sedge	<i>Carex bebbii</i>	1						
bristly sedge	<i>Carex comosa</i>	1						
graceful sedge	<i>Carex gracillima</i>	3						
meadow sedge	<i>Carex granularis</i>	4						
retorse sedge	<i>Carex retrorsa</i>	2						
stellate sedge	<i>Carex rosea</i>	1						
awl-fruited sedge	<i>Carex stipata</i>	2						
tussock sedge	<i>Carex stricta</i>	1						
fox sedge	<i>Carex vulpinoidea</i>	2						
GRASS FAMILY	POACEAE							
awnless brome grass	<i>Bromus inermis ssp.inermis</i>	1						
reed canary grass	<i>Phalaris arundinacea</i>	9			X		X	
common reed	<i>Phragmites australis</i>	4						
fowl meadow grass	<i>Poa palustris</i>	1						
Kentucky blue grass	<i>Poa pratensis</i>	2						

		COMMUNITY NUMBER						
Common Name	Scientific Name	Total	16	17	18	19	20	21
CATTAIL FAMILY	TYPHACEAE							
narrow-leaved cattail	<i>Typha angustifolia</i>	5			X			
common cattail	<i>Typha latifolia</i>	1					X	
LILY FAMILY	LILIACEAE							
Canada mayflower	<i>Maianthemum canadense</i>	1						
ORCHID FAMILY	ORCHIDACEAE							
small yellow lady's slipper	<i>Cypripedium calceolus var. parviflo</i>	3						
helleborine	<i>Epipactis helleborine</i>	2				X		
Total Number of Plant Species	105		13	2	4	10	10	3

Number of Plant Species Per Community

Appendix D

Bird Status Report Comprehensive

APPENDIX D

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, 2022.
	SARO	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 3.3, 2014

Breeding Status:	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).
(Observed By GHD)	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		
MALL	Mallard	<i>Anas platyrhynchos</i>	B	None				No			
WITU	Wild Turkey	<i>Meleagris gallopavo</i>	B	H				No			
TUVU	Turkey Vulture	<i>Cathartes aura</i>	B	None				No			
BWHA	Broad-winged Hawk	<i>Buteo platypterus</i>	B	None				No			
KILL	Killdeer	<i>Charadrius vociferus</i>	B	P				No			
AMWO	American Woodcock	<i>Scolopax minor</i>	B	None				No			
MODO	Mourning Dove	<i>Zenaida macroura</i>	B	S				No			
DOWO	Downy Woodpecker	<i>Picoides pubescens</i>	B	H				No			
PIWO	Pileated Woodpecker	<i>Dryocopus pileatus</i>	B	None				No			
EWPE	Eastern Wood-Pewee	<i>Contopus virens</i>	B	S	SC	SC	SC	No			
EAPH	Eastern Phoebe	<i>Sayornis phoebe</i>	B	None				No			
GCFL	Great Crested Flycatcher	<i>Myiarchus crinitus</i>	B	S				No			
YTVI	Yellow-throated Vireo	<i>Vireo flavifrons</i>	B	S				No			
REVI	Red-eyed Vireo	<i>Vireo olivaceus</i>	B	S				No			
BLJA	Blue Jay	<i>Cyanocitta cristata</i>	B	H				No			
AMCR	American Crow	<i>Corvus brachyrhynchos</i>	B	S				No			
BCCH	Black-capped Chickadee	<i>Poecile atricapillus</i>	B	S				No			
HOWR	House Wren	<i>Troglodytes aedon</i>	B	S				No			
AMRO	American Robin	<i>Turdus migratorius</i>	B	CF				No			
GRCA	Gray Catbird	<i>Dumetella carolinensis</i>	B	CF				No			
BRTH	Brown Thrasher	<i>Toxostoma rufum</i>	B	None				No			
EUST	European Starling	<i>Sturnus vulgaris</i>	B	N				No			
CEWX	Cedar Waxwing	<i>Bombycilla cedrorum</i>	B	S				No			
YEWA	Yellow Warbler	<i>Dendroica petechia</i>	B	S				No			
BLWA	Blackburnian Warbler	<i>Dendroica fusca</i>	B	S				Yes			
BWWA	Black-and-white Warbler	<i>Mniotilta varia</i>	B	S				No			
AMRE	American Redstart	<i>Setophaga ruticilla</i>	B	None				No			

COYE	Common Yellowthroat	<i>Geothlypis trichas</i>	B	None				No				
SASP	Savannah Sparrow	<i>Passerculus sandwichens</i>	B	S				No				
SOSP	Song Sparrow	<i>Melospiza melodia</i>	B	A				No				
INBU	Indigo Bunting	<i>Passerina cyanea</i>	B	S				No				
RWBL	Red-winged Blackbird	<i>Agelaius phoeniceus</i>	B	S				No				
COGR	Common Grackle	<i>Quiscalus quiscula</i>	B	H				No				
BHCO	Brown-headed Cowbird	<i>Molothrus ater</i>	B	H				No				
BAOR	Baltimore Oriole	<i>Icterus galbula</i>	B	None				No				
AMGO	American Goldfinch	<i>Carduelis tristis</i>	B	S				No				
TOTAL SPECIES OBSERVED:		36	BREEDING SPECIES OBSERVED:		36	1	1	1	1	0	0	0

Appendix E

Herpetozoa Status Report

APPENDIX E Herpetozoa Status Report

Project ID: 11225351

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, 2022.
	SARO	The list 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

Amphibian

Common Name	Scientific Name	COSEWIC	COSSARO	SARA	Area Sensitive
Toads	<i>Buфонidae</i>				
American Toad	<i>Anaxyrus americanus</i>				No
Treefrogs	<i>Hylidae</i>				
Spring Peeper	<i>Pseudacris crucifer</i>				No
True Frogs	<i>Ranidae</i>				
Wood Frog	<i>Lithobates sylvatica</i>				No
Green Frog	<i>Lithobates clamitans</i>				No
No. of Species Observed:	4	0	0	0	0

Reptiles

Common Name	Scientific Name	COSEWIC	COSSARO	SARA	Area Sensitive
Pond and Marsh Turtles	<i>Emydidae</i>				
midland painted turtle	<i>Chrysemys picta marginata</i>	SC			No
Typical Snakes	<i>Colubridae</i>				
Common Gartersnake	<i>Thamnophis sirtalis</i>				No
No. of Species Observed:	2	1	0	0	0

No. of Species Observed in Project 6

Appendix F

**Fish Species List for Unnamed Tributary to
Nonquon River**

Table 1

Fish Species List for Unnamed Tributary to Nonquon River

Family Name	Common Name	Scientific Name	Thermal Regime	Spawning Season
<i>Catostomidae</i>	White Sucker	<i>Catostomus commersonii</i>	Coolwater	Spring (April-June)
<i>Centrarchidae</i>	Largemouth Bass	<i>Micropterus salmoides</i>	Warmwater	Spring (May-June)
	Pumpkinseed	<i>Lepomis gibbosus</i>	Warmwater	Spring-summer (May-August)
<i>Cyprinidae</i>	Bluntnose Minnow	<i>Pimephales notatus</i>	Warmwater	Summer (June-August)
	Common Shiner	<i>Luxilus cornutus</i>	Coolwater	Spring (May-June)
	Creek Chub	<i>Semotilus atromaculatus</i>	Coolwater	Spring (May-June)
	Longnose Dace	<i>Rhinichthys cataractae</i>	Coolwater	Spring-summer (May-July)
<i>Percidae</i>	Yellow Perch	<i>Perca flavescens</i>	Coolwater	Spring (April-May)
<i>Umbridae</i>	Central Mudminnow	<i>Umbra limi</i>	Coolwater	Spring (April-May)
<i>Cyprinidae</i>	Northern Redbelly Dace	<i>Chrosomus eos</i>	Coolwater	Spring-summer (May-July)

Note: Fish species list obtained from the Ontario Ministry of Natural Resources (OMNR, 2023). Fish species spawning season obtained from the *Ontario Freshwater Fishes Life History Database* (Eakins, Ontario Freshwater Fishes Life History Database, 2023).

