

1665 Scotch Line Road
Township of Woolwich, Region of Waterloo
Scoped Environmental Impact Study- Revision 1

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Glossary of Terms

BBS: Breeding Bird Survey

CC: Coefficient of Conservatism

CW: Coefficient of Wetness

COSSARO: Committee on the Status of Species at Risk Ontario

COSEWIC: Committee on the Status of Endangered Wildlife in Canada

DFO: Department of Fisheries and Oceans Canada

ELC: Ecological Land Classification

END: Endangered Species

G-Rank: Conservation Status of Species at the Global Level

GRCA: Grand River Conservation Authority

LIO: Land Information Ontario

MECP: Ministry of Environment, Conservation, and Parks

MMP: Marsh Monitoring Protocol

MNRF: Ministry of Natural Resources and Forestry

NHIC: Natural Heritage Information Center

NRVIS: Natural Resources and Values Information System

OBBA: Ontario Breeding Bird Atlas

OMA: Ontario Mammal Atlas

ORAA: Ontario Reptile and Amphibian Atlas

OP: Official Plan

OWES: Ontario Wetland Evaluation System

PPS: Provincial Planning Statement

PIF: Partners in Flight

SAR: Species at Risk

SARA: Species at Risk Act

SC: Special Concern Species

SCA: Species Conservation Act

SPA: Special Policy Area

Species of Conservation Concern: All species listed under SARA, COSEWIC, ESA and/or an S1-S3 provincial designation.

S-Rank: Conservation Status of Species at the Provincial Level

SWH: Significant Wildlife Habitat

THR: Threatened Species

VASCAN: Database of Vascular Plants of Canada

1.0 Introduction

About & Associates Inc. (AA) was retained by Mr. Bernie Nimer to complete a scoped Environmental Impact Study (EIS) in support of a proposed industrial development at 1665 Scotch Line Road in the Township of Woolwich, Region of Waterloo. The subject property is located immediately east of Municipal Drain No. 1, adjacent lands include industrial to the west and agricultural on all other sides.

A scoped EIS is required as a condition of the proposed development per consultation with the Township of Woolwich (Township) and Grand River Conservation Authority (GRCA). The scoped EIS has been revised to address the first submission comments received from the Township dated September 25, 2025, from the GRCA dated September 11, 2025, from the Region of Waterloo (Region) dated August 19, 2025, and from GHD Ltd. (GHD) dated October 10, 2025, as well as the subsequent communications and clarification responses received between October 2025 and January 2026, for the proposed industrial Draft Plan of Subdivision.

1.1 Proposed Development

The proposed industrial subdivision development involves the construction of one u-shaped street (Street A) bisected by a second street (Street B). The proposed industrial subdivision will include 8 industrial blocks (Blocks 1-8, 37.137ha), 2 stormwater management blocks (Blocks 9-10, 3.801ha), 1 sanitary pumping station block (Block 11, 0.064ha), 1 park block (Block 12, 0.671ha), 1 open space block (Block 13, 5.552ha), and 7 future development blocks (Blocks 14-20, 0.936ha), and 11 road widening blocks (Blocks 21-31, 2.158ha). Road widening blocks along the east or west legs Street A (as well as future development Blocks 15 or 18) may be utilized for the future Elmira Bypass, while any unused road widening blocks would then be merged with the adjacent industrial blocks (*Figure 1*).

1.1.1 Proposed Sanitary Servicing

Per the Functional Sanitary Servicing Report (Strik Baldinelli Moniz (SBM), 2026), the proposed development will require a sanitary pumping station and forcemain due to the existing topography of the subject property. The pumping station will receive flows from gravity sewers servicing the surrounding lands. The forcemain will extend along South Field Drive from the pumping station to the existing sewer. It is anticipated that the pumping station will be designed to accommodate flows from the subject site, as well as the undeveloped employment lands north of South Field Drive and external lands southwest of the subject site.

1.1.2 Proposed Water Servicing

Per the Functional Water Servicing Report (SBM, 2026), the development is proposed to be serviced via a looped watermain system. Connection points will be located at the existing 300mm watermain in the South Field Drive right-of-way near Union Street, and at the existing 300mm watermain in the Arthur Street South right-of-way south of its intersection with Union Street.

1.1.3 Proposed Stormwater Management

Per the Functional Stormwater Management Report (SBM, 2026), the proposed development will include a new municipal storm sewer, servicing each of the proposed blocks. The proposed development includes two stormwater management (SWM) wet ponds, servicing the existing drainage boundary located within the subject site. Each SWM pond has three inlets from the proposed municipal storm sewer. Quality controls will be achieved through two methods, forming a treatment train approach. An Oil & Grit Separator (OGS) unit will be installed on each block to treat all flows discharged to the municipal storm sewer, and sediment forebays shown as part of the SWM blocks have been sized to meet settling velocity requirements.

1.2 Existing Land Use and Study Area

The subject property is currently used for agriculture, with agricultural buildings and structures present in the centre of the property, surrounded by agricultural land. The property also includes an unevaluated wetland and watercourse on the western edge, and the associated GRCA regulation area.

The study area is comprised of the subject property and up to 120 metres from the property boundaries where permissions to access property are granted. Where access was restricted, information was obtained through existing background research, air photo interpretation, and what can be observed from the edge of the subject property.

Lands within the study area immediately west of the existing railway consist of publicly accessible lands, including a portion of the Lion's Ring Trail with public parking, trail head and access. As these lands are open to the public, permission to collect and include data within the EIS was not required.

1.2.1 A Watershed Plan for the Canagagigue Creek Watershed

Per the GRCA online mapping, the majority of the study area is located within the Canagagigue Creek subwatershed. The Watershed Plan for the Canagagigue Creek Watershed was completed by the GRCA (2002) to assess environmental issues and develop and recommend management practices to improve the environmental health of the subwatershed.

The Canagagigue Creek watershed is largely cultivated consisting of row crops and forage fields, with high intensity dairy and beef operations (GRCA, 2002). An estimated 13% of the watershed is forested and small wetlands are located along many of the tributaries of the Canagagigue Creek (GRCA, 2002). Encroachment within floodplain areas and presence of steep slope areas were identified as the primary natural hazard concerns within the Watershed Plan (GRCA, 2002). Per the Watershed Plan, the physiography of the subject area consists of spillway and drumlin, with the soils being comprised primarily of loam and sandy loam. Aquatic sampling of the watercourse immediately adjacent the subject property, approximately 1.4km upstream of the subject property limits, was completed as part of the Watershed Plan. Fish species identified through the aquatic sampling included Creek Chub, Blacknose Dace, Northern Redbelly Dace, Brook Stickleback, and Common White Sucker. Per Appendix 6 of the Watershed Plan, the subject property is not located within or adjacent any Environmentally Sensitive Policy Areas.

1.2.2 Hydrogeological Conditions

Under existing conditions, the ground surface elevation varies across the site, and generally exhibits a glacial hummocky topography (Chung & Vanderdoelen, 2026). There is a relatively large decrease in elevation from the centre of the subject property westwards towards the wetland and watercourse, as well as a smaller decrease from the centre of the property eastward (Chung & Vanderdoelen, 2026). Per Section 3.2 of the Hydrogeological Assessment (Chung & Vanderdoelen, 2026), the surficial and subsoils present within the subject property consist of topsoil, fill materials, Clayey Silt Till or Silty Sand to Sand and Silt Till. Due to the predominance of shallow clayey silt till and sand and silt till, infiltration rates are generally slow (Chung & Vanderdoelen, 2026). It is noted that infiltration and recharge rates are also influenced by the topographical features of the land and existing vegetation coverage, which promotes shallow groundwater flow towards the wetland and watercourse in the west, and towards the east into the adjacent agricultural lands (Chung & Vanderdoelen, 2026).

1.3 Existing Land Designations and Natural Features

The Region of Waterloo Official Plan does not identify any regionally significant features within the property limits. A significant woodland is present on the adjacent lands, within the 120m study area identified on *Figure 1*, which is considered a Core Environmental Feature. The majority of the property is zoned by the Township of Woolwich Zoning By-law 26-2024 as Agricultural (A), with a portion along the western limit including the Hazard Land- Flood Overlay Zone. GRCA mapping identifies part of an unevaluated wetland feature on the subject property. Regulatory Floodplain associated with a small portion of a regulatory Watercourse is also present within the property limits. A portion

of the property is within the associated GRCA regulated area. The limits of the existing natural features are shown on *Figure 1*.

1.4 Existing Regulations

The *Provincial Planning Statement* (PPS 2024), *Species Conservation Act* (SCA 2025), *Fisheries Act* (FA 1985), *Species at Risk Act* (SARA 2002), policies of the GRCA, Township of Woolwich Official Plan (2022 Consolidation), and Township of Woolwich Zoning By-law 26-2024 are applicable to this proposed development and are outlined in detail in *Appendix 1*. The table includes the policy, sections, applicable details, conformity and any proposed mitigation or permitting requirements as it relates to these policies.

As of January 1, 2025, Bill 23 (More Homes Built Faster) has come into effect, transferring land-use planning responsibilities from the Region to the local municipality. As such, the Township of Woolwich is now responsible for administering the planning approvals pertaining to the proposed Draft Plan of Subdivision (MHBC, January 2026).

1.5 Terms of Reference

Based upon the above Acts, Policies, and Regulations, Terms of Reference (ToR) for the Scoped EIS were developed and submitted to the Region of Waterloo, GRCA, and Township of Woolwich on December 4, 2023. The Region responded on December 12, 2023, asking for clarification pertaining to how the scoped tasks were listed, the GRCA responded on December 7, 2023 with two comments, and the Township responded on February 14, 2024 with a number of comments and a request for a revised ToR. A revised ToR was submitted to all three agencies on February 28, 2024, with the Region and the GRCA confirming its acceptability on the same day, and the Township confirming its acceptability on March 11, 2024. The ToR, revised ToR, and agency correspondence are provided in *Appendix 2*.

2.0 Methods

2.1 Background Review

A background information review was conducted of both biological and physical features within the vicinity of the study area. The following resources were consulted during this review:

- Aerial photography of the subject site,
- MHBC. Draft Plan of Subdivision. February 2025.
- GRCA pre-consultation comments, August 9, 2023

- Official Plan Amendment, Zoning By-law Amendment, and Draft Plan of Subdivision, Applications 1665 Scotch Line Road, October 3, 2023, Region of Waterloo
- GRCA mapping (Accessed August 8, 2024) of natural heritage features (e.g., regulation limit, wetlands, floodplain, ANSIs),
- Region of Waterloo Official Plan (2015),
- Township of Woolwich Official Plan (2022),
- Township of Woolwich Zoning By-law 26-2024 (2024),
- Township of Woolwich, Engineer's Report, Elmira Drain #1 2020, November 2022, GMBLuePlan.
- Municipal Aquifer Conceptual Site Model, LANXESS Canada, Elmira, Ontario, undated
- Natural Heritage Information Center, Make-a-map, accessed November 28, 2023,
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Accessed October 6, 2023,
- Ontario Breeding Bird Atlas, Atlas 2. Bird Studies Canada, 2007. Accessed October 6, 2023,
- Ontario Breeding Bird Atlas, Atlas 3. Bird Studies Canada, 2024. Accessed October 30, 2024,
- Federation of Ontario Naturalists, Atlas of the Mammals of Ontario. Accessed October 6, 2023,
- Ontario Nature. Ontario Butterfly Atlas, Accessed November 28, 2023,
- iNaturalist. Accessed November 28, 2023,
- eBird. Cornell Lab of Ornithology. Accessed November 28, 2023,
- Ministry of Natural Resources and Forestry (MNRF) Fish ON-Line Database. Accessed March 19, 2026,
- Department of Fisheries and Oceans Aquatic Species at Risk online mapping. Accessed November 28, 2023,
- LIO Aquatic Resource Area Survey Points and Line Segment online mapping. Accessed November 28, 2023,
- LIO Constructed Drain and Tile Drainage Area online mapping. Accessed December 21, 2023,
- Waterloo Region Significant Species list (1986-2007),
- Region of Waterloo Greenlands Network Implementation Guideline (2016)

As per the accepted ToR, we also requested reports from GHD regarding contamination of the groundwater and watercourse relating to the LANXESS Canada Manufacturing facility. These reports were requested from LANXESS by GHD, but nothing further was

heard from either company. GHD also stated that the Township has a repository of all reports regarding the LANXESS Canada Manufacturing facility that have been submitted to the MECP and the Public. The Township was asked about this repository and the information for the reports requested on March 12 and October 30, 2024. No further information was provided. The communication regarding these documents is included in *Appendix 2*.

2.2 Wetland Boundary Delineation

The subject property contains an unevaluated wetland which forms a long contiguous community directly adjacent to the watercourse and south-west of the proposed development. Shannon Davison, Certified Ontario Wetland Evaluator, performed initial staking of the wetland on May 9, 2024, with verification by Robert Messier, Ecologist, GRCA completed the same day. Boundaries were determined using the vegetation species present and soil probes to depths of up to 60 cm for water and hydric soil detection, per the *Ontario Wetland Evaluation System* (OWES 2022). The wetland boundary was established where vegetation was comprised of 50% wetland and 50% upland species, and where soils displayed hydric conditions (e.g., presence of mottles and/or gleys), per the *Ontario Wetland Evaluation System* (OWES 2022). Detailed survey dates and weather information are provided in *Appendix 3*.

2.2.1 Buffer Recommendations and Setbacks

Recommended buffers and setbacks for wetland boundaries were determined through a variety of resources, including the GRCA's Wetland Policy Appendix – Interim Wetland Buffer Policy (2003), the Ecological Buffer Guideline Review (Beacon Environmental Ltd., 2012) and Region of Waterloo Greenlands Network Implementation Guideline (2016).

2.3 Vegetation

2.3.1 Ecological Land Classification

Ecological Land Classification (ELC) field investigations were completed within the study area, where access was permitted, on May 9, 2024, and confirmed June 25, 2024. Detailed survey dates and weather information are provided in *Appendix 3*. Surveys were completed by qualified Ecologist Shannon Davison, MNRF Certified in Ecological Land Classification. Vegetation communities within the study area were characterized and delineated through field investigation following the Ecological Land Classification system for Southern Ontario 1st approximation; community codes follow the 1st approximation (Lee, et al., 1998). Boundaries of ELC communities were mapped

using aerial imagery and field observations (*Figure 3*). Digitized ELC data sheets are provided in *Appendix 4*.

2.3.2 Botanical Inventory

The study area was inventoried, where access was permitted, to provide a comprehensive two-season Spring and Summer botanical inventory, occurring on May 9 and June 25, 2024. Detailed survey dates and weather information are provided in *Appendix 3*.

Identified vascular plant species were compared to provincial and federal Species at Risk (SAR) lists (COSSARO, SARA), provincial ranks (NHIC 2023), global ranks, and the Waterloo Region Significant Species list (Region of Waterloo 2007) to assess the federal, provincial, regional, and local conservation status of each species. English colloquial names and scientific binomials of plant species generally follow the Database of Vascular Plants of Canada (VASCAN) (VASCAN 2015).

Identification of environmentally sensitive plant species was completed based on the assignment of a coefficient of conservatism value (CC) for each native species (Oldham, et al., 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to specific natural habitat parameters. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters. These species may be more sensitive to environmental changes (Mortarello et al., 2012).

A list of all identified plant species is provided in *Appendix 5*. The list provides botanical names, common names, provincial rarity rank (S-rank), global rarity rank (G-rank), provincial Species at Risk status (SARO), federal Species at Risk status (SARA), local rarity/significance within Waterloo Region Significant Plant list (1987-2007), coefficient of conservatism (CC) and coefficient of wetness (CW). Plant species that could only be identified to genus were not assigned the above information. Photos of communities are shown in *Appendix 4*.

2.3.3 Tree Inventory

A total of 252 trees with a diameter at breast height (DBH) of 10cm or greater and a dripline approaching within 1m of the subject property were inventoried by James Dennis, ISA Certified Arborist. DBH species, overall conditions and estimated crown reserve were collected for each tree. The Tree Preservation Plan completed by Aboud & Associates Inc. (2026) is provided in *Appendix 15*.

2.4 Wildlife Habitat

2.4.1 Breeding Birds

Breeding Bird surveys, including consideration for Grassland birds, were conducted in 2024 by Brynn Varcoe, Ecologist, to determine if significant breeding bird habitat occurs within, or adjacent to, the study area. Surveys followed the Ontario Breeding Bird Atlas: Guide for Atlassers (Bird Studies Canada, 2021) and the Survey Protocol for Eastern Meadowlark (*Sturnella magna*) in Ontario (OMNR, 2013). The highest observed level of breeding evidence was used to assign breeding status (i.e., confirmed, possible, probable, or observed) to each species.

As required by the Survey Protocol for Eastern Meadowlark (*Sturnella magna*) in Ontario (OMNR, 2013), surveys were comprised of 10-minute point counts positioned at pre-determined locations 250 m apart with area searches being completed along transects at least 250 m apart in width through agricultural fields within the property, as well as to and from the point count locations located outside of agricultural features.

Surveys were performed during the peak breeding season for the bulk of the species in southern Ontario (last week of May through early July) and were spaced at least 10 days apart to determine presumed permanent territories through territorial singing males. Three surveys were completed, occurring on the mornings of May 29, June 17, and July 5, 2024. Surveys for grassland sites occurred between sunrise and 4 hours after sunrise. While surveys for the non-grassland sites were completed between dawn and five hours after dawn.

The point count locations are illustrated on *Figure 3*; Survey results and breeding evidence code descriptions are provided in *Appendix 6* for the point counts, and *Appendix 7* for the area search. Detailed survey dates and weather information are provided in *Appendix 3*.

2.4.2 Bat Maternity Habitat Surveys

Bat maternity habitat surveys occurred during leaf off, and were conducted by Brynn Varcoe and Heather Dixon. All trees with a diameter at breast height (DBH) greater than 10cm, and meeting any of the criteria for candidate bat habitat as outlined in the Bats and Treed Habitats Maternity Roost Surveys (MECP, 2022) were recorded.

Candidate trees are those with some or all of the following characteristics (in order of importance):

- Tallest snag/cavity tree

- Exhibits cavities or crevices most often originating as cracks, scars, knot holes or woodpecker cavities
- Has leaf clusters
- Has the largest diameter breast height (>25cm diameter at breast height)
- Is within the highest density of snags/cavity trees (e.g., cluster of snags)
- Has a large amount of loose, peeling bark
- Cavity or crevice is high in snag/cavity tree (>10m)
- Tree species that provide good cavity habitat (e.g., white pine, maple, aspen, ash, oak)
- Canopy is more open (to determine canopy cover, determine percentage of the ground covered by a vertical projection of the outermost perimeter of the natural spread of the foliage of trees); and
- Exhibits early stages of decay (Decay Class 1-3; refer to Watt and Caceres, 1999)

The survey occurred on March 19, 2024. A thorough walk-through of the subject property was performed. Detailed survey dates and weather information are provided in *Appendix 3*.

2.4.3 Pileated Woodpecker and Red-headed Woodpecker Cavity Identification Surveys

With guidance from the Pileated Woodpecker Cavity Identification Guide (Environment and Climate Change Canada, 2023) & the nest description for Red-headed Woodpecker provided by Cornell Lab of Ornithology (2024), all trees within the subject property were examined for Pileated Woodpecker and Red-headed Woodpecker cavities including those for nesting, roosting and feeding. The survey occurred concurrently with the bat maternity habitat surveys. Detailed survey and weather information are provided in *Appendix 3*.

Pileated Woodpeckers and Red-headed Woodpeckers create cavities for different stages of their life cycle including nesting, roosting and feeding. The following characteristics were examined during surveys to determine the type of cavity observed.

- Number of holes
- Cavity edge texture
- Hole shape
- Hole size
- Hole depth
- Hole appearance
- Suspected Woodpecker species

- Tree Type

While all cavities are recorded, only nesting cavities are protected under the MBCA outside the nesting season.

2.4.4 Incidental Wildlife Observations

Incidental observations of insects, mammals, birds, and herptiles were recorded during all field visits.

2.4.5 Significant Wildlife Habitat

With guidance from the Significant Wildlife Habitat Technical Guide (2000) and the SWH EcoRegion Criterion Schedule 6E (2015), the subject property and immediately adjacent lands (within 120m) were considered for the presence of candidate Significant Wildlife Habitat (e.g., specialized habitats for wildlife, and habitat for species of conservation concern). An assessment of the study area for all SWH is provided in *Appendix 8*.

2.4.6 Species at Risk Habitat

The subject property and adjacent lands (within 120m) were reviewed for the presence of habitat that may be suitable for Species at Risk (SAR) listed under the *Species at Risk Act* (SARA) and *Species Conservation Act* (SCA). A review of the property, along with habitat requirements for each species was conducted. A variety of sources, including the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) documents, were used to determine habitat suitability. The site was then evaluated for potential habitat using Ecological Land Classification, guidance from MNDMNRF documents, and on-site knowledge acquired through a field visit. An assessment of the study area for suitable Species at Risk habitat is provided in *Appendix 9.1*.

2.5 Aquatic Habitat Assessment

Aquatic habitat assessments (AHA) were completed by Heather Dixon, Aquatic Ecologist, on May 9, 2024 and Jordan Widmaier, Aquatic Ecologist, on March 25, 2026. The assessments included all drainage features within the study area and followed a modified Ontario Stream Assessment Protocol (Stanfield, 2017) in an effort to classify stream features present to help inform decisions and mitigate any potential risks to fish and fish habitat as a result of the potential work. An additional drainage feature was assessed approximately 1.3 km east of the subject property in 2026, as this feature represents the receiving watercourse for drainage originating on the east half of the subject property and will continue to receive drainage from one of the proposed SWM facilities under the proposed development.

Where appropriate, the assessments were divided into distinct reaches, determined primarily based on the flow pattern of the features, with reach breaks selected at the confluences with other features. Additional factors considered when establishing reaches included changes in habitat characteristics, such as variations in instream or riparian vegetation, channel morphology, or channel dimensions. The following data was collected throughout the assessed reaches to characterize features present:

- mean channel width;
- mean wetted width;
- max water depth;
- percent stream shading;
- buffer width;
- substrate;
- flow pattern;
- channel morphology;
- instream cover;
- bank characteristics; and
- presence of specific site features.

Detailed survey and weather information are provided in *Appendix 3*, while the AHA locations are shown on *Figure 4*.

Electrofishing fish sampling surveys were not completed as part of this assessment as sufficient background fish community information for the watercourses is available through background sources. These sources include the fish sampling completed by GRCA as part of the Watershed Plan for the Canagagigue Creek Watershed (GRCA 2002), MNRF Fish ON-Line database, several Aquatic Resource Area (ARA) survey point data within the connected watercourses, and correspondence with MNRF.

3.0 Existing Conditions

3.1 Background Review

3.1.1 Wildlife Atlases - Species of Conservation Concern

A thorough background search of the subject property and adjacent lands has been completed using the resources noted in Section 2.1. The species of conservation concern, including those listed under the SCA and/or SARA as well as those with S-Ranks of S1-S3, identified in the background search are identified in *Table 1*. *Table 1* includes the identified species, their current statuses under COSSARO, the SCA, COSEWIC, and the SARA, as well as their provincial, national and global ranks.

An assessment of the study area of candidate habitat for Species at Risk and Species of Conservation Concern (S1-S3 and SC) is included in *Appendix 9.1* and *Appendix 9.2*, respectively. A list of all wildlife species found in the background review can be found in *Appendix 10*.

Table 1. Species at Risk and Species of Conservation Concern (S1-S3 and SC) Identified in Background Review

Source	Common Name	Scientific Name	COSSARO	SCA	COSEWIC	SARA	S-Rank	G-Rank	N-Rank	Area Sensitive	Area Required (ha)	PIF Species (BCR13)
OBBA, eBird (2023)	Bank Swallow	<i>Riparia riparia</i>	THR	NL	THR	THR	S4B	G5	N5B,N5M			✓
OBBA, eBird (2023)	Barn Swallow	<i>Hirundo rustica</i>	SC	NL	THR	THR	S4B	G5	N3N4B,N3N4M			
NHIC, OBBA	Bobolink	<i>Dolichonyx oryzivorus</i>	THR	NL	THR	THR	S4B	G5	N5B,N4N5M	✓	>10ha	✓
OBBA, eBird (2023)	Chimney Swift	<i>Chaetura pelagica</i>	THR	NL	THR	THR	S3B	G4G5	N4BN3M			✓
OBBA	Common Nighthawk	<i>Chordeiles minor</i>	SC	NL	SC	THR	S4B	G5	N4B,N3M			
OBBA	Eastern Meadowlark	<i>Sturnella magna</i>	THR	NL	THR	THR	S4B,S3N	G5	N4B,NUM	✓	>10ha	✓
NHIC, OBBA, eBird (2023)	Eastern Wood-Pewee	<i>Contopus virens</i>	SC	NL	SC	SC	S4B	G5	N5B,N5M			✓
eBird (2023), iNat (2023)	Olive-sided Flycatcher	<i>Contopus cooperi</i>	SC	NL	SC	THR	S4B	G4	N4B,N3M			
iNat (2022)	Peregrine Falcon	<i>Falco peregrinus</i>	SC	NL	SC	SC	S4	G4	N3N4B,N2N,N3N4M			✓
NHIC	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	END	NL	END	END	S3	G5	N4B,N3M			✓
eBird (2023), iNat (2023)	Rusty Blackbird	<i>Euphagus carolinus</i>	SC	NL	SC	SC	S4B,S3N	G4	N4B,NUN,N4M			
NHIC, OBBA, eBird (2023)	Wood Thrush	<i>Hylocichla mustelina</i>	SC	NL	THR	THR	S4B	G4	N4B,NUM			✓
NHIC	Silver Shiner	<i>Notropis photogenis</i>	THR	NL	THR	THR	S2S3	G5	N2N3			
OBA (2022), iNat (2023)	Monarch	<i>Danaus plexippus</i>	SC	NL	END	SC	S2N,S4B	G5	N3B,NNRM			
NHIC	Gypsy Cuckoo Bumble Bee	<i>Bombus bohemicus</i>	END	END	END	END	S1S2	GH	N1			
iNat (2022)	Wavy-rayed Lampmussel	<i>Lampsilis fasciola</i>	THR	THR	SC	SC	S2	G5	N2			
ORAA (1971)	Milksnake	<i>Lampropeltis triangulum</i>	NAR	NAR	SC	SC	S4	G5T5	N3			
ORAA (1981)	Midland Painted Turtle	<i>Chrysemys picta marginata</i>	NAR	NAR	SC	SC	S4	G5T5	N4			
ORAA (2019), iNat (2023)	Snapping Turtle	<i>Chelydra serpentina</i>	NL	NL	SC	SC	S4	G5T5	N4			
iNat (2019)	Butternut	<i>Juglans cinerea</i>	END	END	END	END	S2?	G4	N3N4			
iNat (2022)	Dense Blazing Star	<i>Liatris spicata</i>	THR	THR	THR	THR	S2	G5	N2			

Legend:

COSSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
SARA: Species at Risk Act
SCA: Species Conservation Act
END: Endangered
THR: Threatened
SC: Special Concern
NAR: Not At Risk
NL: Not listed
DD: Data Deficient

N- and S-Rank:

S1: Critically Imperiled—Critically imperiled in the jurisdiction (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the jurisdiction, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the jurisdiction, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the jurisdiction
SX: Presumed Extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable—Currently unrankable due to lack of information
SNA: Not Applicable—The species is not a suitable target for conservation activities
S#S#: Range Rank—Indicates a range of uncertainty about the status of the species
S#B- Breeding Status Rank
S#N- Non Breeding Status Rank
?: Indicates uncertainty in the assigned rank

G-Rank:

G1: Extremely rare globally
G1G2: Extremely rare to very rare globally
G2: Very rare globally
G2G3: Very rare to uncommon globally
G3: Rare to uncommon globally
G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
T: Denotes that the rank applies to a subspecies or variety

Source Codes

OBA: Ontario Butterfly Atlas
ORAA: Ontario Reptile and Amphibian Atlas
OMA: Ontario Mammal Atlas
OBBA: Ontario Breeding Bird Atlas
eBird: eBird
ARA: Aquatic Resource Area Survey Points
DFO: Department of Fisheries and Oceans Species at Risk Mapping
iNat: iNaturalist
NHIC: Natural Heritage Information Centre

3.1.2 Agency Communication

A request for information was sent to the Ministry of Natural Resources and Forestry on November 30, 2023. A reply was received on December 1, 2023 with information on the watercourses present within the study area, including the temperature regime, fish species present, restricted in-water work timing window and seasonal use of the watercourse by Northern Pike for spawning. The request for information and reply are provided in *Appendix 11*.

A request for information was sent to the Ministry of Environment, Conservation and Parks on November 30, 2023. A reply was received on December 1, 2023, stating that all SAR investigations are proponent led, and offering no further information. The request for information and responses is provided in *Appendix 11*.

3.2 Vegetation

3.2.1 Ecological Land Classification

The community polygons identified during the ELC survey are summarized in *Table 2* below. Field forms and a comprehensive vascular plant list for the entire study area are presented in *Appendices 4 & 5*, respectively. The location and limits of ELC communities are shown on *Figure 2*.

Table 2. Ecological Land Classification

ELC CODE	VEGETATION TYPE	COMMUNITY DESCRIPTION
<i>Deciduous Swamp (SWD)</i>		
SWD3-1	Red Maple Mineral Deciduous Swamp	Two instances of this communities, occurring on the western edge of the study area on the west side of the railway line, are present in the study area. As there were public trails in these communities, access was available to complete a detailed investigation. The canopies are dominated by Red Maple (<i>Acer rubrum</i>), with occasional instances of Silver Maple (<i>Acer saccharinum</i>), Green Ash (<i>Fraxinus pennsylvanica</i>), and Bur Oak (<i>Quercus macrocarpa</i>). The subcanopy consisted of Red Maple, Manitoba Maple (<i>Acer negundo</i>), and American Elm (<i>Ulmus americana</i>). The understory consists largely of Common Buckthorn (<i>Rhamnus cathartica</i>) and Wild Red Raspberry (<i>Rubus idaeus ssp. strigosus</i>), with occasional Red Maple and Riverbank Grape (<i>Vitis riparia</i>). The ground layer consists mainly of Reed Canary Grass (<i>Phalaris arundinacea</i>), Spotted Jewelweed (<i>Impatiens capensis</i>), and Garlic Mustard (<i>Alliaria petiolata</i>).
SWD4-1	Willow Mineral Deciduous Swamp	Two instances of this community, within the northwest corner of the study area, are present. The canopy and subcanopy are dominated by Crack Willow (<i>Salix euxina</i>), with rare instances of Bur Oak and Common Buckthorn in the subcanopy. The understory consists largely of Riverbank Grape, Wild Red Raspberry, and Virginia Creeper (<i>Parthenocissus quinquefolia</i>). The ground layer consists mainly of Blunt-leaved Bedstraw (<i>Galium obtusum</i>), Garlic Mustard, Spotted Jewelweed, and Colt's-foot (<i>Tussilago farfara</i>).
<i>Meadow Marsh (MAM)</i>		
MAM2-2	Reed Canary Grass Graminoid Mineral Meadow Marsh	Three instances of this community, one within the western edge of the study area, and two on the western side of the railway line within the study area, are present. There are rare instances of Red Maple in the canopy, and rare instances of Red Maple, Manitoba Maple (<i>Acer negundo</i>), and Meadow Willow (<i>Salix petiolaris</i>) in the subcanopy. The understory consists of occasional instances of Red-osier Dogwood (<i>Cornus sericea</i>), Wild Black Current (<i>Ribes americanum</i>), and Fowl Bluegrass (<i>Poa palustris</i>). The ground layer is dominant, and largely consists of Reed Canary Grass, with instances of Common Teasel (<i>Dipsacus fullonum</i>), Stinging Nettle (<i>Urtica dioica</i>), and Colt's-foot.

Table 2. Ecological Land Classification

ELC CODE	VEGETATION TYPE	COMMUNITY DESCRIPTION
<i>Shallow Marsh (MAS)</i>		
MAS2-1	Cattail Mineral Shallow Marsh	Two instances of this community, within the western edge of the study area, are present in the study area. These communities consist almost entirely of Broad-leaved Cattail (<i>Typha latifolia</i>) in the understorey alongside occasional Reed Canary Grass, with some Meadow Willow (<i>Salix petiolaris</i>) in the subcanopy and Lesser Duckweed (<i>Lemna minor</i>) in the ground layer.
<i>Cultural Meadow (CUM)</i>		
CUM1	Mineral Cultural Meadow	This community occurs in the west of the study area on the western edge of the study area. The subcanopy consists of occasional instances of Tamarack (<i>Larix laricina</i>), Common Elderberry (<i>Sambuca canadensis</i>), and Common Buckthorn, and the understory consists of occasional instances of Red-osier Dogwood, Meadow Willow, and Meadow Brome (<i>Bromus erectus</i>). The ground layer (and community) is dominated by Reed Canary Grass, with instances of Common Dandelion (<i>Taraxacum officinale</i>), Common Teasel, and Garlic Mustard.
<i>Cultural Thicket (CUT)</i>		
CUT1	Mineral Cultural Thicket	This community occurs on the western edge of the study area in between the two Cattail Graminoid Mineral Meadow Marsh communities. The canopy is dominated by Meadow Willow, with the subcanopy containing Meadow Willow, Sandbar Willow (<i>Salix interior</i>), and Red Maple. The understorey consists of occasional Wild Mock-cucumber (<i>Echinocystis lobata</i>). The ground layer consists largely of Garlic Mustard and Cleavers (<i>Galium aparine</i>), with occasional Smooth Bedstraw (<i>Galium mollugo</i>), Reed Canary Grass, and Spotted Jewelweed.
<i>Development</i>		
AGI	Agricultural Infrastructure	This community consists of the farm buildings in the centre of the subject property.
RES	Residential	This community consists of a small community on the northern edge of the study area, as well as the farmhouse in the centre of the subject property.
COM	Commercial	This community consists of a small industrial area on the northern edge of the study area.
IND	Industrial	This community consists of a small industrial area on the northwestern edge of the study area.

Table 2. Ecological Land Classification

ELC CODE	VEGETATION TYPE	COMMUNITY DESCRIPTION
TRA	Transportation	A railway line runs along the western edge of the study area. The community around the railway line is dominated by Reed Canary Grass in the ground layer. The canopy consists of rare instances of planted European Larch (<i>Larix decidua</i>). The subcanopy consist of rare instances of Manitoba Maple, Common Buckthorn, Red-osier Dogwood, and Common Hackberry (<i>Celtis occidentalis</i>). The rest of the ground layer consists of Annual Fleabane, Tufted Vetch, Common Teasel, Canada Thistle, Dame's Rocket, Garlic Mustard, Colt's-foot, Blunt-leaved Bedstraw, New England Aster (<i>Symphyotrichum novae-angliae</i>), Kentucky Bluegrass (<i>Poa pratensis</i>), Field Mustard (<i>Brassica rapa</i>), Common Crown-vetch (<i>Securigera varia</i>), Swamp Milkweed (<i>Asclepias incarnata</i>), and Creeping Wildrye (<i>Elymus repens</i>).
<i>Open Agriculture (OAG)</i>		
OAG	Open Agriculture	This community makes up the majority of the study area, as well as the northern, eastern, and southern sides of the study area. This community consists of row crops with some hay and livestock pasture.

3.2.2 Botanical Inventory

A detailed botanical inventory of the study area was completed where access was permitted. Where access was restricted, the inventory was completed from the roadside or property boundary. A total of 87 species were identified, with an additional two identified to genus. All identified plant species are listed in *Appendix 5*.

Of the 87 species identified, 57 (66%) are native and 30 (34%) are exotic or cultivars.

3.2.2.1 Species at Risk, Regional and Local Significance

No vegetation communities listed in *Table 2* are considered rare in the province.

Most of the native species are ranked S5 (Secure in Ontario) or SNA (S-Rank not applicable) with two species (Green Ash and Common Hackberry) ranked S4 (Apparently Secure), two species (Virginia Creeper and Black Walnut) ranked S4?, indicating uncertainty in their ranking, and one species (Blunt-leaved Bedstraw) ranked S4S5 (Apparently Secure to Secure). One species (Meadow Bittercress) is considered significant in the Region of Waterloo, one species (Common Hackberry) is considered significant but possibly common, and two species (Black Walnut and Virginia Creeper) are considered significant only if native status can be demonstrated (Region of Waterloo, 2007). None of the species observed in the study area had a coefficient of conservatism of 9 or 10. This indicates the present of species with moderate to high

tolerance for environmental ranges, which may be less impacted by minor site alteration or environmental disturbance.

No nationally or provincially rare, threatened, or endangered species were found.

3.2.3 Tree Inventory

The tree inventory collected information for 252 trees with driplines approaching 1m of the limit of the subject property. The specific data for each individual tree is provided in *Appendix 15*, including overall condition and recommended actions based on condition and development. The locations and identification numbers of trees impacted are detailed in the Tree Protection Plan (*Appendix 15*). A total of 15 species were identified during the tree inventory, with five additional species only identified to genus. Of those species, Silver Maple was the most abundant (27%), followed by White Spruce (17%), Sugar Maple (12%) and Apple sp. (12%). Per the Tree Preservation Plan (Aboud & Associates Inc., 2026), 191 trees are recommended for removal due to the proposed development.

3.3 Wildlife

3.3.1 Breeding Birds

The results of the Breeding Bird Survey (BBS) are presented in *Tables 3 & 4*. During BBS visits, a total of 47 species were detected during point counts. During area search transects a total of 20 species were detected, two of which were not identified during point counts (Canada Goose and Wild Turkey).

In order to ensure that all potential breeding bird species have been considered by this assessment, any species exhibiting possible, probable or confirmed breeding behaviour was considered to be breeding in the study area. Therefore, 41 species were presumed to be breeding within the study area. However, it is important to note that, despite high levels of breeding evidence, a given species may not have been breeding specifically in the area in which it was observed. This is particularly true where species were only detected during one of the Breeding Bird Surveys. These species may have been foraging in these areas, been unsuccessful due to breeding attempts in less than suitable habitat, or, may have been wandering during post-breeding dispersal. The breeding bird results in their entirety can be found in *Appendices 6 and 7*.

Table 3. Point Count Results- Highest Breeding Evidence (HBE)

COMMON NAME	SCIENTIFIC NAME	COSARO	SCA	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED (HA)	PIF PRIORITY SPECIES	GRCA (DATE UNK.)	REGION OF WATERLOO (2007)	TOTAL COUNT	FINAL HBE
Mallard	<i>Anas platyrhynchos</i>					S5	G5						N/A	FO
Rock Pigeon	<i>Columba livia</i>					SNA	G5						30	S
Mourning Dove	<i>Zenaida macroura</i>					S5	G5						21	T
Chimney Swift	<i>Chaetura pelagica</i>	THR	NL	THR	THR	S3B	G4G5			✓			8	H
Killdeer	<i>Charadrius vociferus</i>					S4B	G5						21	T
Ring-billed Gull	<i>Larus delawarensis</i>					S5	G5						1	S
Great Blue Heron	<i>Ardea herodias</i>					S4	G5					R	N/A	FO
Turkey Vulture	<i>Cathartes aura</i>					S5B, S3N	G5				CP	R	N/A	FO
Red-tailed Hawk	<i>Buteo jamaicensis</i>					S5	G5						N/A	FO
Belted Kingfisher	<i>Megasceryle alcyon</i>					S5B, S4N	G5			✓		R	N/A	FO
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>					S5	G5				CP	R	1	S
Northern Flicker	<i>Colaptes auratus</i>					S5	G5			✓			1	S
Eastern Kingbird	<i>Tyrannus tyrannus</i>					S4B	G5			✓	CP		2	P
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	NL	SC	SC	S4B	G5			✓			3	T
Willow Flycatcher	<i>Empidonax traillii</i>					S4B	G5			✓		R	7	T
Warbling Vireo	<i>Vireo gilvus</i>					S5B	G5					R	1	S
American Crow	<i>Corvus brachyrhynchos</i>					S5	G5						N/A	FO
Black-capped Chickadee	<i>Poecile atricapillus</i>					S5	G5				CP		1	S
Horned Lark	<i>Eremophila alpestris</i>					S4	G5				CP		15	T
Tree Swallow	<i>Tachycineta bicolor</i>					S4S5B	G5						23	T
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>					S4B	G5				CP		1	S
Barn Swallow	<i>Hirundo rustica</i>	SC	NL	THR	THR	S4B	G5				CP		47	V
Cedar Waxwing	<i>Bombicilla cedrorum</i>					S5	G5						2	S
White-breasted Nuthatch	<i>Sitta carolinensis</i>					S5	G5	✓	>10ha				1	S
House Wren	<i>Troglodytes aedon</i>					S5B	G5						11	T
Carolina Wren	<i>Thryothorus ludovicianus</i>					S4	G5				CP	R	1	S

COMMON NAME	SCIENTIFIC NAME	COSARO	SCA	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED (HA)	PIF PRIORITY SPECIES	GRCA (DATE UNK.)	REGION OF WATERLOO (2007)	TOTAL COUNT	FINAL HBE
Gray Catbird	<i>Dumetella carolinensis</i>					S5B,S3N	G5				CP		3	T
European Starling	<i>Sturnus vulgaris</i>					SNA	G5						80	T
Veery	<i>Catharus fuscescens</i>					S5B	G5	✓	>10ha		CP		1	S
American Robin	<i>Turdus migratorius</i>					S5	G5						40	T
House Sparrow	<i>Passer domesticus</i>					SNA	G5						7	P
American Goldfinch	<i>Carduelis tristis</i>					S5	G5				CP		18	T
Chipping Sparrow	<i>Spizella passerina</i>					S5B,S3N	G5						17	T
Field Sparrow	<i>Spizella pusilla</i>					S4B,S3N	G5			✓	CP		1	S
Savannah Sparrow	<i>Passerculus sandwichensis</i>					S5B,S3N	G5	✓	>50ha	✓	CP		149	FY
Song Sparrow	<i>Melospiza melodia</i>					S5	G5						52	T
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	NL	THR	THR	S4B	G5	✓	>10ha	✓	CP		1	S
Baltimore Oriole	<i>Icterus galbula</i>					S4B	G5			✓			3	T
Red-winged Blackbird	<i>Agelaius phoeniceus</i>					S5	G5						202	CF
Brown-headed Cowbird	<i>Molothrus ater</i>					S5	G5						12	T
Common Grackle	<i>Quiscalus quiscula</i>					S5	G5						21	T
Common Yellowthroat	<i>Geothlypis trichas</i>					S5B,S3N	G5						2	S
American Redstart	<i>Setophaga ruticilla</i>					S5B	G5	✓	>100ha		CP	R	1	S
Yellow Warbler	<i>Dendroica petechia</i>					S5B	G5						11	T
Northern Cardinal	<i>Cardinalis cardinalis</i>					S5	G5						4	T
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>					S5B	G5			✓			2	S
Indigo Bunting	<i>Passerina cyanea</i>					S5B	G5						1	S
Legend for Tables 3 and 4: COSARO: Committee on the status of Species at Risk Ontario COSEWIC: Committee on the status of Endangered Wildlife in Canada SCA: Species Conservation Act SARA: Species at Risk Act SC: Special Concern THR: Threatened		S-Rank: S4: Apparently Secure—Uncommon but not rare S5: Secure—Common, widespread, and abundant in the province S3: Vulnerable—Vulnerable, relatively few populations G-Rank: G5: Very common globally; demonstrably secure B: Breeding—The breeding population of the species. N: Non-breeding—The non-breeding population of the species.					Breeding Evidence: Observed X- Species observed, not in suitable habitat FO- Flyover Possible H-suitable habitat S-singing male					Probable T-presumed territory P- Pair observed in suitable nesting habitat Confirmed FY- Recently fledged young CF- Adult carrying food for young		

Table 4. Area Search Transects- Highest Breeding Evidence (HBE)

Common name	Scientific name	COSSARO	COSEWIC	S RANK	G RANK	Area Sensitive (MNR 2000)	Area Required (Ha)	PIF priority Species (BCR 13) GRCA (date unk.)	Region of Waterloo (2007)	HBE
Canada Goose	<i>Branta canadensis</i>			S5	G5			CP		FO
Wild Turkey	<i>Meleagris gallopavo</i>			S5	G5					H
Rock Pigeon	<i>Columba livia</i>			SNA	G5					H
Great Blue Heron	<i>Ardea herodias</i>			S4	G5				R	FO
Bald Eagle	<i>Haliaeetus leucocephalus</i>			S4	G5	✓		✓		H
Red-tailed Hawk	<i>Buteo jamaicensis</i>			S5	G5					H
Northern Flicker	<i>Colaptes auratus</i>			S5	G5		✓			S
Willow Flycatcher	<i>Empidonax traillii</i>			S4B	G5		✓		R	S
Blue Jay	<i>Cyanocitta cristata</i>			S5	G5					FO
Tree Swallow	<i>Tachycineta bicolor</i>			S4S5B	G5					S
Barn Swallow	<i>Hirundo rustica</i>	SC	THR	S4B	G5			CP		S
Cedar Waxwing	<i>Bombycilla cedrorum</i>			S5	G5					S
American Robin	<i>Turdus migratorius</i>			S5	G5					S
House Sparrow	<i>Passer domesticus</i>			SNA	G5					H
American Goldfinch	<i>Carduelis tristis</i>			S5	G5			CP		S
Savannah Sparrow	<i>Passerculus sandwichensis</i>			S5B,S3N	G5	✓	>50ha	✓	CP	NY
Song Sparrow	<i>Melospiza melodia</i>			S5	G5					S
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	S4B	G5	✓	>10ha	✓	CP	S
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			S5	G5					P
Common Grackle	<i>Quiscalus quiscula</i>			S5	G5					S

3.3.1.1 *Breeding Bird Species at Risk*

Four Species at Risk, listed under SARA, were observed during Breeding Bird Surveys, including: Barn Swallow (THR), Bobolink (THR), Chimney Swift (THR), and Eastern Wood-pewee (SC). Locations of observations are shown on *Figure 5*. Of the species observed, only Barn Swallow, Bobolink and Chimney Swift are afforded habitat protection under SARA, as they are listed as Threatened federally. Negative impacts to habitat for Eastern Wood-pewee, (SC per COSSARO) and Chimney Swift (S-Rank of S3B) are also prohibited per the PPS, as Significant Wildlife Habitat for Rare and Special Concern species.

Barn Swallow occur in farmland, along lake/river shorelines, in wooded clearings, and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011). Barn Swallow occurred in large numbers across the study area and are likely utilising the agricultural infrastructure in the centre of the subject property for nest sites. No nests were identified on the outside of the buildings, but Barn Swallow were noted flying in and out of the agricultural infrastructure on site. Breeding for Barn Swallow was identified as probable, as adults were observed visiting a probable nest site, a week or more apart, at the same place.

Bobolink are associated with grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. They occur with increased density in grasslands greater than 10 ha (Renfrew et. al. 2015). In the study area they were observed in the southeastern portion during the first breeding bird survey, in an area being used to grow hay. However, this area was harvested between the first and second breeding bird surveys, and Bobolink were not present during subsequent surveys. Bobolink were identified as possible breeding, as three singing males were heard on one occasion. No females were identified during the breeding bird surveys or incidentally.

Chimney Swift typically nest in traditional chimneys of older buildings (MNRF 2013). They were observed calling near the agricultural infrastructure in the centre of the subject property, and near buildings on the northeastern edge of the study area. The chimneys and buildings observed in the subject property are considered potentially suitable structures to support nesting of this species but are not sufficiently large to support migratory roosting habitat (see photo in *Appendix 13*). Per the *Chimney Swift Recovery Strategy*, this species is known to exhibit high nest and roost site fidelity and sites used for nesting are likely to be occupied year over year (ECCC 2023). Chimney Swift were observed flying around the farm buildings in the centre of the subject property but were not seen entering or leaving chimneys or buildings. Per the General

Habitat description for Chimney Swift (MNR 2013), foraging typically occurs at a distance from nesting sites, as a result, observations are not always indicative of nesting in the immediate area. Per the Ontario Swiftwatch Protocol (Birds Canada, 2020), while Chimney swift roosting studies generally take place at dawn and dusk during the migration period, *nesting studies* are recommended to take place in *June or July during nest-building and feeding activities*, which takes place *throughout the day* (Birds Canada, 2020). Since no individuals were observed entering or exiting the structures during any of site visits, particularly those during the breeding bird surveys which took place over several hours on site, these structures are not considered to be used as nesting habitat for Chimney Swifts.

Eastern Wood-pewee are associated with mid-aged mixed and deciduous forest stands, often dominated by Maple (*Acer*), Elm (*Ulmus*), or Oak (*Quercus*), and include areas with clear-cuts, openings, or forest edges. Eastern Wood-pewee also prefer forest stands with little to no understorey vegetation (COSEWIC 2012). Eastern Wood-pewee was observed singing within the Red Maple Deciduous Swamp, Fresh-Moist Deciduous Thicket, and adjacent to the Willow Mineral Deciduous Swamp communities in the western portion of the study area, as well as directly adjacent to the wooded community just outside the study area on the northeastern edge. Breeding evidence for Eastern Wood-pewee was identified as probable, as they had a permanent territory presumed through registration of territorial song on at least two days, a week or more apart, within the Red Maple Deciduous Swamp community in the north-west portion of the study area.

3.3.1.2 *Breeding Bird Regional and Local Significance*

Most species detected in the study area are ranked as either S5 (Secure) or S4 (Apparently Secure) in Ontario. The rank qualifiers 'B' and 'N' denote the status of breeding and non-migratory species during the breeding season, respectively. Seven species are ranked S3 (Vulnerable): Chimney Swift, Turkey Vulture, Gray Catbird, Chipping Sparrow, Field Sparrow, Savannah Sparrow, and Common Yellowthroat.

Based on the Region of Waterloo's Regionally Significant Breeding Birds List (2007), seven species observed are considered to be significant within the Region and are identified in Tables 3 & 4

Based on the GRCA's list of conservation priority species, 16 species are considered to be conservation priorities and are identified in Tables 3 & 4.

3.3.1.3 Breeding Bird Regional Priority Species

The Ontario Landbird Conservation Plan (OLCP): Lower Great Lakes/St. Lawrence Plain, North American Bird Conservation Region 13 (Partners in Flight, 2008) has identified several species that are considered conservation priorities for the region (Ontario PIF, 2008). Twelve priority species were observed within the study area, and are identified in Tables 3 & 4. The OLCP does not provide legislative protection of species or their habitat but rather identifies species that should be conservation priorities on a regional level, beyond those designated as Species at Risk.

3.3.2 Pileated Woodpecker and Red-headed Woodpecker Cavity Identification Surveys

Investigations were completed to determine if Pileated Woodpecker and Red-headed woodpecker cavities are present within the study area. No trees demonstrating evidence of woodpecker use were identified within the study area.

3.3.3 Incidental Wildlife Observations

All incidental wildlife observations made during the site visit are presented in *Appendix 12*.

3.3.4 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (2000) and the SWH EcoRegion Criterion Schedule 6E (2015), it has been determined that confirmed SWH in the form of Habitat for Special Concern and Rare Wildlife Species and candidate SWH in the form of Habitat for Special Concern and Rare Wildlife Species, are present within the study area.

3.3.4.1 Bat Maternity Colony Habitat

Bat maternity colony habitat can be located in human structures (e.g., barns and attics) abandoned mines, tree hollows and rockfaces (OMNRF, 2014). For several species, mature woodland communities that include dead or dying stems are important, other species roost individually in the foliage of several species of trees and shrubs.

Investigations were completed to identify candidate bat maternity habitat trees within the study area, where access was permitted. No trees that exhibited characteristics of suitable bat maternity habitat for colonial bat species were identified. The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E states that maternity colonies considered SWH are found in forested Ecosites within the FOD, FOM, SWD and SWM series. Forested communities identified within the study area outside of the property limits may also contain suitable habitat; however, these communities were not

investigated. As such, SWH in the form of Bat Maternity Colony Habitat has been assumed present within the forested communities in the study area.

3.3.4.2 *Confirmed Special Concern and Rare Wildlife Habitat*

Confirmed SWH for Special Concern and Rare Wildlife was identified on site for Eastern Wood-pewee. Eastern Wood-pewee were heard calling in suitable habitat in the Red Maple Deciduous Swamp Communities on the western edge of the study area (*Figure 3*). Barn Swallow were identified calling and foraging throughout the subject lands, particularly around the barns in the centre of the site and were observed flying in and out of these buildings (*Figure 3*). It is expected that nesting is occurring within the barn structure. Manmade structures are generally not considered to be SWH.

3.3.4.3 *Candidate Special Concern and Rare Wildlife Habitat*

Candidate SWH is present for Special Concern and Rare Wildlife species. Monarch was observed within the study area and milkweed (*Asclepias sp.*), the plants necessary for Monarch feeding, was also noted in some communities on site (Reed Canary Grass Graminoid Mineral Meadow Marsh, Reed Canary Grass Graminoid Meadow, the Fresh-Moist Deciduous Thicket, and along the Railway Line in the Transportation community), as a result communities with suitable habitat have been assumed for this species. The limits of the assumed SWH for Monarch are provided on *Figure 5*, and has been delineated based on the limits of the suitable ELC community classifications identified in parenthesis above, as shown on *Figure 3*.

Eastern Wood-pewee was heard calling within the Red Maple Deciduous Swamp communities, with territory being presumed within the feature in the north-west portion of the study area. Eastern Wood-pewee was also heard within the Swamp Thicket community. The Red Maple Deciduous Swamp community has been identified as SWH for Eastern Wood-pewee. *Figure 5* shows the assumed SWH for Eastern Wood-pewee using the limits of the ELC communities for the Red Maple Deciduous Swamp and Swamp Thicket, as shown on *Figure 3*.

The reach of Municipal Drain No. 1 (Reach 1) within the study area contains suitable habitat for Snapping Turtle. As targeted surveys for overwintering and nesting turtle species were not completed, significant wildlife habitat for Snapping Turtle has been assumed present within the watercourse. The assumed SWH for Snapping Turtle is shown on *Figure 5* as the aqua hatched polyline mapped through the centreline of the watercourse, per GEO (accessed March 2026).

Suitable habitat for Canada Warbler and Wood Thrush was identified in the Deciduous Swamp communities. No individuals were identified during field investigations, including breeding bird surveys. As a result, SWH is not considered present within the study area.

Suitable habitat for Chimney Swift was identified due to the presence of suitable chimneys within the existing agricultural infrastructure. Per Section 3.3.1.1, Chimney Swift were observed during Breeding Bird Survey, exhibiting possible breeding evidence through the identification of suitable habitat. Per the SWH Criteria Schedules for Ecoregion 6E, confirmed SWH for Special Concern and Rare Wildlife Species requires the suitable habitat cover an important life stage component for a species such as specific nesting habitat or foraging habitat. Through all Breeding Bird Surveys Chimney Swift was not observed entering or exiting the chimneys. As such, the subject property does not contain suitable habitat for an important life stage component for Chimney Swift. Therefore, SWH for Chimney Swift is not present on the subject property.

Suitable habitat for Eastern Ribbonsnake was identified along the watercourse in the Reed Canary Grass Graminoid Meadow habitat and along the railway corridor. As targeted surveys for Eastern Ribbonsnake were not completed, significant wildlife habitat for these species has been assumed present along the watercourse in the Reed Canary Grass Graminoid Meadow and along the railway corridor. Figure 5 shows the assumed SWH for Eastern Ribbonsnake using the limits of the ELC communities, as shown on Figure 3, as well as the outer banks of Municipal Drain No. 1.

Assumed and confirmed SWH for Special Concern & Rare Species is shown on *Figure 5*.

3.3.4.4 *Open Country Bird Breeding Habitat*

Per the SWH Criteria Schedule for Ecoregion 6E, candidate SWH criteria includes Grasslands not Class 1 or Class 2 agricultural lands, and not being actively used for farming (i.e. no row cropping, or intensive hay or livestock pasturing in the last 5 years). Through review of recent aerial photos, the subject property has had a number of different land uses including hay, row crops and livestock pasture, which have rotated around the subject property within the past five years and across growing seasons. Additionally, species listed as indicating the potential presence of Open Country Bird Breeding Habitat include: Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, Northern Harrier, Savannah Sparrow and Short-eared Owl. Through field investigations only one indicator species, Savannah Sparrow, was observed. SWH for Open Country Bird Breeding Habitat is confirmed through the presence of two of more of the listed species. As such, SWH in the form of Open Country Bird Breeding Habitat is not

present within the subject property as it does not meet the habitat criteria, and two of more of the listed species were not observed through appropriate field investigations.

3.3.4.5 *Turtle Overwintering Habitat*

Suitable habitat for Turtle Overwintering is present within the reach of Municipal Drain No. 1 (Reach 1) in the study area due to the presence of water deep enough not to freeze. As investigations to confirm presence of turtle overwintering habitat were not completed, SWH for turtle overwintering habitat has been assumed present within the reach of Municipal Drain No. 1 in the study area.

3.3.5 Species at Risk Habitat

3.3.5.1 *Bobolink*

Suitable habitat for Bobolink, listed as Threatened under SARA, was identified within the Open Agriculture community, with three males exhibiting possible breeding evidence during the first breeding bird survey. At the time of the study, the subject property was being used for hay when the Bobolink were observed, it has been noted through a review of recent aerial photos that the site has a number of different land uses (hay, row crops, livestock pasture), which are rotated around the property in different years and across growing seasons, suggesting a lack of permanent, high-quality habitat for this species. This is also suggested by the low number of Bobolink, a gregarious species, observed on the site, their absence during subsequent surveys, and the lack of females observed. Based on the results of our surveys, bobolink is not considered to be breeding on site.

3.3.5.2 *Chimney Swift*

As discussed in Section 3.3.1.1, potential suitable nesting habitat for Chimney Swift was identified in the agricultural infrastructure and residential dwelling at the centre of the subject property, due to the presence of chimneys. Per the results of the breeding bird surveys, Chimney Swift were observed within proximity to buildings, but were not observed entering or exiting any structures. Therefore, these structures are not considered to be used as nesting habitat for Chimney Swifts.

3.3.5.3 *Gypsy Cuckoo Bumble Bee*

Gypsy Cuckoo Bumble Bee was identified by the NHIC as being present within an adjacent 1km x 1km square to the study area. No individuals of this species were observed during field investigations, and the species has not been observed within Waterloo Region for over 20 years (Colla, 2017). Only one individual has been found in Southern Ontario in the last 10 years despite extensive searches, and this was in Pinery Provincial Park, over 100 kms from the study area (Colla, 2017). While the mixed farmlands within the study area may provide suitable habitat for this species, it is highly

unlikely that this species is present due to the historical nature of the last known observations, and lack of observations during the field studies, as a result, no candidate habitat for this species has been identified within the study area.

3.3.5.4 *Species at Risk Bats*

Suitable habitat for Species at Risk Bats in Ontario is present within the study area. Forested communities outside of the subject property and agricultural infrastructure within the subject property may contain suitable habitat. Forested communities with suitable habitat are not expected to be impacted and are located well outside the limits of the subject property and have therefore been assumed habitat for SAR bats. Acoustic surveys to determine the presence/absence of SAR bats within the agricultural infrastructure was not completed. Completion of this survey type is more appropriate closer to the proposed removal date of the structures to ensure current use of any species at the time of removal is determined. As such, an acoustic and visual survey immediately prior to building removal will be required to confirm presence/absence of SAR bats, determine any requirements under the SCA and ensure no negative impacts to these species. Suitable and assumed habitat for Species at Risk Bats is shown on *Figure 3*.

3.3.5.5 *Aquatic Species at Risk*

Two aquatic SAR were identified through the background review, including Wavy-rayed Lampmussel (THR) and Silver Shiner (THR). Further review indicates that records of these species are found within a section of the Grand River beyond 1 km from the subject property. Additionally, field observations of available aquatic habitat indicate that no suitable habitat is present for these species within the study area. As such, no aquatic SAR or their habitats are expected to be present within the study area and given the extensive distance from where these species are known to occur within the Grand River, downstream impacts are not anticipated.

3.4 Aquatic Habitat Assessment

Aquatic habitat assessments were completed within five reaches within the study area and one reach located approximately 1.7 km east of the subject property. The location of reaches assessed are shown on *Figure 4*. Reaches were primarily delineated based on drainage patterns, with natural reach breaks established at the confluences with other drainage features and areas of differing aquatic habitats, such as channel morphology and riparian vegetation composition.

3.4.1 Reach 1 – Municipal Drain No. 1

Reach 1 includes the entire section of Municipal Drain No. 1 present within the study area, which is classified as a Class E municipal drain. Reach 1 originates southwest of

the study area, flowing through a forested community before transitioning into a straightened drain along the west side of the railway corridor. The reach flows north along the rail ditch line and eventually passes beneath South Field Drive through an approximately 3.6 m diameter corrugated steel pipe (CSP) culvert (C1). Downstream of South Field Drive, the channel continues as a straightened drain for approximately 1 km before outletting into the main branch of Canagagigue Creek and ultimately discharging to the Grand River.

The channel is artificially straightened and provides continuous but slow-moving flow. The morphology consists predominantly of flat sections with some localized pools observed. In-stream cover composition remains homogenous throughout the reach and is dominated by in-stream vascular macrophytes (40-70%) with minor amounts of in-stream woody debris present (10%). Several unidentified cyprinids were observed throughout the assessed reach. Substrates throughout the reach consist entirely of silt and muck. Channel dimensions throughout the assessed reach are summarized in *Table 5*.

Bank condition throughout the reach was generally well vegetated but demonstrated signs of erosion with minor undercutting observed throughout. Riparian buffer widths are variable, and stream shading is generally limited due to open land use and adjacent railway limiting the establishment of larger vegetation.

3.4.2 Reach 2 – Unnamed Drainage Feature

Reach 2 is an unnamed drainage feature that originates east of the railway tracks within the subject property and functions as a straightened drainage channel, conveying overland flow from the adjacent agricultural fields. A tile drain outlet was observed at the southern limit of the drainage feature, suggesting flow contribution is supplemented by tile drainage within the agricultural field to the southwest quadrant of the subject property. The channel is situated within the MAMM1-3 community and flows northerly for approximately 200 m before discharging into Reach 3, and ultimately Municipal Drain No. 1.

The channel is artificially straightened with continuous slow-moving flow. The morphology consists entirely as flats, with no defined riffle or pool sequences observed. In-stream cover is abundant and dominated by dense in-stream vascular macrophytes (approximately 30–95%), with minor contributions from organic debris (<5%). Substrates throughout the reach consist entirely of silt and muck. Channel dimensions throughout the assessed reach are summarized in *Table 5*.

Banks are stable and well-vegetated throughout the reach, with no evidence of active erosion or undercutting. Riparian buffer widths range between 8-35 m from either bank and consists of predominantly wetland vegetation. Overhead stream shading is limited due to the open nature of the surrounding vegetation community and lack of mature riparian tree cover.

3.4.3 Reach 3 – Unnamed Drainage Feature

Reach 3 is a short, approximately 50 m, unnamed drainage feature located east of the railway tracks that flows in an east to west direction. The reach collects flow from Reach 2 and Reach 4 and conveys it in a westerly direction through an approximately 1 m diameter concrete pipe culvert (C3) under the railway before discharging into Municipal Drain No. 1 (Reach 1).

The channel is artificially straightened with continuous slow-moving flow. The channel lacks diverse morphology and consists as one long flat segment with no defined riffle or pool sequences present. In-stream cover is abundant and primarily composed of in-stream vascular macrophytes (80%), with minimal additional cover types observed. Substrates throughout the reach consist entirely of silt and muck. Channel dimensions throughout the assessed reach are summarized in *Table 5*.

Banks are stable and well-vegetated, with no evidence of active erosion or undercutting. The majority of the riparian buffer is wide and well vegetated with a mix of wetland and cultural meadow species, however, a section of the feature is immediately adjacent to a cropped agricultural field, limiting the natural riparian buffer in this section. Overhead stream shading is limited due to the open nature of the surrounding vegetation community and lack of mature riparian tree cover.

3.4.4 Reach 4 – Unnamed Drainage Feature

Reach 4 exists as a straightened ditch line along the east side of the railway tracks. The unnamed drainage feature originates north of the Study Area and flows in a southerly direction, entering the subject property through an approximately 1 m diameter concrete pipe culvert (C2) and ultimately discharges into Reach 2.

The channel is artificially straightened with minimal flow, and includes sections of dried channel where flow likely occurs interstitially through the substrate layer. Portions of the reach exhibit poorly defined channel morphology, with localized stagnant ponding observed and no defined riffle or pool sequences present. In-stream cover is abundant and dominated by vascular macrophytes (80–100%), with minimal additional cover

types present. Substrates throughout the reach consist entirely of silt and muck. Channel dimensions throughout the assessed reach are summarized in *Table 5*.

Banks are stable and well-vegetated, with no evidence of active erosion or undercutting. Some areas within the reach demonstrate low-lying banks with flooded wetland conditions. Riparian buffer widths are generally narrow and limited due to the adjacent railway tracks to the west. Overhead stream shading is slightly higher within the section north of South Field Road but generally limited due to the absence of mature riparian tree cover.

3.4.5 Reach 5 – Unnamed Drainage Feature

Reach 5 originates from the outlet of a SWM pond located west of the study area and flows in an east direction through a MAMM1-2 wetland community before discharging into Municipal Drain No. 1 (Reach 1). Flow within this reach is conveyed through several poorly defined braided channels that lack distinct channel banks. Due to the abundant wetland vegetation and accumulation of organic material within the substrate layer, flow primarily travels interstitially within this feature with a few areas of ponded, stagnant standing water.

The channel is not well defined and is characterized by no observable surface flow at the time of assessment. Substrates consist of saturated silt and organic muck, with flow inferred to occur interstitially through the dense wetland vegetation and substrate layer or through overland conveyance during times of precipitation or spring freshet. Channel dimensions throughout the assessed reach are summarized in *Table 5*.

In-stream cover is abundant and dominated by dense in-stream vascular macrophytes (approximately 30–95%), with minor contributions from organic debris (<5%). Banks are not well established and low-lying resulting in the establishment of the surrounding wetland community. Riparian buffers are large and composed primarily of wetland species. Overhead stream shading is moderate due to dense wetland vegetation within the feature; however, large mature riparian trees are limited.

3.4.6 Reach 6 – Municipal Drain No. 7

Reach 6 includes a section of Municipal Drain No. 7 located approximately 1.3 km east of the subject property. Although situated outside of the study area, this reach represents the receiving watercourse for drainage from the eastern portion of the subject property, including discharge from one of the proposed SWM facilities. Municipal Drain No. 7 does not currently have a drainage classification but is identified as a permanent municipal drain under the *Drainage Act*. Flow within the drain originates from several tile drain outlets located on the west side of New Jerusalem Road,

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approximately 500 m north of Scotch Line Road. Flow is immediately conveyed east under New Jerusalem Road through an approximately 1.7 m diameter CSP culvert (C4) and continues as an artificially straightened drainage channel southwest for approximately 1 km before being conveyed under Scotch Line Road via an approximately 1.7 m diameter CSP culvert (C5).

The channel is an artificially straightened drain with continuous but shallow flow observed at the time of assessment. The channel lacks diverse channel morphology and instead consisted of one continuous flat section, with no observed riffle or pool sequences. In-stream cover is abundant and primarily composed of vascular macrophytes (approximately 80%). In-stream vegetation was predominantly emergent cattails with minor occurrences of floating duckweed. Substrates throughout the reach consist entirely of silt and muck, with additional gravel and sand observed along the sections nearest to Scotch Line Road. Channel dimensions throughout the assessed reach are summarized in *Table 5*.

Bank condition throughout the reach was generally well vegetated and in stable condition. Riparian buffer widths are minimal due to adjacent agricultural fields and stream shading is generally limited due to a lack of riparian trees.

Table 5. Summary of Channel Morphology

Reach	Channel Morphology	Substrate Type	Mean Channel Dimensions
Reach 1: Municipal Drain No. 1	Flats: 100%	Silt/Muck: 100%	Wetted Width: 4.4 m Wetted Depth: 0.4 m Bankfull Width: 5.2 m Bankfull Depth: 0.8 m
Reach 2: Unnamed Drainage Feature	Flats: 100%	Silt/Muck: 100%	Wetted Width: 3.4 m Wetted Depth: 0.3 m Bankfull Width: 4.6 m Bankfull Depth: 0.5 m
Reach 3: Unnamed Drainage Feature	Flats: 100%	Silt/Muck: 100%	Wetted Width: 1.9 m Wetted Depth: 0.1 m Bankfull Width: 3.8 m Bankfull Depth: 0.5 m
Reach 4: Unnamed Drainage Feature	Flats: 100%	Silt/Muck: 100%	Wetted Width: 5.1 m Wetted Depth: 0.2 m Bankfull Width: 5.9 m Bankfull Depth: 0.3 m

Reach 5: Unnamed Drainage Feature	Flooded Wetland: 100%	Silt/Muck: 100%	Wetted Width: 15 m Wetted Depth: 0.3 m Bankfull Width: 28 m Bankfull Depth: 0.6 m
Reach 6: Municipal Drain No. 7	Flats: 100%	Silt/Muck: 90% Sand: 5% Gravel: 5%	Wetted Width: 2.7 m Wetted Depth: 0.2 m Bankfull Width: 3.4 m Bankfull Depth: 0.5 m

3.4.7 Summary of Fish Habitat Significance

Aquatic habitat within the study area consists of a network of straightened agricultural drains and wetland features that together provide drainage from the subject property and adjacent lands through two municipal drains. Flow originating from the west and east portion of the study area ultimately flow into Municipal Drain No. 1 and Municipal Drain No. 7, respectively, which ultimately outlets into the Grand River. Despite minor variations in channel morphology and dimension, all reaches exhibit similar overall fish habitat characteristics and function collectively as direct fish habitat, as evident by field observations of unidentified cyprinids and background data.

Substrates throughout the study area are uniformly composed of fine material reflecting relatively slow flowing conditions. Evidence of tile drain outlets, particularly from the agricultural field in the southwest quadrant of the subject property, indicate that agricultural inputs such as potential nutrient loading may be contributing factors to the system. Stream shading is largely limited throughout the assessed reaches due to the open nature of the riparian vegetation communities and lack of mature tree cover, which result in limited capacity to moderate thermal inputs to the system. Further, no evidence of groundwater discharge, such as watercress (*Nasturtium* spp.) or iron staining was observed within the assessed reaches.

Based on background information the fish community within the drainage network is expected to consist of Blacknose Dace (*Rhinichthys atratulus*), Bluntnose Minnow (*Pimephales notatus*), Brook Stickleback (*Culaea inconstans*), Brown Bullhead (*Ameiurus nebulosus*), Common Shiner (*Luxilus cornutus*), Creek Chub (*Semotilus atromaculatus*), Northern Hog Sucker (*Hypentelium nigricans*), Northern Pike (*Esox lucius*), Northern Redbelly Dace (*Chrosomus eos*), Pumpkinseed (*Lepomis gibbosus*), and White Sucker (*Catostomus commersonii*). These species are consistent with a tolerant warmwater fish community and represent primarily forage/baitfish species with one higher trophic piscivorous species, Northern Pike.

No permanent barriers to fish movement were identified during the site assessment. However, connectivity between features may be seasonally restricted where flows remain interstitial and limited water depth is present, particularly during period of low flow.

Based on background information and field observations, Municipal Drain No. 1 and its associated drainage network have been identified as potential Northern Pike spawning habitat. The characteristics observed during the assessment, such as dense in-stream and emergent vegetation, associated wetland features, low-gradient conditions, and the potential for increased water levels and localized flooding during the spring freshet, are consistent with suitable spawning and nursery habitat for this species. As such, these features are considered to provide spawning habitat for Northern Pike. Municipal Drain No. 7 is a deeply entrenched, trapezoidal drainage feature and lacks much of the habitat characteristics required to support Northern Pike spawning, and is therefore not considered spawning habitat for this species.

Overall, habitat within the study area is influenced by agricultural practices and past channel modification, but currently serve as direct fish habitat for warmwater tolerant species. Significant fish habitat in the form of Northern Pike spawning habitat has been assumed for Municipal Drain No. 1 and its associated drainage network. Photographs of each reach are provided in *Appendix 13*.

3.5 Geology

The majority of the study area consists of Freeport-Woolwich and Guelph soils, alongside Organic, Grand-Kirkland, and Brant-Waterloo soils (Presant and Wicklund, 1971). The Freeport-Woolwich soils are coarse- and medium-textured soils which are 1-3 feet deep and overly medium-textured till deposits (Presant and Wicklund, 1971). Drainage varies from poor to good, and topography is level to gently sloping (Presant and Wicklund, 1971). The Guelph soils are medium textured soils formed on till deposits, with imperfect to good drainage and very gently to gently sloping topography (Presant and Wicklund, 1971). The Freeport-Woolwich and Guelph soils make up the majority of the subject property, particularly the southern portion. The Organic soils are formed on organic deposits, made up of muck and peat with level topography and very poor drainage (Presant and Wicklund, 1971). Organic soils underly the watercourse and the lands to the west of it. The Grand-Kirkland soils are coarse- to medium-textured soils formed over recent alluvial deposits, with level topography and poor to good drainage (Presant and Wicklund, 1971). These soils make up a small portion of the study area north of Southfield Drive and east of the railway line. The

Brant-Waterloo soils are moderately coarse- and medium-textured soils which are formed on lacustrine deposits (Presant and Wicklund, 1971). They have level to gently sloping topography and poor-good drainage (Presant and Wicklund, 1971). Brant-Waterloo soils are present in the north of the subject property and study area.

4.0 Impact Assessment

The proposed Draft Plan of Subdivision may result in impacts to the existing natural features without the appropriate implementation of mitigation measures. Potential impacts include site grading and erosion, tree and vegetation removal, sediment and deleterious runoff, potential impacts to species at risk, and wildlife disturbance.

4.1 Development Limit

Per the proposed Draft Plan of Subdivision (MHBC, January 14, 2026), all proposed lots and roadways are located outside the existing natural features. Block 8, 9 and 12 are located immediately east of the setback to unevaluated wetland and Regulation and Floodplain Limit to the drainage features. Block 13 is identified as Open Space and contains the unevaluated wetland and floodplain and their associated setbacks. Per the Grading Plan (SBM, 2026), grading is required within the GRCA floodplain and regulation limits to accommodate the proposed stormwater management infrastructure. Any future development within the proposed blocks along the western portion of the subject property is at least 20m from the proposed limit of grading.

4.2 Buffers

As previously noted, works within the GRCA regulation limit and floodplain are required to accommodate the stormwater management infrastructure. An irregular buffer has been applied along the western limit of the subject property, between the proposed limit of grading and limit of the existing floodplain. The width of the buffer ranges from 34m to 105m, and is shown on Figure 2. As the limit of grading extends beyond the limit of the western-most blocks, no development will occur within the irregular buffer. Opportunities for restoration and enhancement are present within the irregular buffer. Site specific details pertaining to restoration and enhancement cannot be determined at this time, and should be identified during detailed design.

As the floodplain encompasses both the wetland feature and watercourse, buffers for those features are therefore greater than the range of the irregular buffer widths identified above. Per the Ecological Buffer Guideline Review (Beacon Environmental, 2012), buffer widths between 10m-75m are recommended to maintain water quality functions, screen human disturbance and protect core aquatic habitat. Similarly, for wetlands, buffer widths between 15m and 110m are recommended to maintain water

quantity and quality functions, screen human disturbance and provide core habitat protection. As the narrowest area of the irregular buffer measures 34m from the limit of grading to the floodplain, the wetland and watercourse are sufficiently buffered from the grading and future development. As such, it is the opinion of AA that the wetland and watercourse features are sufficiently buffered and will not be negatively impacted by future development within the proposed blocks per the Draft Plan of Subdivision (MHBC, 2026).

4.3 Wetland

Unevaluated wetland features are present within the study area, including one along the western limit of the subject property. Per the proposed Draft Plan of Subdivision (MHBC, January 14, 2026), a setback of more than 30m from the verified limit of the unevaluated wetland is being maintained. The Functional Stormwater Management Plan (SBM, March 2026) and the Overall Grading Plan (SBM, March 2026) identify that the pre-development drainage boundaries will be effectively maintained (within 2-3% of existing conditions) such that overland flow will be directed to either Municipal Drain No. 1 to the west and Municipal Drain No. 7 to the east. The existing drainage pattern will be maintained through various measures including installation of new municipal storm sewer infrastructure to one of two proposed wet pond facilities, prior to discharging to either the wetland feature located at the western limit of the subject property at an allowable flow rate or at the southeast corner of the subject property to the drainage ditch along Scotch Line Road, which ultimately outlets into Municipal Drain No. 7 approximately 1.3 km east of the subject property. The report notes that controls for the quality of surface runoff will be provided through an oil-grit separator for each development block, as well as forebays within the wet ponds for sediment deposition. These controls will occur prior to any flows entering the wetland feature.

The Functional Stormwater Management Plan (SBM, 2026), identifies that under post-development conditions, a substantial portion of the subject property (approximately 90%) will be impervious. In the absence of mitigation, this increase in impervious cover would be expected to elevate peak flows by reducing infiltration and rapidly conveying runoff during storm events. This would result in more rapid onset of peak flows, with the potential to adversely affect adjacent wetland and natural features. To mitigate the increase in runoff associated with the anticipated impervious cover, the proposed stormwater management system incorporates several flow attenuation measures. These include the inclusion of adequate active storage capacity within the wet ponds (2 m deep), which temporarily store runoff and reduce peak discharge rates, as well as multi-stage outlet structures that act to regulate flows across a range of storm events through a series of orifice tubes at varying elevations. The SWM design accommodates

runoff from minor storm events via the storm sewer system to the ponds, while excess flows from larger events are directed via overland flow routes, ensuring all runoff is captured and attenuated prior to discharge. Collectively, these measures function to attenuate peak flows and extend discharge duration, resulting in post-development flow rates that are maintained at or slightly below existing conditions.

Water quality will be maintained through the implementation of oil-grit separators within each block, which will provide a minimum of 70% total suspended solids (TSS) removal. The remaining TSS will be further treated within the sediment forebays of the SWM ponds, which have been designed to meet the settling velocity criteria and sizing recommendations outlined in the MECP *Stormwater Management Planning and Design Manual* (SWMPDM).

Since post-development discharge flow rates are maintained at or below existing conditions, water quality is expected to meet applicable Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) thresholds, and no direct impacts or loss of wetland habitat are proposed. Therefore, no adverse impacts to the wetland community are anticipated as a result of the proposed development.

In addition, Section 4 of the Functional Stormwater Management Report (SBM, March 2026) outlines a Monitoring Program that will be implemented at pre-, during, and post-construction stages to characterize baseline conditions and confirm that the proposed stormwater management measures are functioning effectively. The Monitoring Program includes specific criteria for monitoring groundwater, surface water, wetlands, stormwater management facilities, and erosion and sediment control (ESC) measures.

4.4 Watercourse

A section of the Municipal Drain No. 1 and several associated unnamed drainage features are present within the study area and receive drainage from the western portion of the subject property. The eastern portion of the subject property drains eastward to Municipal Drain No. 7 which is located approximately 1.3 km east of the subject property.

Per the proposed Draft Plan of Subdivision (MHBC, January 14 2026), a minimum 30 m setback from all watercourses will be maintained, and no development is proposed within the buffers.

Post-development conditions will result in an increase in impervious cover, which would typically lead to increased runoff volumes and peak flows. However, as outlined in the Functional Stormwater Management Report (SBM, 2026), this increase will be mitigated through the implementation of several previously mentioned stormwater management measures. These measures will control and release flows from the subject property at rates that match or are slightly below existing conditions, which will limit the potential for erosion and avoid impacts to channel stability and fish habitat.

Water quality treatment will be achieved through a treatment train approach, including oil-grit separators providing a minimum of 70% TSS removal at each block, followed by appropriately sized sediment forebays in the SWM ponds, which have been designed in accordance with the MECP SWMPDM to remove remaining TSS and meet applicable water quality objectives.

In addition, for the west SWM pond, a drainage channel approximately 100 m in length will be established between the SWM pond outlet and Municipal Drain No. 1. This feature will provide additional opportunity for sediment removal through vegetated filtration, as well as enhanced riparian plantings that will contribute to increased shading and improved thermal conditions prior to discharge to the receiving watercourse.

One culvert (C3), within the Municipal Drain No. 1 drainage network is proposed for replacement. This culvert conveys flow from the subject property east under the railway and into the Municipal Drain No. 1. The culvert is proposed to be replaced due to condition and to establish a legal outlet to the subject property under the Drainage Act. Temporary in-water works will be required to facilitate the replacement, however, with the implementation of mitigation measures during construction, impacts to fish and fish habitat are expected to be avoided.

For the east SWM pond, flows will be directed south to a drainage ditch located north of Scotch Line Road. Runoff will travel east along this ditch for approximately 1.3 km before discharging to Municipal Drain No. 7. The drainage ditch does not currently support fish habitat, and the nearest fish-bearing watercourse occurs downstream within Municipal Drain No. 7. The extended flow path will provide additional opportunity for attenuation, infiltration, and further sediment removal through vegetative filtration. As a result, flows reaching Municipal Drain No. 7 are not expected to reflect any adverse conditions originating from the subject property and proposed flow rates have been demonstrated to match or are slightly below existing conditions.

Based on the implementation of these mitigation measures, no adverse impacts to the watercourses, including effects related to erosion, water quality, or changes in fish and fish habitat, particularly Northern Pike Spawning Habitat, are anticipated as a result of the proposed development. Any potential impacts will be further monitored and mitigated through the implementation of the previously discussed Monitoring Program outlined in the Functional Stormwater Management Report (SBM, March 2026).

4.5 Significant Wildlife Habitat

4.5.1 Bat Maternity Colony Habitat

Significant Wildlife Habitat in the form of Bat Maternity Colony Habitat were confirmed and assumed present within the study area, respectively. All forested communities where Bat Maternity Colony Habitat was assumed present are located outside the limits of the subject property. No encroachment into or tree removals are proposed for these features. As such, the assumed Bat Maternity Colony Habitat SWH will not be negatively impacted by the proposed Draft Plan of Subdivision.

4.5.2 Special Concern and Rare Species

SWH in the form of Special Concern and Rare Species was confirmed for the Red Maple Deciduous Swamp communities due to probable breeding evidence of Eastern Wood-pewee. As the Red Maple Deciduous Swamp communities are located outside of the subject property, the proposed Draft Plan of Subdivision will not negatively impact this habitat.

All communities identified as candidate SWH are either outside the subject property or will be protected by the setbacks afforded to the unevaluated wetland and floodplain. Therefore, impacts to candidate SWH by the proposed development are not anticipated.

4.5.3 Turtle Overwintering Habitat

SWH in the form of Turtle Overwintering Habitat was assumed present within the entire reach of Municipal Drain No. 1 (Reach 1) in the study area. As noted in Section 4.4, no adverse impacts to the watercourse are anticipated. As such, the assumed Turtle Overwintering Habitat will not be negatively impacted.

4.6 Threatened and Endangered Species at Risk Habitat

4.6.1 Chimney Swift

Potential suitable habitat for Chimney Swift was identified within the existing Agricultural Buildings and residential dwelling on the subject property; however, individuals were not

observed entering or exiting the structures during any of the breeding bird surveys and therefore, these structures are not considered nesting habitat for this species. Per the Draft Plan of Subdivision (MHBC, January 2026), the existing structures are proposed for removal to accommodate Blocks 4-7 as well as Street B. Provided the mitigation recommendations in Section 7.0 are implemented throughout the appropriate stages of development, Chimney Swift will not be negatively impacted.

4.6.2 Species at Risk Bats

Habitat for Species at Risk bats in Ontario has been assumed present within the forested communities study area and suitable habitat may be present within the agricultural infrastructure. No impacts to the forested communities are expected, and therefore, no impacts to assumed SAR bat habitat are expected. Impacts to the Agricultural buildings are expected per the proposed Draft Plan of Subdivision (MHBC, January 14, 2026) through the removal of the existing agricultural infrastructure to accommodate Blocks 4 and 5 and a portion of Street B. An assessment to determine the presence/absence of Species at Risk bats within the Agricultural buildings is recommended immediately prior to demolition, to ensure the project conforms to the SCA and identify any additional requirements under the SCA.

4.6.3 Bobolink

Suitable habitat for Bobolink was identified on the subject property due to the presence of hayfields; however, per the results of the Grassland Breeding Bird surveys, the subject property was not being utilized for nesting. Removal of the existing hayfields will be necessary to accommodate the proposed development; provided the mitigation recommendations in Section 7.0 are implemented throughout the appropriate stages of development, Bobolink will not be negatively impacted.

4.7 Water Balance

Section 3 of the Functional Stormwater Management Report (SBM, March 2026) presents a water balance analysis for both pre- and post-development conditions within the west drainage area (draining to Municipal Drain No. 1) and the east drainage area (draining to Municipal Drain No. 7). For each drainage area, two post-development scenarios were evaluated, one without the implementation of Low Impact Development (LID) measures and one incorporating LID measures.

It is important to note that, for an industrial development, it is not feasible to direct all runoff to infiltration-based LID measures, as certain runoff sources such as parking lots and loading areas may be subject to contamination. As such, the LID scenario represents a practical and achievable condition, where LID measures such as rainwater

harvesting and green roofs are implemented for approximately 50% of each development block.

For the west drainage area, the post-development scenario without LIDs indicates an increase in total runoff of approximately 138.61%, while incorporation of LID measures reduces this increase to approximately 46.48% increase. Similarly, for the east drainage area, total runoff is anticipated to increase by approximately 216.23% without LIDs and by approximately 85.47% with LID implementation.

Overall, the water balance analysis demonstrates that the incorporation of LID measures significantly reduces the increase in runoff associated with the proposed development. It is important to note that while post-development runoff volumes remain elevated relative to existing conditions, the flow rates discharging to the receiving watercourses will be maintained at or below existing conditions through the implementation of stormwater management controls. These controls are designed to collect, attenuate, and gradually release runoff over an extended duration, ensuring that increased runoff volumes do not result in appreciable changes to flow rates or velocities within the receiving watercourses.

As a result, no measurable increases in channel velocities or erosive forces are anticipated, and no adverse impacts to fish or fish habitat are expected. While total runoff volumes are expected to increase, the extended duration of discharge may contribute to longer periods of flow within downstream drainage features, particularly those with more intermittent flow regimes. This may provide some localized benefit to aquatic habitat by increasing the extent and duration of seasonally inundated areas and may act to improve the quality of spawning and rearing habitats for species that rely on these habitats, such as Northern Pike.

4.8 Stormwater Management

Per the Functional Stormwater Management Report (SBM, March 2026), under post-development conditions, the proposed Draft Plan of Subdivision (MHBC, January 2026) will include two new municipal storm sewer systems servicing the west and east drainage area of the subject property. Quantity controls include a wet pond, while quality controls are comprised of an OGS separator and sediment forebay within the proposed stormwater management blocks. The sediment forebay has been sized to meet settling velocity requirements and sizing recommendations from the MECP SMPDM.

Section 2.7 identifies that the proposed stormwater ponds will service the existing catchment areas on the subject property, with flow being directed to the respective east and west SWM ponds. The SWM ponds will capture all surface flows from the proposed development, prior to releasing them at an allowable flow rate to the existing network of drainage features.

Impacts to the wetland and watercourse feature are expected be mitigated through the several flow attenuation and quality control measures previously described, including a proposed Monitoring Program to ensure stormwater management objectives are being met during all stages of construction.

4.9 Tree Preservation Plan

Per the Tree Preservation Plan (Aboud & Associates Inc., March 2026), 191 trees are recommended for removal to accommodate the proposed Draft Plan of Subdivision (MHBC, January 2026). No trees within the wetland feature or its regulated area are proposed for removal. Per the Tree Protection Plan, identified tree protection zones are to be fenced to mitigate any impact to existing trees not proposed for removal. An ISA Certified Arborist is to be present on site during all construction activities that are to occur within minimum tree protection zones to confirm and/or modify mitigation measures for trees to be preserved. Further details are provided in the Tree Protection Plan (Aboud & Associates Inc., October 2024) included in *Appendix 15*.

5.0 Legislation and Policy Compliance

5.1 Species at Risk Act (2002)

Suitable nesting habitat for Chimney Swift has been ruled out within the chimneys and buildings located in the subject property. Therefore, removal of the buildings is in compliance with the *Species at Risk Act*, provided the recommendations detailed in Section 7.0 and *Appendix 14* are implemented.

5.2 Fisheries Act (1985)

The proposed blocks within the Draft Plan of Subdivision are greater than 30m from the limits of all identified watercourses and drainage features. The proposed development includes the implementation of sufficient stormwater quality and quantity control measures to avoid any impacts to fish and fish habitat in downstream receiving watercourses. Through implementation of the additional mitigation measures recommended in Section 7.0 and *Appendix 14*, the proposed Draft Plan of Subdivision (MHBC, January 14, 2026) is not expected to result in negative impacts to the fish or fish habitat. As such, the proposed Draft Plan of Subdivision (MHBC, January 14, 2026) is in compliance with the *Fisheries Act* (1985).

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However, in-water work is required to complete the replacement of culvert C3 beneath the railway and establish a legal outlet under the *Drainage Act*. Therefore, a DFO Request for Review will be required to ensure the proposed culvert replacement will not result in the death of fish or harmful alteration, disruption or destruction (HADD) of fish habitat and remain in compliance with the *Fisheries Act* (1985).

It is expected that with the implementation of proposed mitigation measures and best management practices for work conducted in and around water, a Letter of Advice (LOA) will be issued by DFO and the culvert replacement work will be in compliance with the *Fisheries Act* (1985).

5.3 Migratory Bird Convention Act & Migratory Bird Regulations

Per Section 3.3.2, no active Pileated Woodpecker nests were identified through field investigations. Habitat for migratory bird species was identified through field investigations and vegetation, buildings and trees that may support breeding migratory birds are proposed for removal to accommodate the proposed Draft Plan of Subdivision (MHBC, January 14, 2026). Provided the recommendations detailed in Section 7.0 and *Appendix 14* are implemented, including removal of trees and vegetation outside of the generalized Migratory Bird nesting window (April 1- August 30), the proposed Draft Plan of Subdivision (MHBC, January 14, 2026) is in compliance with the MBCA and Migratory Bird Regulations.

5.4 Species Conservation Act (2025)

The existing Agriculture Buildings and residential dwelling on the subject property were identified as potentially suitable habitat for Species at Risk Bats. As removal of the buildings is necessary to accommodate the proposed Draft Plan of Subdivision (MHBC, January 14, 2026), and usage of these structures by SAR bats will need to be confirmed immediately prior to demolition, a follow up assessment to confirm presence/absence of SAR bats is recommended prior to demolition to ensure compliance under the SCA. Provided that recommendations to ensure compliance under the SCA are completed, the proposed development is expected to comply with the SCA.

5.5 Provincial Planning Statement

5.5.1 Significant Wildlife Habitat

Significant Wildlife Habitat in the forms of Special Concern & Rare Species and Bat Maternity Colony Habitat have been confirmed and assumed present, respectively, within the study area. All confirmed or assumed SWH are located outside the limits of

the subject property and will therefore, not be negatively impacted by the proposed Draft Plan of Subdivision (MHBC, January 2026). The proposed development is therefore in compliance with the requirements for SWH under the PPS.

5.5.2 Habitat of Threatened or Endangered Species

Habitat of Threatened or Endangered Species is potentially present within the existing agricultural infrastructure on the subject property. Provided the project conforms to all requirements under the SCA and SARA the proposed Draft Plan of Subdivision (MHBC, January 2026) is in compliance with the PPS.

5.6 Grand River Conservation Authority

The subject property and study area include unevaluated wetland features, regulated watercourse, one-zone floodplain, and their associated regulated area.

Per the proposed Draft Plan of Subdivision (MHBC, January 2026), Block 13 has been designated as Open Space and includes the aforementioned natural heritage features, their proposed buffers, and a 15m setback from the regulation limit, as well as the proposed west stormwater management pond. Although the blocks where development is proposed are located outside of the natural features and their associated setbacks, changes to the volume of surface runoff entering the wetland feature, Municipal Drain No. 1 and Municipal Drain No. 7 are anticipated. As such, a permit may be necessary to ensure compliance with the GRCA's *Policies for the Administration of the Prohibited Activities, Exemptions and Permits Regulation (Ontario Regulation 41/24)*.

5.7 Township of Woolwich Official Plan (2022)

Core Environmental Features include Habitat of Endangered and Threatened Species. As identified in previous sections, the agricultural infrastructure may provide suitable habitat for SAR Bats. Section 13 does not identify whether man-made structures are considered Core Environmental Features. As such, correspondence with the Township of Woolwich may be required to determine compliance of the Draft Plan of Subdivision (MHBC, January 2026), should presence/absence surveys confirm the habitat is present.

5.8 Township of Woolwich Zoning By-law 26-2024 (2024)

Per the Township of Woolwich Zoning By-law 26-2024, the property is zoned primarily as Agricultural, with lands along the western limit zoned as Agricultural with a Hazard Land- Flood Overlay Zone. Per Section 15.5, no building(s), structure(s) or addition(s)

shall be constructed within the Hazard Land- Flood Overlay Zone without GRCA approval. Per the Draft Plan of Subdivision (MHBC, January 2026), no development is proposed within the Block containing the lands identified as Hazard Land- Flood Overlay Zone. As such, the proposed Draft Plan of Subdivision (MHBC, January 2026) is in compliance with Section 15 of the Township of Woolwich Zoning By-law 26-2024.

6.0 Summary of Constraints, Impacts, and Applicable Legislation

As noted in above sections, the proposed development will require the removal of trees and vegetation, and agricultural buildings that may be habitat for species at risk. Below is a summary of the identified Natural Heritage features and constraints, and associated mitigation and/or protection measures, including additional work recommended to ensure compliance with applicable legislation.

6.1 Biological Constraints

1. Surveys were conducted for Ecological Land Classification and Vegetation Communities (ELC and Vascular Plant List), Breeding Birds, Grassland Breeding Birds, Aquatic Habitat Assessment, Candidate Bat Maternity Habitat, Woodpecker Cavities, Significant Wildlife Habitat and Species at Risk habitat.
2. The study area includes natural features including a reach of Municipal Drain No. 1 and its associated tributaries, Municipal Drain No. 7, an unevaluated wetland, one-zone floodplain, and their associated regulated areas. A significant woodland feature is also present within the study area, as identified through the Region of Waterloo Official Plan (2015).
3. Suitable habitat for Species at Risk bats may be present within agricultural buildings in the subject property. An assessment in advance of the building demolition is required to ensure compliance with the Species Conservation Act.
4. Confirmed Significant Wildlife Habitat for Special Concern and Rare Wildlife Species for Eastern Wood-pewee was identified within the Red Maple Deciduous Swamp communities.
5. Bat Maternity Colony, Special Concern and Rare Wildlife Species habitat for Eastern Ribbonsnake, Snapping Turtle and Monarch were assumed present within the study area.

6.2 Impact Assessment

1. Generalized impacts due to the proposed Draft Plan of Subdivision (MHBC, January 2026) were assessed to determine their extent and mitigation guidelines have been provided (*Appendix 14*). Provided the recommended mitigation measures are implemented, no negative impacts to the surrounding natural features are anticipated.
2. Potential impacts primarily involve potential removal of species at risk habitat through removal of buildings, changes to the existing water balance of the wetland feature, removal of trees and vegetation, wildlife disturbance, site grading, sediment and deleterious runoff, and erosion.
3. Impacts to potential SAR bat habitat must be determined through an additional assessment of the buildings immediately prior to demolition to ensure compliance under the SCA.
4. There are opportunities in the study area for restoration and enhancement, and compensation planting to mitigate and offset potential impacts.

6.3 Legislation and Policy Compliance

1. The proposed Draft Plan of Subdivision (MHBC, January 14, 2026) can occur in accordance with the *Provincial Planning Statement (2024)* provided compliance with the *Species Conservation Act (2025)* is demonstrated.
2. The proposed Draft Plan of Subdivision (MHBC, January 14, 2026) is expected to comply with the *Species Conservation Act (2025)* provided the recommendations to ensure compliance under the SCA are completed as outlined in this report.
3. The proposed Draft Plan of Subdivision (MHBC, January 14, 2026) is expected to comply with the *Species at Risk Act (2002)*, provided the recommendations to ensure compliance under the SARA are completed as outlined in this report.
4. The proposed Draft Plan of Subdivision (MHBC, January 14, 2026) is expected to comply with the *Fisheries Act* provided that the proposed stormwater management controls are implemented and function as intended and a Request for Review is submitted and subsequent Letter of Advice is received from DFO identifying that the proposed replacement of culvert C3 is not likely to result in the death of fish or HADD of fish habitat.
5. The proposed Draft Plan of Subdivision (MHBC, January 14, 2026) can occur in accordance with the *Migratory Bird Convention Act (1994)* & Migratory Bird

Regulations (2022) provided that the mitigation measures detailed in Section 7.0 & *Appendix 14* are implemented throughout the appropriate stages of development.

6. The proposed Draft Plan of Subdivision (MHBC, January 14, 2026) will result in an increase in surface volume runoff to the wetland feature, Municipal Drain No. 1, and Municipal Drain No. 7, and will result in changes to the water balance of the wetland feature. As such, a permit may be necessary to ensure compliance with the GRCA's *Policies for the Administration of the Prohibited Activities, Exemptions and Permit Regulation (Ontario Regulation 41/24)*.
7. The proposed Draft Plan of Subdivision (MHBC, January 14, 2026) proposes removal of agricultural infrastructure which may provide suitable habitat for Threatened and Endangered species. Correspondence with the Township of Woolwich regarding whether man-made structures are considered Core Environmental Features may be required to determine compliance with the Official Plan.

7.0 Mitigation Recommendations

The following mitigation measures are recommended to ensure the protection of natural heritage features and their functions within, and adjacent to, the subject property as a result of the proposed Draft Plan of Subdivision (MHBC, January 14, 2026).

- 1) Prepare and implement an Erosion and Sediment Control (ESC) Plan, per the GGH Erosion and Sediment Control Guide for Urban Construction (TRCA, 2019), as part of detailed design, for protection of the existing natural features.
 - a) Implement the Monitoring Program identified in Section 4 of the Functional Stormwater Management Report (SBM, March 2026).
 - b) Implement the erosion and sediment control considerations identified in Section 5 of the Functional Stormwater Management Report (SBM, March 2026).
- 2) Prior to building demolition, complete the assessment for determining usage by SAR bats, as outlined in this report and per any future communication with the MECP, confirm any additional requirements under the SCA. Per the results of the assessment, additional mitigation and compensation may be required in order to ensure compliance under the SCA.
- 3) Implement the specifications and compensation identified within the Tree Preservation Plan (AA, 2026) to ensure minimal impact to the retained trees within and immediately adjacent to the subject property.

- 4) ESC measures to be kept in place until construction is completed and disturbed soils have been revegetated.
- 5) The area of construction disturbance shall be kept to a minimum.
- 6) Control access and movement of equipment and people through implementation of staging and storage areas.
- 7) Works and equipment storage are to be located as far as possible from the existing natural features.
- 8) Accumulated sediment and debris to be removed prior to the removal of the silt fence.
- 9) All disturbed areas will be re-vegetated or restored with site appropriate indigenous plants wherever opportunities exist.
 - a) Native tree, shrub and vegetative species suitable to the existing vegetation community, soil and moisture conditions are to be selected for compensation.
 - b) Species selection should also be reflective of surrounding vegetation communities and consist of varying successional stages to complement adjacent habitat functions.
 - c) All plantings are to be monitored to ensure proper establishment.
 - d) Restrict access and buffer natural areas to discourage human encroachment and improper use.
- 10) Time activities to avoid wildlife disturbance during critical life stages:
 - a) Avoid removal of vegetation during the generalized breeding bird nesting period from April 1 to August 31. If removal of vegetation is to occur during the general nesting period, a nest search is to be completed by a skilled and experienced biologist/ecologist. Any active nests detected during a nest search are to be monitored weekly until inactive.
 - b) No clearing of trees on site is to occur during the bat maternity season (March 15- November 30) in compliance with provincial direction.
 - c) In-water work relating to the proposed replacement of culvert C3 shall be completed between July 16 to March 14 to avoid the sensitive time period for fish.
- 11) All equipment used within 30 m of a watercourse shall be maintained per the *Clean Equipment Protocol for Industry* (2016) to reduce potential for spreading invasive species

- 12) In-water work relating to the proposed replacement of culvert C3 shall be performed in isolation of active flow and carried out in the dry. Prior to any dewatering, a fish rescue is required to be conducted under the direction of a qualified biologist and valid Licence to Collect Fish for Scientific Purposes.
- 13) Choose designs and materials that will minimize impacts.
- 14) Implement low impact development measures, such as bioswales, impermeable surfaces, and infiltration trenches, within suitable locations as identified in the Functional Stormwater Management Report (SBM, March 2026).
- 15) Prepare, as part of detailed design, lighting plans to reduce nighttime glare and light trespass to minimize impacts to the adjacent natural features and wildlife utilizing them.
- 16) Prepare, as part of detailed design, and implement a Salt Management Plan to mitigate impacts to the adjacent natural features.

8.0 Conclusion

The above scoped EIS was completed to document the existing natural heritage features within and adjacent the subject property, assess potential impacts to these features in regard to the proposed development, demonstrate compliance with the appropriate federal, provincial and municipal policies, and provide recommendations and potential requirements for the proposed development under the SCA.

Based on the results of the scoped EIS, it is the opinion of AA that the proposed Draft Plan of Subdivision (MHBC, January 2026) is not anticipated to result in negative impacts to the existing natural features or their ecological functions, provided the recommended mitigation measures are implemented throughout all phases of development.

Additional actions are required to achieve compliance with the Species Conservation Act, including an assessment to determine the use of the agricultural buildings by species at risk bats immediately prior to building demolition.

Please contact the undersigned should you require additional information.

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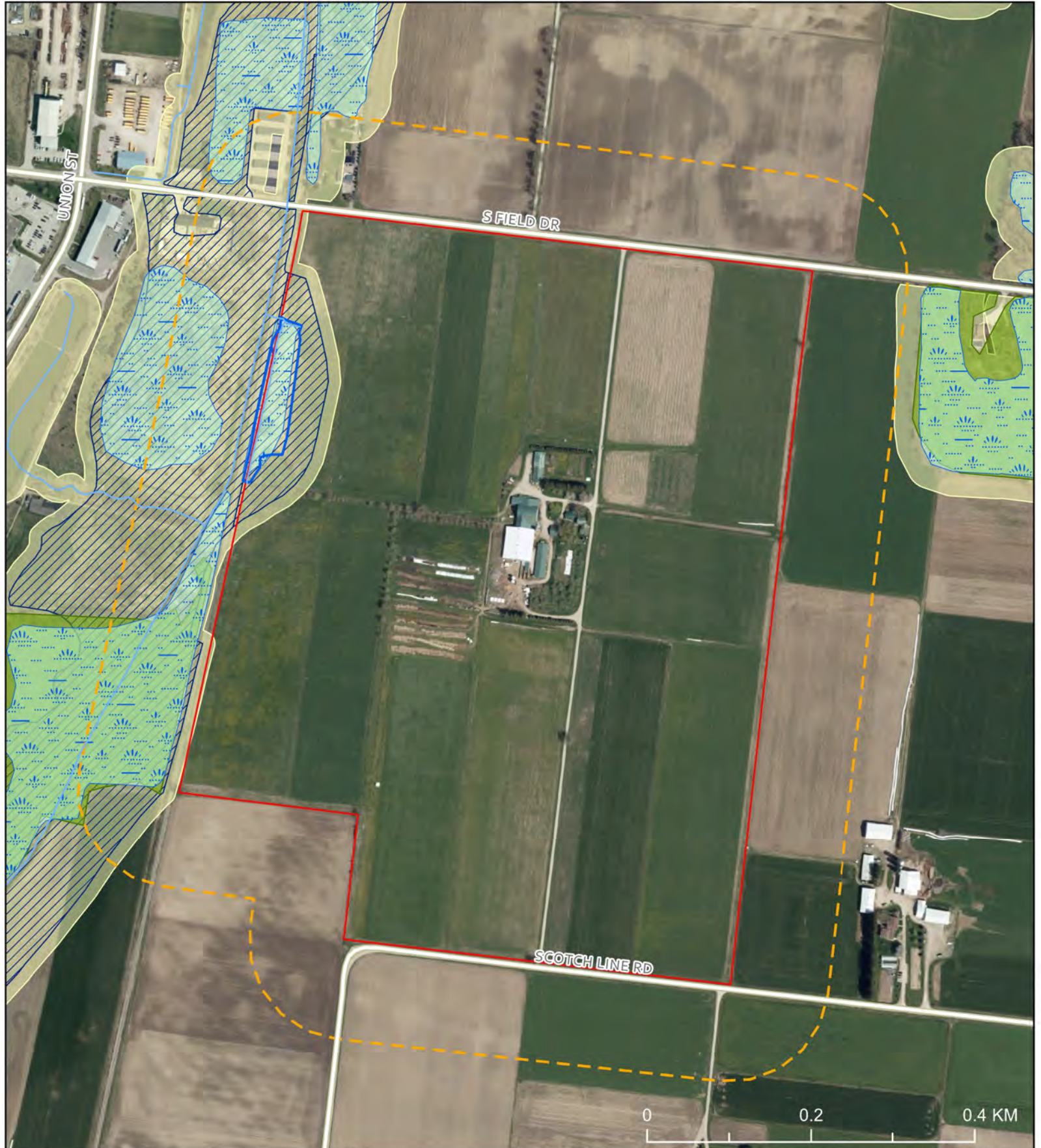
Hovingh, Albert. Senior Planner, Region of Waterloo. 2023. Email Correspondence

Messier, Robert. Ecologist, GRCA. 2024. In-person Correspondence.

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FIGURES





LEGEND

- | | |
|------------------------|----------------------|
| SUBJECT PROPERTY | WETLAND |
| STUDY AREA | SIGNIFICANT WOODLAND |
| WATERCOURSE | ONE-ZONE FLOODPLAIN |
| VERIFIED WETLAND LIMIT | REGULATION LIMIT |

Information Sources:
1. Orthophotography: Waterloo Region, Dated 2024, accessed April 2026.
2. Wetlands, Floodplain & Regulation Limit provided by GRCA, Accessed April 2026.
3. Significant Woodlands provided by Region of Waterloo Open Data, Accessed April 2026.
4. Verified Wetland Limit provided by MHBC, 2024. Confirmed by GRCA, May 9, 2024.



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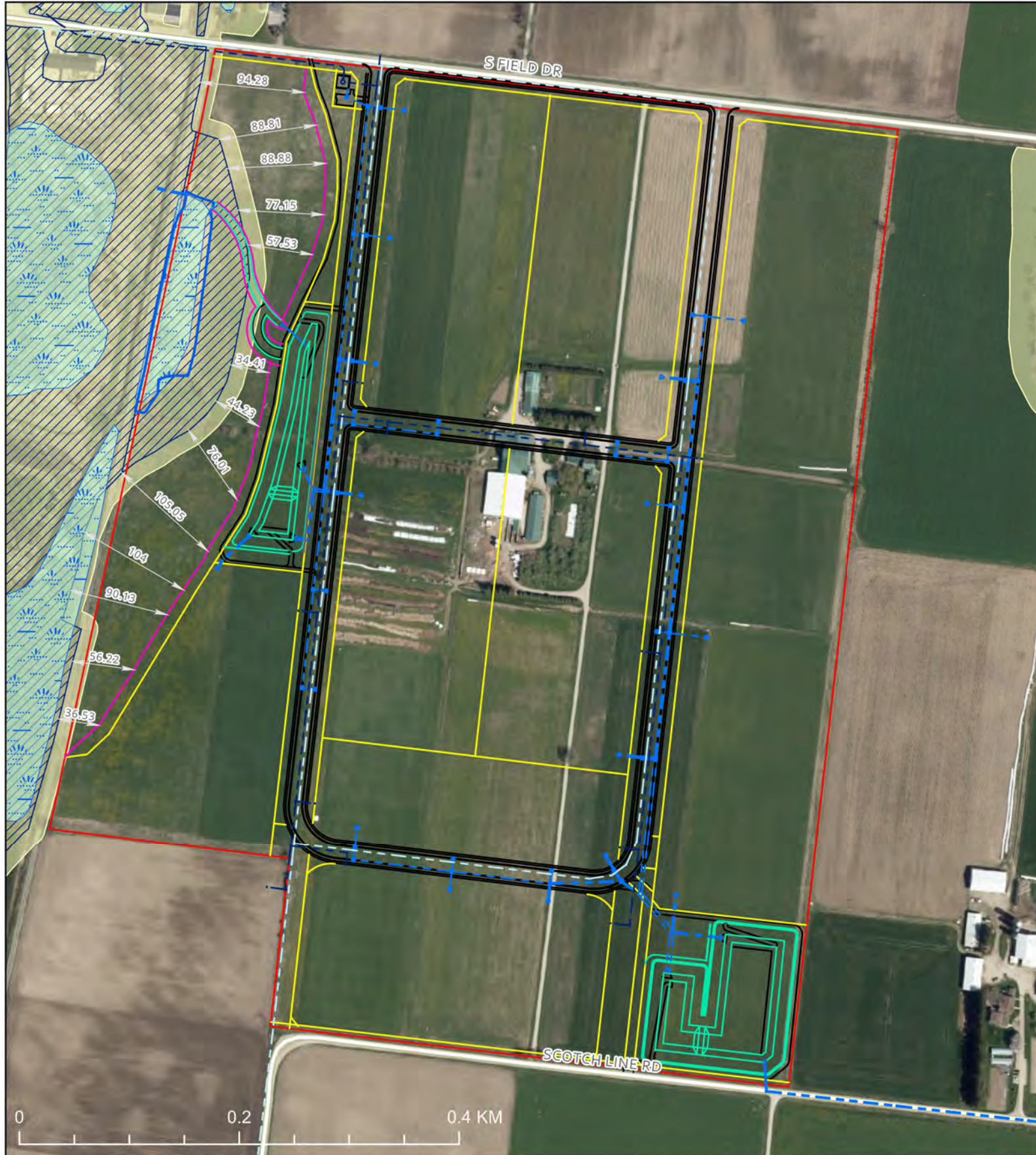
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TITLE: STUDY AREA &
LIMITS OF NATURAL FEATURES

PROJECT: 1665 SCOTCH LINE
TOWNSHIP OF WOOLWICH, ON

FIGURE NO:

1



LEGEND

 SUBJECT PROPERTY

 VERIFIED WETLAND LIMIT

 ONE-ZONE FLOODPLAIN

 REGULATION LIMIT

 BUFFER WIDTH

 PROPOSED LIMIT OF GRADING

 WETLAND

 PROPOSED ROADWAY AND PUMPING STATION

 PROPOSED BLOCK

 PROPOSED SWM POND & OUTLET CHANNEL

 PROPOSED STORM SERVICING

 PROPOSED RETAINING WALL

 PROPOSED WATERMAIN

 PROPOSED SANITARY SERVICING



DATE: APRIL 2026

PROJECT #: AA23-232A



TITLE: PROPOSED BLOCK PLAN

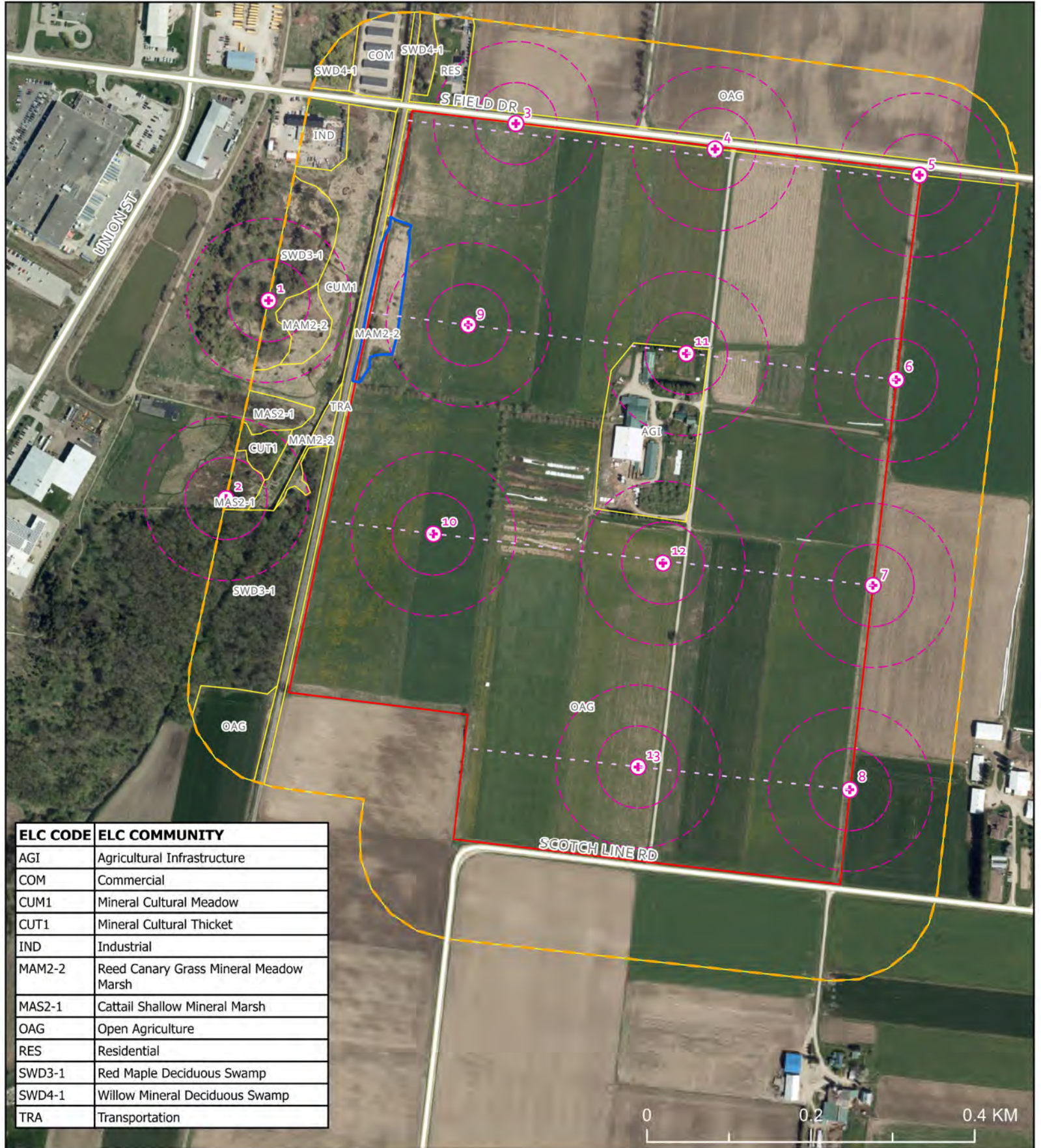
PROJECT: 1665 SCOTCH LINE
TOWNSHIP OF WOOLWICH, ON

FIGURE NO:

2

Information Sources:
1. Orthophotography: First Base Solutions, Dated 2024, accessed April 2026.
2. Floodplain, Wetland & Regulation Limit provided by GRCA, Accessed April 2026.
3. Verified Wetland Limit provided by MHBC, 2024. Confirmed by GRCA, May 9, 2024.

4. Proposed Block Plan provided by SBM, March 2026.



ELC CODE	ELC COMMUNITY
AGI	Agricultural Infrastructure
COM	Commercial
CUM1	Mineral Cultural Meadow
CUT1	Mineral Cultural Thicket
IND	Industrial
MAM2-2	Reed Canary Grass Mineral Meadow Marsh
MAS2-1	Cattail Shallow Mineral Marsh
OAG	Open Agriculture
RES	Residential
SWD3-1	Red Maple Deciduous Swamp
SWD4-1	Willow Mineral Deciduous Swamp
TRA	Transportation

- LEGEND**
- SUBJECT PROPERTY
 - STUDY AREA
 - VERIFIED WETLAND LIMIT
 - ECOLOGICAL LAND CLASSIFICATION

- BREEDING BIRD SURVEY POINT COUNT LOCATION
- BREEDING BIRD SURVEY POINT COUNT RADIUS
- GRASSLAND BREEDING BIRD TRANSECT



DATE: APRIL 2026
PROJECT #: AA23-232A



TITLE: ECOLOGICAL LAND CLASSIFICATION
& BREEDING BIRD SURVEY LOCATIONS
PROJECT: 1665 SCOTCH LINE
TOWNSHIP OF WOOLWICH, ON
FIGURE NO: 3

Information Sources:
1. Orthophotography: First Base Solutions, Dated 2024, accessed March 2026.
2. Ecological Land Classification provided by AA, 2024
3. Verified Wetland limits provided by MHBC, 2024. Confirmed with the GRCA on May 9, 2024.



LEGEND

- | | |
|------------------|---------------------|
| SUBJECT PROPERTY | TILE DRAIN OUTLET |
| STUDY AREA | CULVERT |
| WATERCOURSE | DIRECT FISH HABITAT |

Information Sources:
1. Orthophotography: First Base Solutions, Dated 2024, accessed April 2026.
2. Watercourse provided by GRCA, Accessed April 2026.



DATE: APRIL 2026
PROJECT #: AA23-232A



TITLE: AQUATIC HABITAT FEATURES
MUNICIPAL DRAIN NO. 1
PROJECT: 1665 SCOTCH LINE
TOWNSHIP OF WOOLWICH, ON
FIGURE NO:
4a



LEGEND

- | | | |
|--|---|---|
| SUBJECT PROPERTY | —→ WATERCOURSE | ⬠ CULVERT |
| STUDY AREA | TILE DRAIN OUTLET | DIRECT FISH HABITAT |

Information Sources:
 1. Orthophotography: First Base Solutions, Dated 2024, accessed April 2026.
 2. Watercourse provided by GRCA, Accessed April 2026.



DATE: APRIL 2026

PROJECT #: AA23-232A



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TITLE: AQUATIC HABITAT FEATURES
 MUNICIPAL DRAIN NO. 7

PROJECT: 1665 SCOTCH LINE
 TOWNSHIP OF WOOLWICH, ON

FIGURE NO:

4b



LEGEND

- SUBJECT PROPERTY
- STUDY AREA
- VERIFIED WETLAND LIMIT
- WATERCOURSE
- ASSUMED SWH
- BAT MATERNITY COLONY
- SC & R- EASTERN RIBBONSNAKE
- SC & R- EASTERN WOOD-PEWEE
- SC & R- SNAPPING TURTLE
- SC & R- MONARCH

REGIONALLY SIGNIFICANT SPECIES

- + AMERICAN REDSTART
- + BELTED KINGFISHER
- + CAROLINA WREN
- + GREAT BLUE HERON
- + RED-BELLIED WOODPECKER
- + TURKEY VULTURE
- + WARBLING VIREO
- + WILLOW FLYCATCHER

SPECIES AT RISK

- BARN SWALLOW
- BOBOLINK
- CHIMNEY SWIFT
- EASTERN WOOD-PEWEE
- MONARCH

SAR HABITAT

- SAR BATS



DATE: APRIL 2026

PROJECT #: AA23-232A

Information Sources:
1. Orthophotography: ESRI World Imagery, 2025, accessed March 2026.
2. Verified Wetland Limit provided by MNSC, 2024.
Confirmed by GRCA, May 9, 2024.



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TITLE: SIGNIFICANT FEATURES

PROJECT: 1665 SCOTCH LINE
TOWNSHIP OF WOOLWICH, ON

FIGURE NO:

5