

Environmental Impact Statement for the Proposed Development of 6012 Ottawa Street Area

October 9, 2025

Updated Report: Version 3

Submitted To:

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Version History

Version	Date	Description of revisions
1	2020-01-14	Original Report (Draft EIS)
2	2024-12-06	Updated Report
3	2025-10-09	Updated Report



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List of Acronyms and Abbreviations

- ELC – Ecological Land Classification
- EIS – Environmental Impact Statement
- ESA – *Endangered Species Act*
- HDFA – Headwater Drainage Features Assessment
- KAL – Kilgour & Associates Ltd.
- MBCA – *Migratory Birds Convention Act*
- MECP – Ministry of Environment, Conservation and Parks
- MNRF – Ministry of Natural Resources and Forestry
- OSAP – Ontario Stream Assessment Protocol
- RVCA – Rideau Valley Conservation Authority
- SAR – Species at risk
- SARA – *Species at Risk Act*
- TCR - Tree Conservation Report



1.0 INTRODUCTION

Kilgour and Associates Ltd. (KAL) was retained in 2019 by HP Urban Inc. on behalf of Tamarack Homes to provide an Environmental Impact Statement (EIS) in support of the proposed development of 6012 Ottawa Street and several adjacent parcels in the Village of Richmond (hereafter referred to as “the Site”; Figure 1). As per Section 4.7.8 of the Official Plan (City of Ottawa, 2003; i.e. the OP effect at the time), that EIS was triggered as the proposed development is planned to occur within and/or near significant or potentially sensitive natural heritage features, including habitat potentially used by species at risk (SAR). Consequently, KAL developed a “Draft EIS” (Dated January 14, 2020) to 1) identify natural heritage features on or adjacent to the Site, 2) identify potential impacts of the proposed development to those features, and 3) identify mitigation measures to minimize or eliminate those impacts. The EIS included descriptions of Headwater Drainage Features (HDF) on the Site from the associated Headwater Drainage Features Assessment (HDFA; KAL, 2019). It also described site trees following relevant guidelines and was thus intended to serve as a high-level Tree Conservation Report (TCR).

The second version of the EIS provided minor revisions to address City of Ottawa comments from December 2021, pertaining to the Draft EIS. This current EIS provides further minor revisions to address City of Ottawa comments from December 2025 (Appendix B), pertaining to the second version of the EIS. This EIS discusses remaining trees on site and provides both general recommendations for the management of site trees and direction for a further detailed study of the remaining trees at the detailed design stage for each proposed phase of development, but does not otherwise constitute a formal TCR.

1.1 Property Information and General Existing Conditions

The Site (Figure 1) is composed of several parcels:

- 5970 Ottawa Street (PIN: 039340031);
- 5966 Ottawa Street (PIN: 039340032); and
- 6038 Ottawa Street (PIN: 039340022).

The Site is approximately 66 ha in size and is zoned as General Industrial and is therefore intended for light industrial development. The Site is bordered to the north by Ottawa Street, a Development Reserve Zone, a Rural General Industrial Zone, agricultural fields, and the floodplain of the Jock River. The eastern edge of the Site is bordered by Eagleson Road, and beyond that are agricultural fields. Agricultural fields are also to the south of the Site, along with rural countryside. West of the Site is a Development Reserve Zone, Rural General Industrial Zones, McBean Street, and Village Residential Zones. The Smiths Falls rail line lies along the northwestern edge of the Site. Marlborough Creek, a tributary of the Jock River, and its associated floodplain also lie within the western to northwestern edge of the Site.



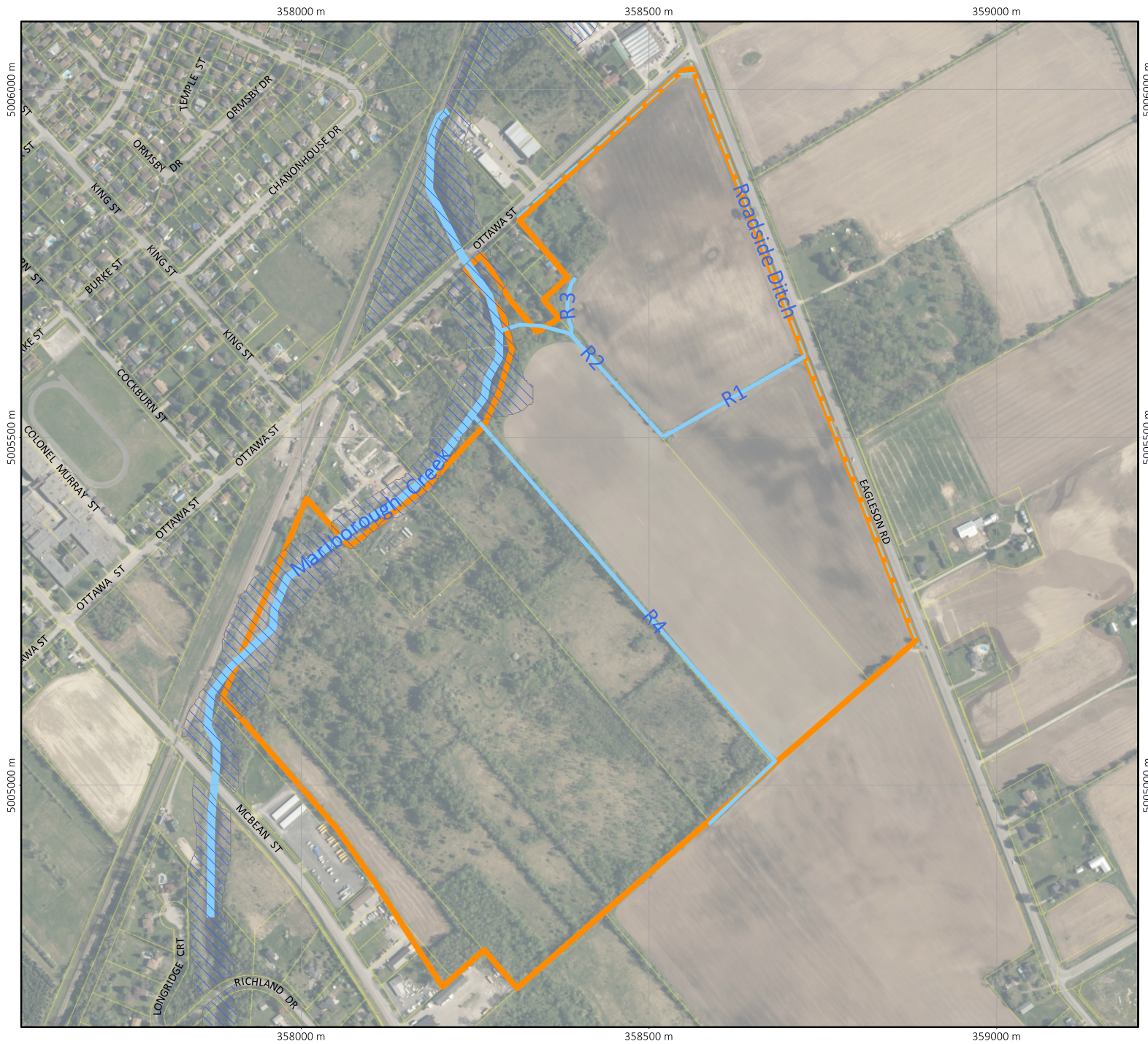
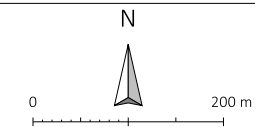


Figure 1 Map showing a general site overview

Legend

-  Project Area
-  Floodplain



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 MTM Zone 9
 (NAD 83)
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At the time of the initial writing this report, the Site predominantly consisted of open agricultural fields in the eastern half of the Site and scattered young tree cover over the western half of the Site, which was historically used for agriculture. Based on available imagery from geoOttawa, it appears most of the western half of the Site was naturally revegetated sometime between 1976 and 1991. Some trees in the western half of the Site, such as the two linear hedgerows and the small woodlot in the southwestern corner of Site, existed prior to 1976 and thus are over 40 years old. The small woodlot, including the portion of it that extends beyond the Site, is approximately 1.8 ha. Aerial photos from Natural Resource Canada's air photo library in Ottawa show that this woodlot existed in 1963 and is thus likely over 60 years old.

Per the City's Significant Woodland Policy (City of Ottawa, 2022), wooded features outside of the urban boundary (i.e. on the Site) are reviewed for "significance" based on Natural Heritage Reference Manual (NHRM; MNR 2010) criteria. Per those criteria, woodland areas on site:

- Are <50 ha in total size;
- Have <8 ha of interior space;
- Are < 10 ha in size and so do not qualify in terms of:
 - Proximity,
 - Linkages, or
 - Water Protection, or
 - Woodland diversity;
- Do not have "uncommon characteristics such as:
 - Unique species compositions,
 - Provincially significant vegetation communities, or
 - Rare, uncommon or restricted plant species;
- Do include (somewhat) older woodlands but none > 5 ha; and
- Being fully private, do not provide important economic or social value (and are <10 ha regardless).

As such, woodland features identified on the Site do not and did not previously qualify as Significant Woodlands under the NHRM criteria. Per EMP, "local woodlots" and hedgerows are identified on the Site (Figure 2). The EMP suggests that trees within local woodlots should be retained where feasible but does not expressly require their retention. Forest cover on the Site outside of that associated with the Marlborough Creek riparian zone was fully removed in early 2020.

No natural heritage elements are specifically named or described on or adjacent to the Site or are identified as potentially present under Schedule L2 of the City's Official Plan. There are no significant valleylands, significant woodlands, or Life Science Areas of Natural and Scientific Interest nearby. The closest Provincially Significant Wetland, the Richmond Fen, is ~2 km southwest of the Site.

The Site and adjacent lands lie within the Jock River subwatershed, which drains a total area of 556 km² (Rideau Valley Conservation Authority (RVCA), 2016). Within the Jock River subwatershed, the Site lies within the Jock River-Richmond Catchment, which has a drainage area of 31 km² (RVCA, 2016). The main channel of the Jock River is ~515 m west of the Site. As previously mentioned, the Site contains a tributary of the Jock River and associated floodplain, along with several other small HDFs.



According to RVCA (2016), as of 2014, the Jock River-Richmond Catchment land cover type is predominantly crop and pasture (47%), followed by woodland (16%), wetland (15%), settlement (14%), transportation (5%), meadow-thicket (2%), and water (1%). Considerable changes in land cover in the catchment from 2008 to 2014 include a loss of woodland and meadow-thicket (-42 ha each) and an increase in crop and pasture (+63 ha) and settlement (+24 ha; RVCA, 2016). Per City's guideline under the current Significant Woodlands Policy, the broader Jock River Rural Planning area in which the Site is included, is deemed to have 36.7% forest cover.

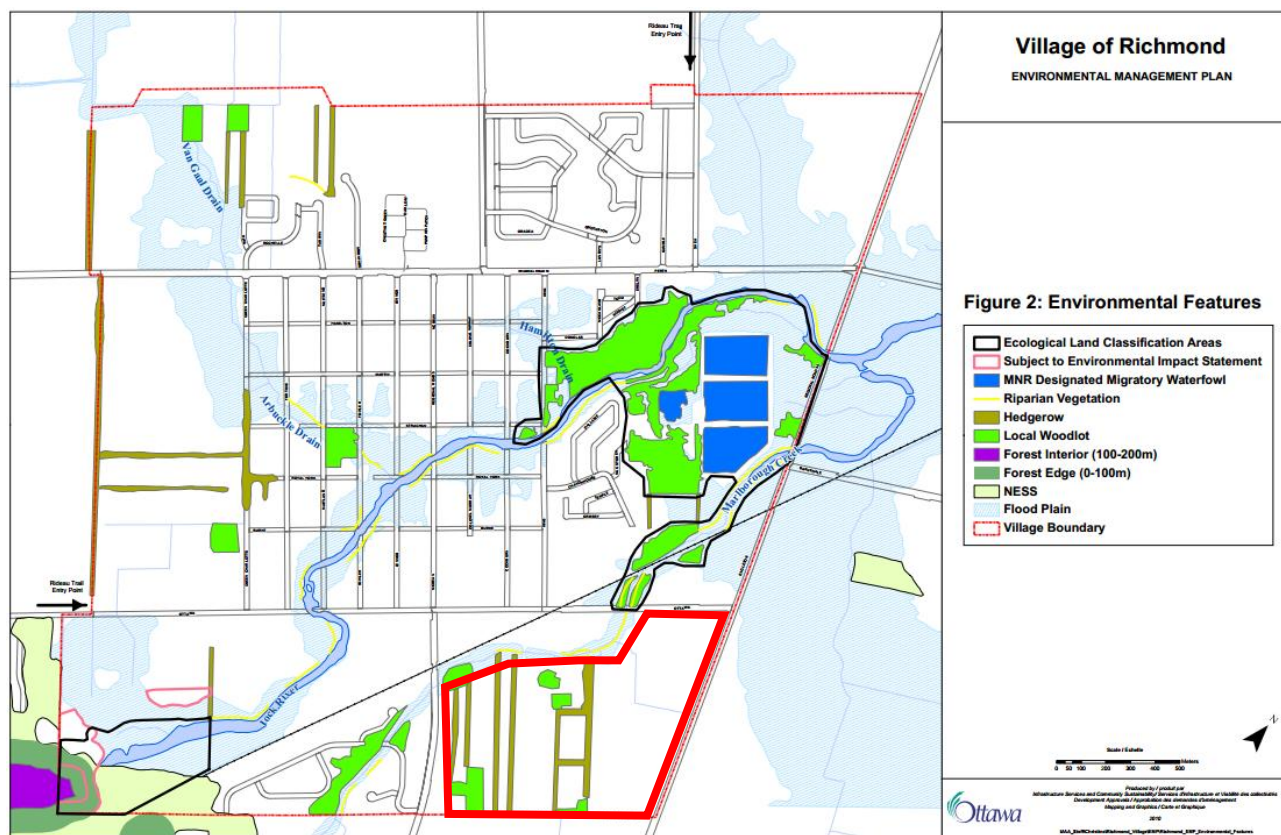


Figure 2 Richmond Environmental Management Plan showing Local Woodlots and Hedgerows (previously located) within the Site (marked in red)



2.0 ENVIRONMENTAL POLICY CONTEXT

2.1 Federal Policy

2.1.1 Species at Risk Act, 2002

The federal Species at Risk Act (SARA; Government of Canada, 2002) is administered by Environment and Climate Change Canada (ECCC) and provides direction to protect and ensure the survival of wildlife species in Canada. The purpose of the SARA is to prevent populations of wildlife from becoming Extirpated, Endangered, or Threatened, provide recovery plans for Endangered or Threatened species, and to manage other species to prevent them from becoming Endangered or Threatened.

All species listed on Schedule 1 of SARA are afforded protection on federal lands. Aquatic species and species of migratory birds protected by the Migratory Birds Convention Act (MBCA; Government of Canada, 1994) and listed as Endangered, Threatened, or Extirpated under Schedule 1 of SARA are protected wherever they occur in Canada, regardless of land ownership. SARA protections for other species do not normally extend to privately owned land. However, the Federal Minister of ECCC can and has imposed SARA protections on private projects where habitat is deemed “...*necessary for the survival or recovery of the species...*” in the area of concern.

2.1.2 Fisheries Act, 1985

The federal Fisheries Act (Government of Canada, 1985) is administered by Fisheries and Oceans Canada (DFO) and provides protections to fish, fish habitat, and fisheries. Specifically, the Fisheries Act in its current version provides protection for all fish and fish habitat, and prohibits the harmful alteration, disruption, or destruction of fish habitat.

Projects with a scope that does not fall within DFO’s defined standards and codes of practice require submission of a request for review to DFO.

2.1.3 Migratory Birds Convention Act, 1994

Nesting migratory birds are protected under the MBCA (Government of Canada, 1994). No work is permitted that would result in the destruction of active nests (nests with eggs or young birds) or the wounding or killing of bird species protected under the MBCA and/or associated regulations (e.g., SARA).

2.2 Provincial Policy

2.2.1 The Provincial Policy/ Planning Statement, 2020/2024

The Provincial *Policy* Statement (PPS) under which the proposed project was initiated was issued under Section 3 of the Planning Act (Government of Ontario, 1990b) and came into effect May 1, 2020 (Government of Ontario, 2020). Natural features are afforded protection under the PPS including the maintenance, restoration, and improved function of diversity, connectivity, ecological function, and biodiversity of natural heritage systems. These protections restrict development and site alteration in significant natural areas (e.g., woodlands, wetlands, wildlife habitat) unless it can be demonstrated that there will be no negative effects



on the features and ecological functions of those natural areas. The PPS also calls for the restriction of development and site alteration on sensitive surface water features. Technical guidance for implementing the natural heritage policies of the PPS is found within the second edition of the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (NHRM; Ministry of Natural Resources (MNR, 2010)).

Subsequently, the Province approved the updated Provincial Planning Statement 2024 (MMAH, 2024; herein also "PPS"), which came into effect on October 20, 2024. As such, the 2024 edition will be the relevant planning document when the proposed application is submitted for approval. While the revised PPS is intended to simplify and integrate existing policies to achieve housing objectives while providing tools for municipalities to deliver on housing objectives, the portions of the document related to Natural Heritage considerations have only been renumbered; they have not otherwise been meaningfully changed. Therefore, the revision of the PPS does not impose any relevant changes with respect to Natural Heritage considerations from a policy perspective; for the purposes of this EIS, both PPS documents are effectively equivalent.

2.2.2 Endangered Species Act, 2007

The provincial Endangered Species Act (ESA; Government of Ontario, 2007) is administered by the Ministry of Environment, Conservation, and Parks (MECP) and provides protection for species at risk (SAR) and their habitat. Species listed as Endangered, Threatened, or Extirpated and their habitats (e.g., areas essential for breeding, rearing, feeding, hibernation, and migration) are automatically afforded legal protection under the ESA.

Following the passage of Ontario's *Bill 5, Protect Ontario by Unleashing our Economy Act, 2025*, the definition of "habitat" for species at risk within the ESA was updated as of June 4, 2025. Within the ESA, "habitat" now means:

- (a) in respect of an animal species,
 - (i) a dwelling-place, such as a den, nest or other similar place, that is occupied or habitually occupied by one or more members of a species for the purposes of breeding, rearing, staging, wintering or hibernating, and
 - (ii) the area immediately around a dwelling place described in subclause (i) that is essential for the purposes set out in that subclause.
- (b) in respect of a vascular plant species, the critical root zone surrounding a member of the species, and
- (c) in respect of all other species, an area on which any member of a species directly depends in order to carry on its life processes; ("habitat").

2.2.3 Migratory Birds Convention Act, 1994

Nesting migratory birds are protected under the MBCA (Government of Canada, 1994). No work is permitted that would result in the destruction of active nests (nests with eggs or young birds) or the wounding or killing of bird species protected under the MBCA and/or associated regulations (e.g., SARA).



2.2.4 Conservation Authorities Act, 1990

Conservation Authorities were created to address erosion, flooding, and drought concerns regionally by managing at the watershed level. Conservation Authorities were given the ability to regulate under Section 28 of the Conservation Authorities Act (CA Act; Government of Ontario, 1990a). The Act obliges Conservation Authorities to implement Ontario Regulation (O.Reg.) 41/24, *Prohibited Activities, Exemptions and Permits* (formerly O.Reg. 174/06, *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*) under Section 28.1 of the Conservation Authorities Act for relevant works. This project falls under the jurisdiction of the Rideau Valley Conservation Authority (RVCA).

Bill 23, which was passed on November 28th, 2022, and received Royal Assent the same day, introduced a series of legislative and proposed regulatory changes affecting conservation authorities. It is now in effect. Among the changes under Bill 23, the definition of “watercourse” was updated from an identifiable depression to a defined channel having a bed and banks or sides.

2.3 Local Policy

2.3.1 The City of Ottawa Official Plan (2021)

The City of Ottawa Official Plan (OP; City of Ottawa, 2021) was updated and approved by the Ministry of Municipal Affairs and Housing as part of a comprehensive review. Pursuant to subsections 17(36.5) and (38.1) of the Planning Act, the decision of the Minister of Municipal Affairs and Housing regarding an official plan adopted in accordance with section 26 of the Planning Act is final and not subject to appeal. Accordingly, the new City of Ottawa Official Plan, as approved with modifications by the Minister, came into effect on November 4, 2022. The OP provides a vision for the future growth of the city and a policy framework to guide the city's physical development. With respect to natural heritage considerations addressed under an EIS, the OP provides a framework through which species at risk and other wildlife (and their habitats), forested areas, wetlands and surface water features must be reviewed. Key portions of the OP to be considered include:

The Environmental Impact Study Guidelines (City of Ottawa, 2023) - which outlines study requirements of the EIS;

OP Schedule C11 – which identifies Natural Heritage Features and Natural Heritage System Core Areas and Linkages as an overlay;

OP Section 4.8.1 - under which the City recognizes the following natural heritage features, as defined in Ottawa’s Environmental Impact Study Guidelines:

- a) Significant wetlands;
- b) Habitat for endangered and threatened species;
- c) Significant woodlands;
- d) Significant valleylands;
- e) Significant wildlife habitat;
- f) Areas of Natural and Scientific Interest;
- g) Urban Natural Features;
- h) Natural Environment Areas;



- i) Natural linkage features and corridors;
- j) Groundwater features;
- k) Surface water features, including fish habitat; and
- l) Landform features.

Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment (City of Ottawa, 2022b) - which identifies wooded areas within the urban boundary that are > 0.8 hectares (ha) and have been continuously forested for > 60 years as “Significant Woodland”;

OP Section 4.9.3 – which provides policies for development and site alteration near surface water features through the provision of minimum setbacks and directives to retain wetland areas and the requirement to complete headwater drainage feature assessments (HDFA) to provide management recommendations for headwater features; and

The Protocol for Wildlife Protection during Construction (City of Ottawa, 2022a) – which identifies best management practices to be employed through construction to reduce the direct impacts of development on wildlife.

2.3.2 Richmond Environmental Management Plan (2010)

The *Richmond Environmental Management Plan* (herein the “EMP”; City of Ottawa, 2010) describes how the natural heritage system within Richmond functions and how to protect it as the Village develops. It provides information on existing conditions, constraints, and the potential impacts of future development.

3.0 METHODS

3.1 Review of Existing Information

Colour digital aerial photographs from geoOttawa were used to initially identify natural environment features in the area through a desktop review (as with the general descriptions above). Additional background information in this report was obtained from a combination of studies and reports performed within the general area of the Site (cited throughout) to review relevant information and to guide field studies (below). The review of existing information also included a desktop assessment of species listed under the federal *Species at Risk Act* (2002) and the provincial *Endangered Species Act* (2007) having some potential to occur in the broader area (i.e., within 2 km of the Site). Existing information was obtained from online sources, which include but are not limited to:

- Natural Heritage Information Centre (Ministry of Natural Resources and Forestry (MNRF), 2016);
- Species at Risk Public Registry (Government of Canada, 2019);
- Ontario Species at Risk List (Ministry of the Environment, Conservation and Parks (MECP), 2019a);
- The Jock River-Richmond Catchment Report (RVCA, 2016);
- Ontario Breeding Bird Atlas (Ontario Nature, 2019);
- Bat Conservation International Species Profiles (BCI, 2016); and



- *Soils, capability and land use in the Ottawa Urban Fringe* (Report No. 47, Ontario Soil Survey; Marshall et al., 1979).

In addition, an information request was submitted to the Kemptville District MNRF office on June 19, 2018, to obtain a review of all existing SAR records and other rare or uncommon species known to occur in the broader vicinity of the Site.

3.2 Field Studies

Detailed field studies were performed throughout the spring and early summer of 2019 to document the existing ecological conditions of the Site. These field studies included core surveys of flora and fauna. Standard and accepted methods were employed for all surveys (described in detail below). A summary of the field visits is outlined in Table 1.

In consideration of updates to the City's Official Plan in 2021, the proposed setback line to Marlborough Creek was reviewed walked by Anthony Francis (KAL) on June 22, 2021, with Matthew Hayley (City of Ottawa) and Eric Lalande (RVCA) to confirm the location of both the top-of bank of the creek and the stable-top-of-slope of its associated valley (which were simultaneously surveyed by Annis O'Sullivan Vollebekk Ltd.).

Table 1 Summary of field visits to the Site

Date	Purpose	Personnel	Weather conditions
2019/04/12	HDFA part 1	Katherine Black and Robert Hallett	10°C, light rain, 75-100% cloud cover, low wind
2019/04/16	Turtle survey #1	Anthony Francis and Katherine Black	14°C, sunny, 0-25% cloud cover, low wind
2019/04/16	Frog survey #1	Anthony Francis and Katherine Black	6-7°C, 0-25% cloud cover, no wind
2019/05/06	Turtle survey #2	Clare Kilgour	11°C, sunny, 0-25% cloud cover, low wind
2019/05/07	Turtle survey #3	Anthony Francis and Heather Lindsay	17°C, sunny, 25-50% cloud cover, low wind
2019/05/08	Turtle survey #4	Heather Lindsay	12°C, sunny, 0-25% cloud cover, low wind
2019/05/21	Turtle survey #5	Heather Lindsay	13°C, sunny, 50-75% cloud cover, low wind
2019/05/27	Frog survey #2	Anthony Francis and Clare Kilgour	11°C, 25-50% cloud cover, low wind
2019/05/31	Bird survey #1 and vegetation survey	Robert Hallett	12°C, sunny, 0-25% cloud cover, low wind
2019/06/11	HDFA part 2	Clare Kilgour and Heather Lindsay	15°C, partly sunny, 75-100% cloud cover, moderate wind
2019/06/12	Nightjar survey #1	Anthony Francis	15°C, <10% cloud cover, low wind, moon clearly visible above the horizon with 79.9% illumination
2019/06/13	Install bat monitors	Heather Lindsay	N/A
2019/06/14	Nightjar survey #2	Anthony Francis	18°C, <10% cloud cover, no wind, moon clearly visible above the horizon with 94.5% illumination
2019/06/18	Frog survey #3	Heather Lindsay and Clare Kilgour	19°C, 0-25% cloud cover, low wind
2019/06/19	Bird survey #2	Ken Allison	13°C, sunny, 25-50% cloud cover, low wind
2019/06/25	Remove bat monitors	Robert Hallett	N/A
2019/06/26	Re-install bat monitors	Robert Hallett	N/A



2019/07/04	Remove bat monitors and HDFA part 3	Heather Lindsay	N/A
2019/07/11	Bird survey #3	Katherine Black	22°C, 100% cloud cover, no wind
2021/06/22	Top of Bank Survey	Anthony Francis with: Matthew Hayley (City of Ottawa) Eric Lalande (RVCA) AOV Survey Crew	26°C, sunny

Table Notes: HDFA – Headwater Drainage Features Assessment

3.2.1 Headwater Drainage Features Assessment

A full Headwater Drainage Features Assessment (HDFA) was performed for the Site. The HDFA provides a detailed description of water features on and directly adjacent to the Site following the field methods identified within *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* written by Credit Valley Conservation Authority and Toronto Region Conservation Authority (2014), hereafter referred to as “the HDF Guidelines”. Assessment and evaluation of the Site’s water features will be conducted by RVCA based on descriptions provided in the HDFA.

The HDFA identifies and describes all water features occurring on and directly adjacent to the Site and evaluates roadside ditches and a total of five reaches on Site, including Marlborough Creek. A brief visual inspection of the Site was performed on April 12, 2019 to document existing conditions of water features (feature types, physical characteristics of features, and riparian conditions) at their maximal extent under spring freshet conditions. Observations from this initial visit suggested that potentially two of the five reaches were fish habitat and perennially flowing, and that most other reaches on Site would likely be dry in the summer. During our second and third Site visits to characterize surface water features on June 11 and July 4, 2019, respectively, all reaches were dry or only contained shallow standing water except for Reach 4 and Marlborough Creek (see Section 3.2.1 for more details on all reaches), which were the only HDFs with defined channel forms.

Marlborough Creek was the only surface water feature with perennial flow whereas Reach 4 only contained standing water by July 4, 2019. Given the presence of a feature with perennial flow (Marlborough Creek), the HDF Guidelines would call for a detailed “Diagnostic” level survey type for this reach. However, since Marlborough Creek is already well-documented by RVCA and not to be altered under the proposed development, Diagnostic surveys were not performed for this reach. Accordingly, “Standard” level surveys as per the HDF Guidelines were performed for the five reaches associated with the Site as most reaches were expected, upon the initial site visit, to be dry or only containing puddles of standing water in the summer.

The Standard level of survey used in this HDFA follows the requirements of the HDF Guidelines, which are outlined in Table 2.

Table 2 Data requirements for the Standard survey type as per the HDF Guidelines

Survey Type	Sensitivity, Feature Form, and Flow	Mandatory Data Requirements		Additional Data Requirements for HDF Alterations	
		Flow Condition	Riparian	Fish and Fish Habitat	Terrestrial Assessment



Standard	Sensitive species/habitat possible and/or ill-defined form, intermittent flow likely	OSAP S4.M10 (Headwaters)	OSAP S4.M10 (Headwaters)	OSAP S3.M1	Marsh Monitoring Protocol for Amphibians; Ecological Land Classification; Ontario Wetland Evaluation System (OWES; for wetlands ≥ 0.5 ha)
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Table Notes: Adapted from pg. 10 of the HDF Guidelines

Following the headwaters sampling protocol (OSAP S4.M10), a brief assessment was performed on April 12, 2019, to characterize the amount of water and sediment transport and storage capacity within the HDFs on Site as well as their riparian and feature vegetation. An assessment of fish and fish habitat using OSAP S3.M1 (electrofishing techniques) was performed on June 11, 2019, for Reach 4 only as all other surface water features (except Marlborough Creek) did not contain enough water (i.e., depth was less than 10 cm) to support a fish community. In Reach 4, the deepest, most unobstructed sections were electrofished. Accordingly, two stretches of 20-30 m were electrofished in this reach. Since a comprehensive fish list already exists for Marlborough Creek (RVCA, 2016), the creek was not assessed using electrofishing techniques. All reaches on Site were briefly re-visited on July 4, 2019, to qualitatively assess summer water levels. An assessment of amphibian breeding and presence following the Marsh Monitoring Protocol (Bird Studies Canada, 2008) was performed on April 16, May 27, and June 18, 2019 (more details in Section 2.2.3 below). The only wetland feature observed on Site is a narrow band of graminoid mineral meadow marsh along a small portion of Marlborough Creek (riparian area of the creek) near the northwestern edge of the Site. No other wetlands were observed on or directly adjacent to the Site so OWES methods were not employed.

3.2.2 Ecological Land Classification and Vegetation Inventory

Natural vegetation communities on the Site were inventoried on May 31, 2019. Each community was identified and mapped in the field using the standard Ecological Land Classification (ELC) methods for Ontario (Lee et al., 1998). This method results in a standardized description of each vegetation community, giving information on vegetation type and soils. Where possible, communities were mapped to the most detailed level of 'vegetation type'. In some cases, where a suitable vegetation type did not exist, or mapping to this level did not provide a great deal of additional information, communities are described using the higher level of 'ecosite' type.

Treed areas anticipated to be impacted by the proposed development were also surveyed on May 31, 2019. Typically, all trees with DBH greater than 10 cm would be individually recorded and mapped as per the City's TCR Guidelines (2014). However, hedgerows and clusters of trees on Site contained too many trees to practically list every individual over 10 cm DBH. Instead, only trees of note (e.g., those with a diameter at breast height (DBH) greater than 40cm, standalone specimen trees, "wildlife" trees, etc.) were specifically mapped and their DBH measured. Butternut trees (*Juglans cinerea*; listed as Endangered under ESA and SARA) and any potential wildlife trees (e.g., those with cavities, dead leaf clusters, and/or snags ideal for bat roosting) of any size were specifically looked for.

Incidental wildlife observations were recorded while conducting vegetation work on Site.



3.2.3 Amphibians

Frog surveys were performed following the Marsh Monitoring Program (Bird Studies Canada, 2008). This protocol calls for multiple survey stations at a site to capture spatial and habitat variability. Accordingly, frog surveys were performed at six stations throughout variable habitats on Site (Figure 3). The Marsh Monitoring Program advises that each station be visited a minimum of three times at night, no less than 15 days apart, during the spring and early summer.

Following this protocol, the timing of the three frog surveys is based on nighttime air temperature:

- Early breeders (Wood Frog, Western Chorus Frog, Spring Peeper): above 5°C;
- Mid-season breeders (Mink Frog, American Toad, Gray Treefrog): above 10°C; and
- Late breeders (Green Frog, Bullfrog): above 17°C.

Three rounds of frog surveys were performed on April 16, May 27, and June 18, 2019. Note that frog surveys are not typically performed over such a large temporal scale over the breeding season, but colder than average spring conditions delayed the mid-season and late-season breeding surveys. Survey dates still corresponded with temperature requirements for each breeding period (early, mid-, and late season) as demonstrated in Table 1.

Frog surveys began one half hour after sunset and ended before 1:00 am on evenings with appropriate temperatures and light winds. Note that under the Marsh Monitoring Program, stations typically cover a 180° semi-circle with a 100m radius. Surveys here were performed by pairs of observers standing back to back at each of the six stations covering 360° to simultaneously capture all potential surrounding habitat and to increase the efficiency of surveys (i.e., stations are paired as F1/2, F3/4, and F5/6 in Figure 3, with odd numbers facing eastward and even numbers facing westward).

Additional observations of amphibians were made throughout the spring and summer during other visits. Rocks, fallen wood, and other debris on Site were turned over to check for salamanders throughout the field campaign.

3.2.4 Turtles

Due to the presence of surface water on the property and a recent observation of a Blanding's Turtle within 2 km of the Site (personal communications with a local resident and the Kemptville District of the MNRF), turtle surveys were performed to assess the potential presence of at-risk turtles on and in the vicinity of the Site. Visual encounter surveys were completed following MNRF's Survey Protocol for Blanding's Turtle in Ontario (2015a). Although this protocol is intended primarily for Blanding's Turtle, all turtle species generally occurring in the area would be detectable under this protocol.

This protocol requires that potential habitat for turtles be visited under the following conditions:

- After ice-off, and no later than June 15;
- If air temperature is between 5 and 15°C, surveys are to take place during sunny periods, between 10:00am and 5:00pm, when basking sites are receiving full sunlight;



- If air temperature is between 15 and 25°C, surveys are to take place during sunny periods between 8:00am and 12:00pm, when basking sites are receiving full sunlight or during overcast periods from 9:00am until 4:00pm if air temperature is higher than water temperature; and
- Five surveys must be spread over a period of at least three weeks, at sites with no previous documentation of the species.

Turtle surveys were completed via foot along all surface water features that were considered, at a minimum, marginal turtle habitat and/or travel corridors (T-A through T-E on Figure 3). During turtle surveys, surveyors stopped and scanned areas of interest with binoculars from a distance of ~50 m to prevent any turtles from being startled before being observed. Specific dates and weather conditions of turtle surveys are shown in Table 1.

Rocks, fallen wood, and other debris on Site were turned over to check for snakes throughout the field campaign. Potential basking sites for snakes were also investigated.

3.2.5 Birds

Daytime Bird Surveys

Breeding bird surveys were performed via point count surveys following the Ontario Breeding Bird Atlas Guide for Participants (2001). Breeding bird surveys are to be completed from survey stations that, combined, provide suitable viewing of all habitats on Site on calm weather days with light wind (less than 3 on the Beaufort scale) and no precipitation. Six breeding bird survey stations (B1 through B6 on Figure 3) were established in representative habitats across the Site (Figure 3).

As per the Ontario Breeding Bird Atlas, surveys must take place between sunrise and five hours after sunrise between May 24 and July 10, with a minimum of 15 days between survey dates. This protocol calls for two surveys per year during the breeding bird window. However, an additional (third) bird survey is required under MNRF protocols for at-risk birds that use field habitats. Since we believed the Site had some potential for SAR birds that use field habitats (i.e., Barn Swallow), KAL biologists conducted three rounds of breeding bird surveys. Specific dates and weather conditions for daytime bird surveys are shown in Table 1. Note that the second and final bird survey was performed on July 11, 2019, which falls just outside of the recommended survey window, but this is justified under the delayed spring of 2019. All incidental observations were recorded while moving between survey points as well as during other Site visits. Birds were identified by song and/or direct visual observation.

The designation of regionally rare bird species was based on an analysis of data from the Atlas of Breeding Birds of Ontario (Cadman *et al.*, 1987) based on Hill's Site Regions, now Ecoregions.

Nighttime Bird Surveys

Nighttime bird surveys to confirm the presence/absence of nightjars (Eastern Whip-poor-will and Common Nighthawk) and their potential breeding territories were conducted following the Draft Survey Protocol for Eastern Whip-poor-will in Ontario (OMNRF, 2014a). This protocol calls for three separate nighttime surveys between May 18 and June 30 that are timed based on moon conditions. Eastern Whip-poor-will usually forage in the semi-darkness of early morning and dusk, but on nights when the moon is more than half full,



they are likely to forage all night long under the brighter conditions. Their broods are timed such that the young hatch approximately 10 days before the full moon when the parents have more time (and moonlight) to catch food for them (The Cornell Lab of Ornithology, 2017; Kaufman, 2019). As such, this species is more detectable during a full moon period. Common Nighthawks, if present, are generally observable following the same protocol (Knight, 2016). Neither species was anticipated to occur on the Site given existing observation records for the vicinity but nightjar surveys were completed to confidently rule out their potential presence.

The draft protocol recommends three surveys be completed during the breeding season, with two ideally occurring in late May or the first week of June during a week preceding or just after a full moon, and a third survey in the next available full moon period (middle/end of June). However, rather than having two surveys in late May/early June during the first moon cycle and one in the middle/end of June in the next moon cycle, we completed two nightjar surveys on June 12 and 14, 2019 as outlined in Table 1. Performing the two surveys during the second moon cycle of the breeding survey is not ideal as per the protocol, but was necessary to effectively determine any potential breeding territories of Eastern Whip-poor-will on Site based on the early first moon and late (i.e., colder than average) spring of 2019 (i.e., Eastern Whip-poor-will were unlikely to have established breeding territories by the late May/early June moon cycle in 2019). Based on our nightjar surveys at other properties in the Ottawa area, Eastern Whip-poor-wills were only observed in the region at the very end of the standard late May/early June survey window and had not yet established identifiable nesting sites prior to the closing of the first survey window. The late May/early June survey for this Site was thus limited to noting potential nightjar presence during the evening frog surveys performed on May 27, 2019 (none were noted). Subsequently, two formal nightjar surveys were completed on June 12 and 14, 2019.

As per the draft protocol, the two nightjar surveys were completed within a week of the second full moon while the moon was visible above the horizon (greater than 50% illuminated) and started at least 30 minutes after sunset and ended while the moon was still visible (both surveys were completed between 23:30 hr and 00:00 hr). Surveys were conducted under field conditions with no precipitation, little or no wind, clear skies, temperature of 10°C or above, and good visibility (low cloud cover). Eastern Whip-poor-will can be heard calling from over 400 m away. Two survey stations (W1 and W2 on Figure 3) were established just outside the Site boundaries such that all wooded areas of the Site were within 400 m of a station.

3.2.6 Bats and Other Mammals

The potential presence of bats was assessed during the tree survey required for the TCR with special attention paid towards trees with cavities and snags ideal for bat roosting. Detailed bat monitoring was also implemented following acoustic surveys under the MNRF's Survey Protocol for Species at Risk Bats within Treed Habitats (2017). This is currently the recommended protocol for confirming the presence/absence of Little Brown Myotis, Northern Myotis, and Tri-coloured Bat, where it is determined that potentially suitable habitat for the establishment of maternity roosts is present. Information obtained from our ELC assessment and tree surveys indicated potential areas of roosting (e.g., treed) and foraging (e.g., open) habitat.

All species of bats in a given area are detectable under this protocol if ultrasonic acoustic monitors are used and the signal to noise ratio can be analyzed from oscillogram displays to identify bat calls to species level. Under the protocol, acoustic monitors are to be installed for a minimum of 10 nights between June 1 and



June 30, with recordings commencing after dusk and continuing for five hours. We installed two acoustic monitors (Song Meter SM3, Wildlife Acoustics) on June 13, 2019: one on a tree located on the edge of the woodlot in the southwestern corner of the Site, and one on a tree along the hedgerow towards the centre of the Site that bisects the agricultural fields and treed areas (Bat1 and Bat2 on Figure 3, respectively). Acoustic monitors were mounted on trees that face open areas immediately adjacent to more heavily treed areas. In both instances, the acoustic monitors were positioned to capture the best potential bat habitat on Site (potential foraging habitat in open areas) and to increase the likelihood of detecting bats based on their echolocating behavior. Bats use echolocation more frequently in cluttered environments (Falk et al., 2014), so installing monitors along the edges of the forest blocks or hedgerows rather than in the middle of open areas likely increased bat detectability. The monitors, however, are placed just outside of the cluttered environment as the distinguishability of calls among species diminishes within such locations (National Park Service, 2016).

Monitors were removed on June 25 and reinstalled on June 26, 2019 for a second round of bat monitoring due to technical issues encountered during the first round of monitoring (June 13-25, 2019). Microphone sensitivity during the first round of monitoring was so high that background noise triggered a single long recording each night instead of discrete samples associated with single bat fly-bys. These files are so massive (5 GB + each) that they cannot be analyzed. The second round of bat monitoring via acoustic monitors took place between June 26 and July 4, 2019, and the microphone sensitivity issue was corrected. Note that the second round of acoustic monitoring was less than 10 days and extended slightly beyond the recommended monitoring window, but the timing was limited due to the previously described issues. During the second round of recording, the monitor at Bat2 suffered damage and failed to record anything. Therefore, only recordings from Bat1 were used in acoustic analyses.

Incidental observations of other mammals present in the study area were collected during all Site visits. Mammal observations were limited to sightings of scat, tracks, and in some cases, direct observations.

3.2.7 Species at Risk

The potential for SAR to occur on Site was assessed based on the sources of information identified in Section 3.1. This included a review of existing information such as range maps and documented occurrences of SAR. Field visits and ELC further informed the potential for SAR to occur on Site based on availability of suitable habitat.



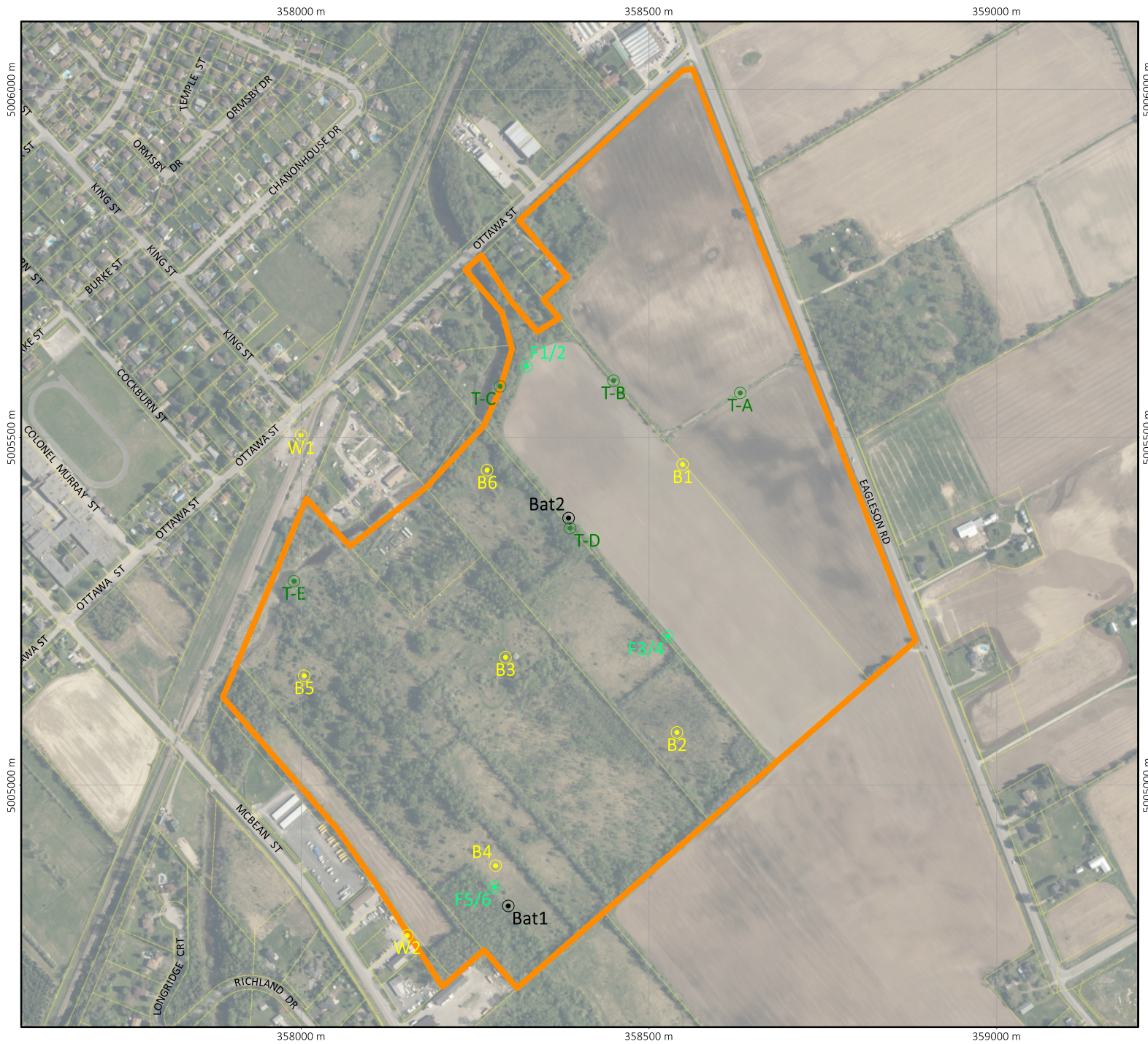


Figure 3 Map showing the locations of amphibian, turtle, and bird surveys and the locations of bat acoustic monitors for the Site in 2019

Legend

-  **Project Area**
- Field Surveys**
 -  Bat Stations
 -  Bird Stations
 -  Frog Stations
 -  Turtle Stations

N



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 MTM Zone 9
 (NAD 83)
 Printed on: 2020-01-13



4.0 SITE CONDITIONS

4.1 Geology and Soils

The Jock River-Richmond Catchment resides within an extensive physiographic region known as the Ottawa Valley Clay Plain (RVCA, 2016). This part of the clay plain ranges from being very thin to ~8-10 m deep. In this catchment, the clay and sand plains are underlain by dolostone of the Oxford Formation and sandstone with shale and limestone from the Rockcliffe Formation. In addition, a geologic fault may pass through the catchment (RVCA, 2016).

The property is mostly flat with very gently sloping topography, with slopes between 0 and 2%. Based on soils maps from Report No. 47 of the Ontario Soil Survey (Marshall *et al.*, 1987), the Site, more specifically, is underlain by the following soil/land type units: NG2-CH3/1-2 (dominant unit for the Site), G5/S1.2, G4/S2.3°, and ER. These soil units are described in more detail in Table 3 and are shown in Figure 4. Note that the soil units described in Table 3 represent the parent material of the Site. The surface material has been worked over throughout several decades of ongoing agriculture, and thus, the Site likely contains very little of its original soil.

There are no rocky outcrops on the Site and no Earth Science Areas or Areas of Natural and Scientific Interest as designated by the Ministry of Natural Resources identified in OP Schedule K (Ottawa, 2014). However, this property does fall under a Wellhead Protection Area with a score of 6.

Table 3 Description of the soil landscape/land type units on Site as per Marshall *et al.* (1987)

Soil Landscape or Land Type Unit	Soil Association or Land Type	Soil Material or Land Type Description	Main Surface Description	Drainage		Notes
				Dominant (>40%)	Significant (20-40%)	
CH3	Chateauguay	40-100 cm of neutral silt loam, clay loam, silty clay loam, or silty clay marine material, over glacial till material.	Silt loam, loam, or clay loam.	Imperfect	N/A	Underlain by Grenville material.
ER	Eroded channels	Eroded gullies, steep valley walls, and narrow creek beds with slopes greater than 15%.	N/A	N/A	N/A	
G4	Grenville	Alkaline stony sandy loam, fine sandy loam, loam, or silt loam glacial till material.	Sandy loam, loam, or silt loam.	Good	Imperfect	
G5	Grenville	Alkaline stony sandy loam, fine sandy loam, loam, or silt loam glacial till material.	Sandy loam, loam, or silt loam.	Imperfect	Poor	
NG2	North Gower	Neutral to alkaline silty clay loam or clay loam marine material, over silty clay or clay marine material at a depth greater than 1 m.	Silt loam, loam, silty clay loam, or clay loam.	Poor	N/A	



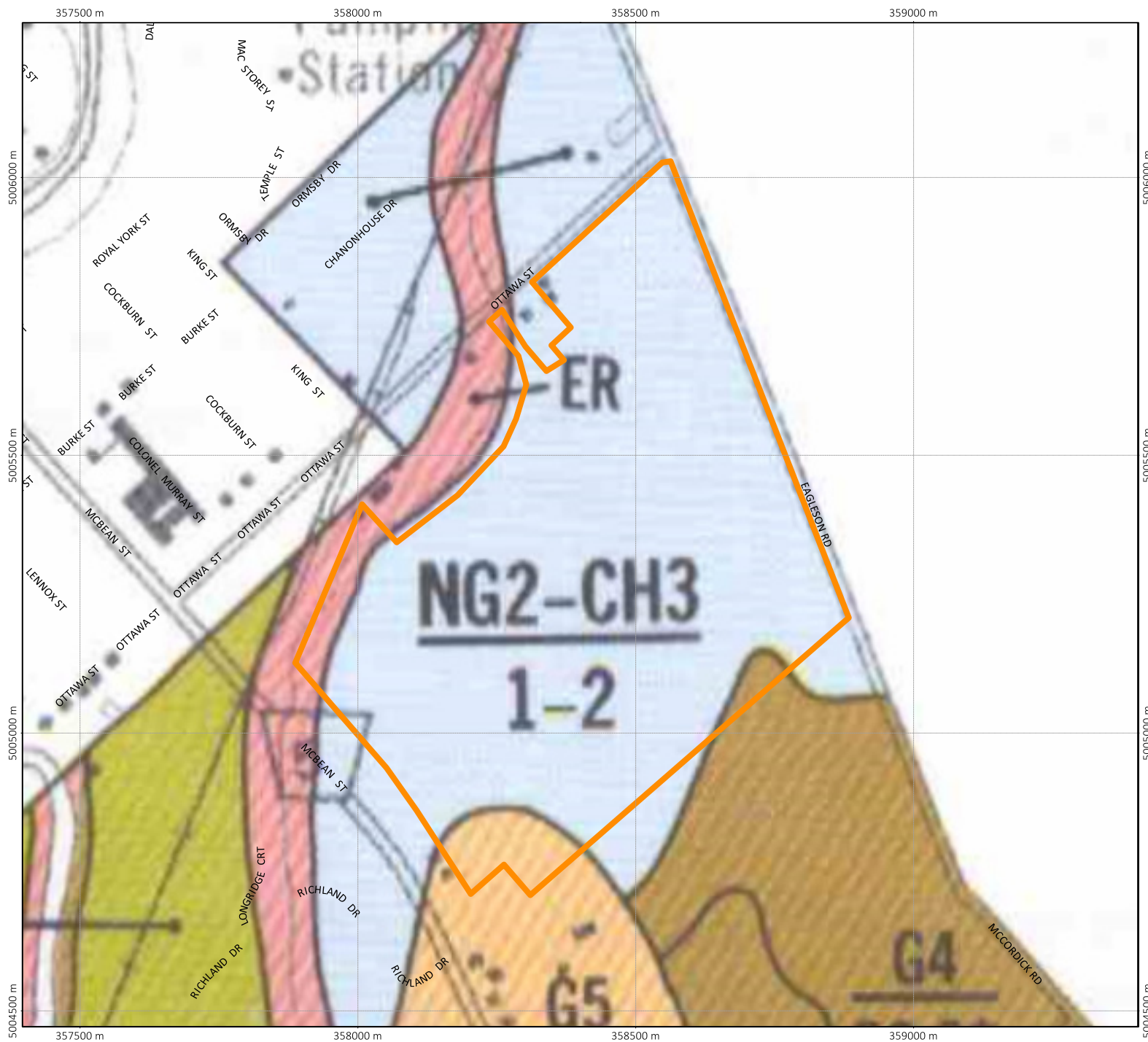


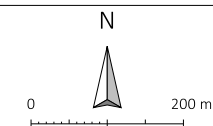
Figure 4 Soil map adapted from Schut and Wilson (1987) indicating soil landscape and land type units at the Site

Legend



Project Area

Refer to Table 3
for soil codes.



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4.2 Headwater Drainage Features Assessment

4.2.1 General Reach Descriptions

Dimensions of the HDFs evaluated in this report are shown in Table 4 and photos of each HDF are shown in-text below. Mean bankfull width, mean wetted width, and mean depth were estimated in the field on April 9, 2019. Approximate feature length was estimated using desktop mapping tools (geoOttawa, 2019; Manifold GIS).

Table 4 Dimensions of headwater drainage features on Site on April 12, 2019 (during spring freshet)

Headwater Drainage Feature	Length (m)	Mean Bankfull Width (cm)	Mean Wetted Width (cm)	Mean Depth (cm)
Roadside Ditches	1219	280	Mostly dry but 60cm along limited wet sections	2 (where wet)
Reach 1	232	440	220	10
Reach 2	305	580	200	10
Reach 3	86	550	65	8
Reach 4	795	410	130	18
Marlborough Creek ¹	935	2950	950	Not checked; centre of channel is too deep to feasibly measure and likely varies throughout the creek.

Table Notes: ¹ Length of portion of Marlborough Creek occurring on Site. Channel widths for Marlborough Creek were estimated from geoOttawa mapping software.

Roadside Ditches

A roadside ditch system stretches along Eagleson Road surrounding the corn field on Site and along Ottawa Street at the northeast corner of the Site. When originally assessed in the spring, there was no flow through most of the ditch length along the property. The water found along most of the ditches consisted of small, disconnected puddles; by late spring they had dried up completely. Only the portion nearest to Reach 1 (see below) held some standing water (i.e., the ditch was presumably draining into Reach 1, but with no detectable flow). The substrate consisted primarily of silt and sand, while the banks had grass along the shoulder of the road. Submergent vegetation was not present. No frogs or turtles were observed in the roadside ditches, but American Toads (*Anaxyrus americanus*), Spring Peepers (*Pseudacris crucifer*), and Green Frogs (*Rana clamitans*) could be heard calling from Marlborough Creek westward from the north end of the ditch down Ottawa Street (i.e., frogs were detected audibly from this ditch but were not observed directly in the ditch).





Figure 5 Photo showing the roadside ditch along Eagleson Road taken on April 12, 2019



Reach 1

Reach 1 runs 232 m from northeast to southwest of the Site between corn fields, starting at a culvert along the side of Eagleson Road, to a 90° bend northward into Reach 2. There was limited flow here in the initial visits in the early spring, and by mid-spring the area was dry. The feature has corn fields on either side and a few small trees along the banks. The substrate was mostly organic matter and cattails were found in the channel. Instream vegetation is otherwise limited, likely due to the buildup of organic matter. There is grass on either side of the banks, and cropped land (corn) at the edge of the grass. No frogs or turtles were observed in or along this feature.



Figure 6 Photo showing Reach 1 on Site taken on April 12, 2019



Reach 2

Reach 2 runs 305 m southeast to northwest from the turn at the end of Reach 1 to Marlborough Creek on the northwestern side. The downstream-most end of the channel passes through the wooded riparian corridor of Marlborough Creek but most of the channel is situated between two corn fields. This reach appears to have been constructed as a drainage feature for the adjacent agricultural fields. Early spring flows in Reach 2 were somewhat more evident than in Reach 1, though grass and woody debris maintained pooled areas where flow was not apparent. The substrate consists of mostly organic matter. Like Reach 1, the banks of this feature are lined with grass, but some trees are present and the banks are much more defined. The trees and shrubs adjacent to Reach 2 include Common Buckthorn (*Rhamnus cathartica*), American Elm (*Ulmus americana*), Ash (*Fraxinus*), Willow (*Salix*), Raspberry (*Rubus*), Red Maple (*Acer rubrum*), Cedar (*Thuja*), and Red Osier Dogwood (*Cornus sericea*). This reach still held standing water in late spring (likely retained by minor debris jams) but it was generally very shallow (<5 cm) and there were no fish observed or caught in the channel. It was dry by early summer. No frogs or turtles were observed in this feature.



Figure 7 Photo showing Reach 2 on Site taken on April 12, 2019



Reach 3

Reach 3 is an 86 m channel along the northwestern edge of the eastern agricultural field. It conveys spring meltwater from the field to Reach 2 but runs dry after that. Consequently, no fish, frogs, or turtles were observed in this reach. There were a few frogs heard calling nearby during evening amphibian surveys, closer to Marlborough Creek. The substrate consisted mainly of organic matter and silt. The banks of this feature are grassy with trees present. These include Poplar (*Populus*), Pine (*Pinus*), and Ash (*Fraxinus*) trees.



Figure 8 Photo showing Reach 3 on Site taken on April 12, 2019



Reach 4

Reach 4 is a linear, U-shaped channel with very well-defined banks and swift springtime flows that extend along the centre of the property, wrapping around to the southern and eastern sides of areas of successional regrowth towards the centre of the southern border of the property. This entire reach spans a distance of 795 m along the edge of active agricultural lands from a tile drain input and into Marlborough Creek. Older air photos suggest this feature previously received surface flows from a swale over the farm fields to the south, but that swale is no longer apparent. The tile drain is the main source of water in this reach. The presence of the tile drain resulted in steady flows through Reach 4 in late spring, and some standing water was still present in early summer. Given the substantial decrease of water depth by early July, and the lack of any apparent seeps, the feature was dry by late summer. This drainage ditch has a layer of cobble/gravel on the substrate. The west bank is lined with trees and continues up into a sparsely wooded area. There are some trees along the east bank, but the edge of the feature is generally contiguous with the adjacent corn/winter wheat fields. The steep banks and heavy flowing water in the spring did not make ideal habitat for turtles directly in the feature and none were noted here, but two Painted Turtles (*Chrysemys picta*) were observed in Marlborough Creek just beyond the end of Reach 4. There were no frogs observed in the area during any of the three evening frog surveys.



Figure 9 Photo showing Reach 4 on Site taken on April 12, 2019



Marlborough Creek

Marlborough Creek, an important tributary of the Jock River with the confluence located immediately downstream of Eagleson Road, flows along the northern edge of the property. The permanent creek has fast and heavy spring flows and maintains a wetted width often over 15 m, even in mid-summer. According to the most recent Jock River Subwatershed Report by RVCA (2016), there were minimal anthropogenic alterations observed along the system, and 80% of Marlborough Creek remains “unaltered” with no anthropogenic alterations. The remaining 20% of Marlborough Creek was classified as natural with minor anthropogenic changes.

Average dissolved oxygen levels within Marlborough Creek in the Richmond catchment were found to be 7.68 mg/L, which is within the recommended levels for warm and cool water biota; the average conductivity was 964.41 $\mu\text{S}/\text{cm}$ (RVCA 2016). These levels would be considered higher than most systems in the Jock River watershed (based on measurements taken by the RVCA).

Marlborough Creek is dominated by invasive species. Sixty nine percent of the sections surveyed along the Jock River Richmond reach had invasive species, while 100% of Marlborough Creek had invasive species (RVCA, 2016). The invasive species observed in Marlborough Creek were European Frog-bit (*Hydrocharis morsus-ranae*), European/Black Alder (*Alnus glutinosa*), Purple Loosestrife (*Lythrum salicaria*), Poison/Wild Parsnip (*Pastinaca sativa*), Common/Glossy Buckthorn (*Rhamnus frangula*), Banded Mystery Snail (*Viviparus georgianus*), Garlic Mustard (*Alliaria petiolate*) and Manitoba Maple (*Acer negundo*). Along Marlborough Creek, 93% of the surrounding areas were characterized by forest, scrubland, meadow and wetland. Wetland was the most dominant habitat found along the creek at 44% relative cover. The remaining land use is made up of active agriculture, residential area, infrastructure, and industrial/commercial areas (RVCA, 2016). This creek generally had no undercut banks, except for a few sections in the upper reach with low to moderate levels. Marlborough Creek has high levels of stream shading along much of the system. The shading is assessed as the total coverage area in each section that is shaded by overhanging trees/grasses and tree canopy greater than 1m above the water surface (RVCA 2016). This contributes to the health of the stream by moderating its temperature, contributing to organic matter and aquatic forage, and helping with nutrient reduction.

The relative community structure in surveyed sections of the creek is as follows, based on plant form: 100% algae, 93% narrow-leaved emergent, 60% free-floating, 68% broad-leaved emergent, 78% submerged plants, 80% floating plants, and 50% robust emergents (RVCA, 2016).

Herptile surveys throughout the season noted two only Painted Turtles in the creek towards the western end of the Site, and small numbers (12 or fewer) of three different species of amphibians (American Toad, Spring Peeper, and Green Frog) along the length of the channel on Site.

More details regarding observations of amphibians and turtles are provided in Sections 3.4 and 3.5, respectively.





Figure 10 Photo showing Marlborough Creek on Site taken on April 12, 2019



4.2.2 Classification of Headwater Drainage Features

The purpose of this section of the report is to apply the appropriate classifications to the water features being assessed and identify the functions provided by these features. The individual/segmented classifications (hydrology, riparian, fish and fish habitat, terrestrial habitat) for each reach are outlined in the following tables.

Table 5 Hydrology classifications of reaches on Site in 2019

Headwater Drainage Feature	Hydrology Classification				
	Assessment Period	Flow Conditions	Flow Classification	Comments/Modifiers	Hydrological Function
Roadside Ditches	-April 12 -June 11 -July 4	-Standing water -Dry -Dry	Ephemeral	In April, the ditches were mostly dry but with occasional disconnected puddles. The ~100 m closest to Reach 1 held standing water contiguous with water in that reach. After April, the reach was dry.	Limited Function
Reach 1	-April 12 -June 11 -July 4	-Surface flow -Dry -Dry	Ephemeral	Barely detectable flow in April.	Contributing Functions
Reach 2	-April 12 -June 11 -July 4	-Surface flow -Standing water -Dry	Intermittent	The reach continued to hold some shallow standing water along most of its length in late spring, likely held back by small blockages in the channel. It was fully dry by early summer.	Valued Functions
Reach 3	-April 12 -June 11 -July 4	-Standing water -Dry -Dry	Ephemeral	Small channel that conveys spring meltwater from the corn field to the east into Reach 2 but runs dry after that.	Contributing Functions
Reach 4	-April 12 -June 11 -July 4	-Surface flow -Surface flow -Standing water	Intermittent	This feature conveys flows from a substantial tile drain input at its origin. Drain inputs were no longer evident though by early summer. With no seeps evident, the remaining standing water likely dries or drains away in early July.	Valued Functions
Marlborough Creek	-April 12 -June 11 -July 4	-Surface flow -Surface flow -Surface flow	Permanent	Perennially flowing creek (a tributary of the Jock River); well-documented by RVCA (2016).	Important Functions



Table 6 Riparian classification of reaches on Site in 2019

Headwater Drainage Feature	Riparian Classification			
	OSAP Descriptions	OSAP Riparian Codes	ELC Codes	Riparian Conditions
Roadside Ditches	RUB – Road LUB – Cropped	RUB – 1 LUB – 3	OAG OAG	Limited Functions
Reach 1	RUB – Cropped LUB – Cropped	RUB – 3 LUB – 3	OAG OAG	Limited Functions
Reach 2	RUB – Cropped LUB – Cropped	RUB – 3 LUB – 3	OAG OAG	Limited Functions
Reach 3	RUB – Cropped LUB – Forest	RUB – 3 LUB – 6	OAG FOD	Limited Functions¹
Reach 4	RUB – Forest LUB – Cropped	RUB – 6 LUB – 3	FOD OAG	Important Functions
Marlborough Creek	RUB - Forest LUB - Forest	RUB – 6 LUB – 6	FOD FOD	Important Functions

Table Notes:

OSAP – Ontario Stream Assessment Protocol

ELC – Ecological Land Classification

RUB – Right upstream bank

LUB – Left upstream bank

¹While the left upstream bank of Reach 3 is wooded, that wooded area forms the riparian buffer directly adjacent to Marlborough Creek (to which Reach 3 is parallel). That wooded area is considered very important to the creek and is to be preserved accordingly. For the purposes of this study, its value directly to Reach 3, however, is considered limited, given that Reach 3 is adjacent to a farm field and dries immediately following the spring freshet.



Table 7 Fish and fish habitat classification of reaches on Site in 2019

Headwater Drainage Feature	Riparian Classification		
	Fish Observation • Fishing effort	Fish & Fish Habitat Designation*	Comments/Modifiers
Roadside Ditches	No fish present, no SAR present. • Dry; no fishing effort.	Contributing Functions	No fish observed. The roadside ditches likely convey some water and allochthonous material to Reach 1 during the spring freshet.
Reach 1	No fish present, no SAR present. • Dry; no fishing effort.	Contributing Functions	No fish observed. Conveys water and allochthonous material to Reach 2 during the spring freshet. This reach may be accessible to fish during the spring freshet (e.g., may receive overflow from Marlborough Creek via Reach 2 and/or 3) but is dry by late spring.
Reach 2	No fish present, no SAR present. • Dry; no fishing effort.	Contributing Functions	No fish observed. Conveys water and allochthonous material to Marlborough Creek during the spring freshet. This reach may be accessible to fish during the spring freshet (e.g., may receive overflow from Marlborough Creek) but only holds shallow standing water by late spring.
Reach 3	No fish present, no SAR present. • Dry; no fishing effort.	Contributing Functions	No fish observed. Conveys water and allochthonous material to Marlborough Creek during the spring freshet. That wooded banks of Reach 3 further contribute to fish habitat in Marlborough Creek by moderating water temperature via shading. Reach 3 may be accessible to fish during the spring freshet (e.g., may receive overflow from Marlborough Creek) but dries immediately after the spring freshet.
Reach 4	No fish present, no SAR present. • Electrofished along two 20-30 m transects (shocking seconds: 141.8 for first reach, 182.9 for second reach).	Contributing Functions	No fish observed despite fishing efforts. Leeches observed during shocking. Conveys water and allochthonous material to downstream fish habitat in Marlborough Creek throughout the spring and intermittently throughout the summer. Fish may be present in Reach 4 during the spring when water is still flowing (water is standing by summer). The wooded right upstream bank of Reach 4 further contributes to fish habitat in Marlborough Creek by moderating water temperature via shading.
Marlborough Creek	Fish present, no SAR present. • Not electrofished due to readily available species lists compiled by RVCA (2016).	Valued Functions	This creek provides suitable habitat for spawning/rearing, feeding, cover, refuge, and migration for several not-at-risk fish species and contributes to downstream habitat in the Jock River. Fish species presence is based on RVCA (2016) records for the creek from nearby sampling locations. Observed upstream of Site: Blacknose Dace, Creek Chub, Fathead Minnow Observed downstream of Site: Banded Killifish, Blackchin Shiner, Blacknose Shiner, Bluntnose Minnow, Central Mudminnow, Hybrid Minnow, Rock Bass Observed both up and downstream of the Site: Bluegill, Brook Stickleback, Brown Bullhead, Common Shiner, Golden Shiner, Northern Pike, Northern Redbelly Dace, Pumpkinseed, White Sucker



Table 8 Terrestrial habitat classification of reaches on Site in 2019

Headwater Drainage Feature	Description	Herpetofauna Observations	Terrestrial Classification
Roadside Ditches	No adjacent wetland areas. With adjacent roadway and no adjacent vegetation, this feature would not provide corridor functionality.	No amphibians or reptiles were observed.	Limited Functions
Reach 1	No adjacent wetland areas. This feature potentially connects a very small woodlot across Eagleson Rd to the Jock River corridor via Reach 2, but is not treed and has a maximum width of 6 m. As such, its potential as a wildlife corridor is very limited.	No amphibians or reptiles were observed.	Limited Functions
Reach 2	No adjacent wetland areas. This feature connects only Reach 1 to the Jock River. Its potential as a wildlife corridor is very limited.	No amphibians or reptiles were observed.	Limited Functions
Reach 3	No adjacent wetland areas. This feature is a depression situated along the outer edge of (running parallel to) the riparian/forest corridor of Marlborough Creek. That forest habitat is significant to Marlborough Creek directly. Its relationship to this limited feature is not relevant from a herpetofauna perspective given that Reach 3 itself is adjacent to a farm field and dries immediately following the spring freshet.	No amphibians or reptiles were observed.	Limited Functions
Reach 4	No adjacent wetland areas. This reach is on the edge of farm fields, adjacent to a dense hedgerow and re-naturalizing old fields with secondary tree growth. The west bank riparian zone may provide some potential corridor functionality.	No amphibians or reptiles were observed.	Contributing Functions
Marlborough Creek	The creek corridor does have some small areas of minor development along its north bank but is generally surrounded by a heavily treed riparian area 30 m or more in width.	Painted Turtles, Green Frogs, Spring Peepers, and American Toads were all noted in or adjacent to the creek, though only ever in small numbers.	Important Functions



The classification categories in the preceding tables in this section are subsequently used to provide the management recommendations outlined in Table 9 on the next page. The following flowchart (Figure 11) combines and translates the classification results in Tables 5-8 into management recommendations outlined in Table 9.

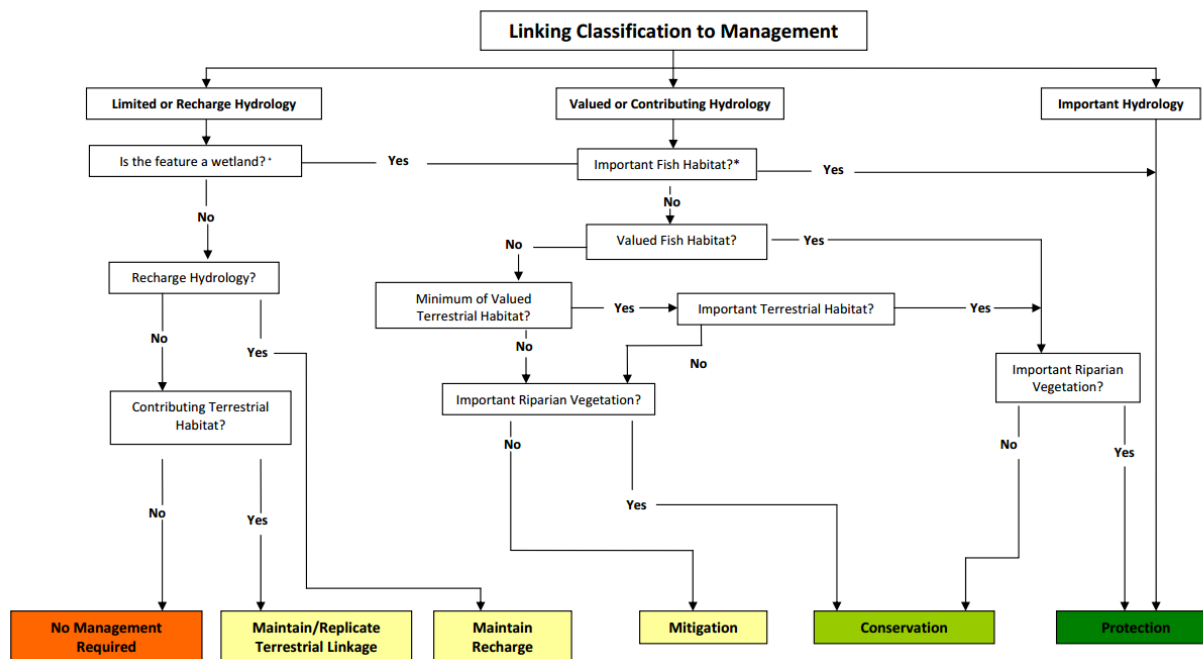


Figure 11 Flow chart providing direction on management options based on reach classifications (adapted from pg. 20 of the HDF Guidelines)



Table 9 Management recommendations for reaches on Site in 2019

Headwater Drainage Feature	Management Recommendation	Notes
Roadside Ditches	No Management Required	The roadside ditches around the Site are not specifically required to be maintained in their current form or to be protected as habitat. Regardless, neither the Eagleson Rd. nor Ottawa St. ditches are likely to be moved under planned development for the subject Site, though some minor modifications may be required. Any modifications or alterations to the road drainage system there must not lead to impacts to downstream receivers (e.g., increased total suspended solids or turbidity) and should not redirect any existing water-flow patterns towards other catchments.
Reach 1 Reach 2 Reach 3	Mitigation	These features are not required to be maintained per se, but their functionality must be replicated or enhanced. Prior to the commencement of site development, these features did not provide direct habitat for local fauna. Their functionality was limited to the conveyance of surface runoff from the broader site to Marlborough Creek, with the addition of some allochthonous material en route. As such, the primary functionality of these features relates to their support of downstream fish habitat. The stormwater plan for Site development must replicate or regenerate contributions to downstream features and catchment areas. Stormwater collection systems can be anticipated to direct site runoff to the Marlborough Creek receiver. The inclusion of a SWM pond near the downstream end of the system, with surrounding trees in vegetation within the SWM block, can serve as a source of allochthonous material and, with appropriate design, can be anticipated to manage outflow rates to maintain the existing hydroperiods of the receiver. The use of low impact development features (LIDs) such as vegetated swales to convey runoff through the community may further enhance the overall replication of functionality, providing additional opportunity for infiltration if both site soils and the final if site landcover plan are so conducive.
Reach 4	Conservation	The feature may be maintained, or if necessary, relocated using natural channel design techniques to maintain or enhance overall productivity of the reach. Note that the current feature does not provide direct habitat for fish, frogs or turtles.
Marlborough Creek	Protection	This reach may be maintained and/or enhanced but cannot be relocated. The feature should be protected and its riparian zone enhanced where feasible. The hydro-period must be maintained. Use natural channel design techniques or wetland design to restore and enhance existing habitat features if and where needed. Stormwater management systems must be designed to avoid impacts (i.e., changes in sediment, temperature) to this headwater channel. Per the Jock River Reach 2 & Mud Creek Subwatershed Study (MMM 2007), setback requirements for Marlborough Creek are consistent with the normal guidelines of the City's Official Plan and are to be set at the greatest of: • the regulatory floodline (established and posted by the City); • stable slope lines (not established for this feature); • natural meander belts (not established for this feature); and • setback of 30 m from the normal high water mark or 15 m from the top of the bank, whichever is greater. (In this instance, the top-of-bank would generally match the NHWM and so the 30 m setback applies).



Headwater Drainage Feature	Management Recommendation	Notes
		The setback for this feature is thus generally 30 m except for a short portion near the eastern end where the regulatory floodline extends slightly beyond the 30 m setback (see Figure 3). The City's Official Plan (OP) update in 2021 redefines the points from which setbacks are to be measured. Following the review of the proposed setback in June 2021, however, it was confirmed by all parties present that the indicated setback provides: 1) 30 m from the top-of-bank, and 2) 15 m from the stable-top-of-slope. As the setback also respects the regulatory floodplain, it was deemed to satisfy the 2021 OP requirements.

4.3 Site Vegetation and Trees

Eight distinct (i.e., mappable) ELC units (ecosites/vegetation types) were initially delineated on Site (Figure 12). All eight units had terrestrial classifications. Each ELC unit and the dominant vegetation therein (if appropriate) is described below. The ELC designations below were used in subsequent analyses in Section 3.8 to identify potential habitat that may be used by species of interest (e.g., SAR) occurring or potentially occurring on Site.

Most of the site, however, was cleared of existing vegetation in 2020 (Figure 13). Agricultural usage has continued over the eastern half of the Site, except within the portion converted to SWM pond usage. The western half of the Site, after clearing, was subsequently subject to grubbing to remove tree stumps, minor regrading, and regular mowing to limit regrowth of vegetation prior to site construction. Current site vegetation is described in Section 4.3.2 below.



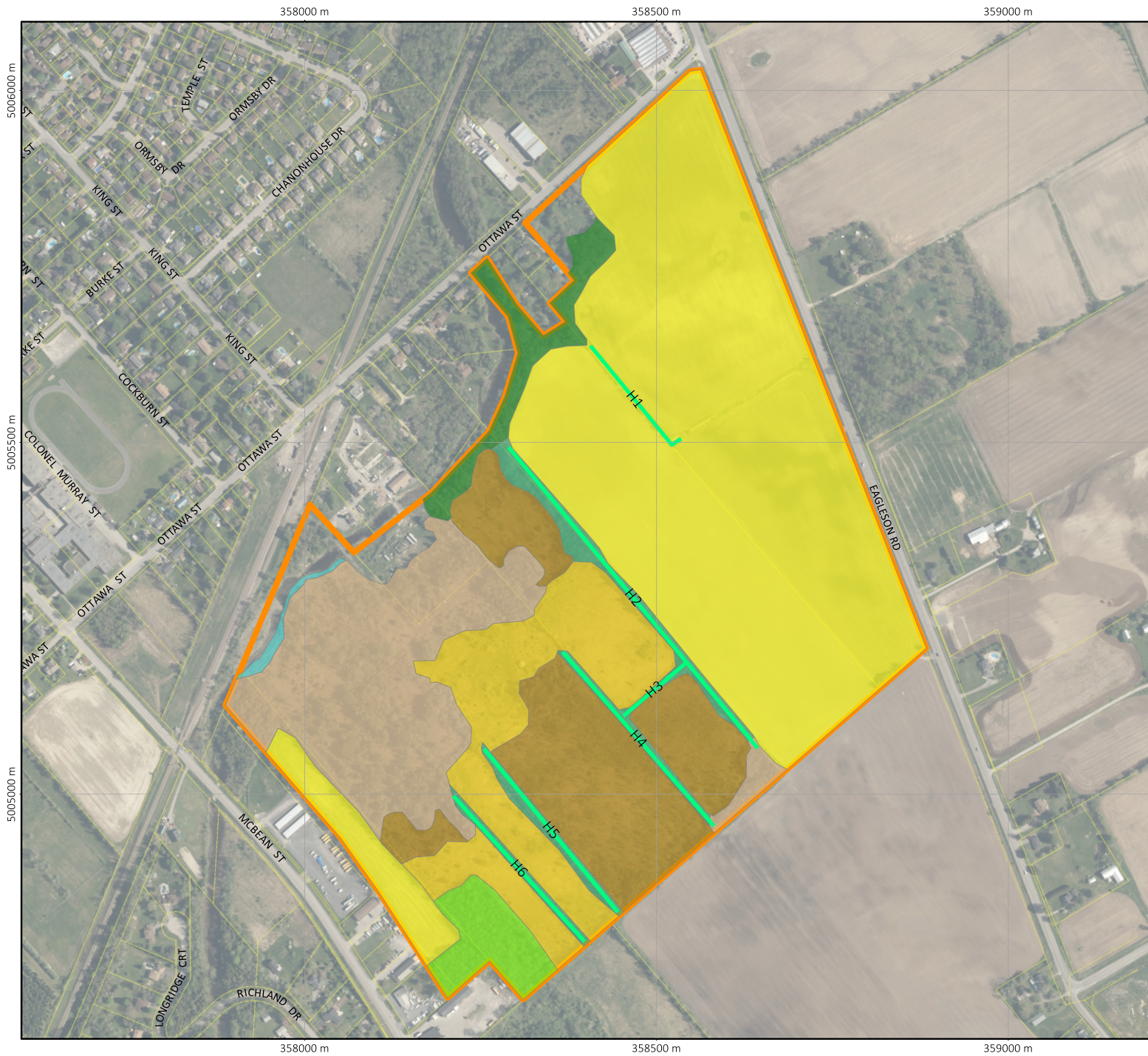


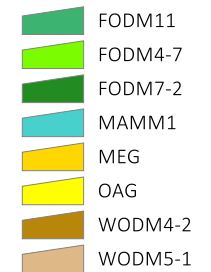
Figure 12 Map showing Ecological Land Classification units for the Site in 2019

Legend



Project Area

ELC

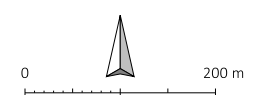


FODM11
FODM4-7
FODM7-2
MAMM1
MEG
OAG
WODM4-2
WODM5-1



Hedgerows

N



Project: TAGG 786 V2
Created By: AF
MTM Zone 9
(NAD 83)
Printed on: 2020-01-13



**KILGOUR
& Associates**

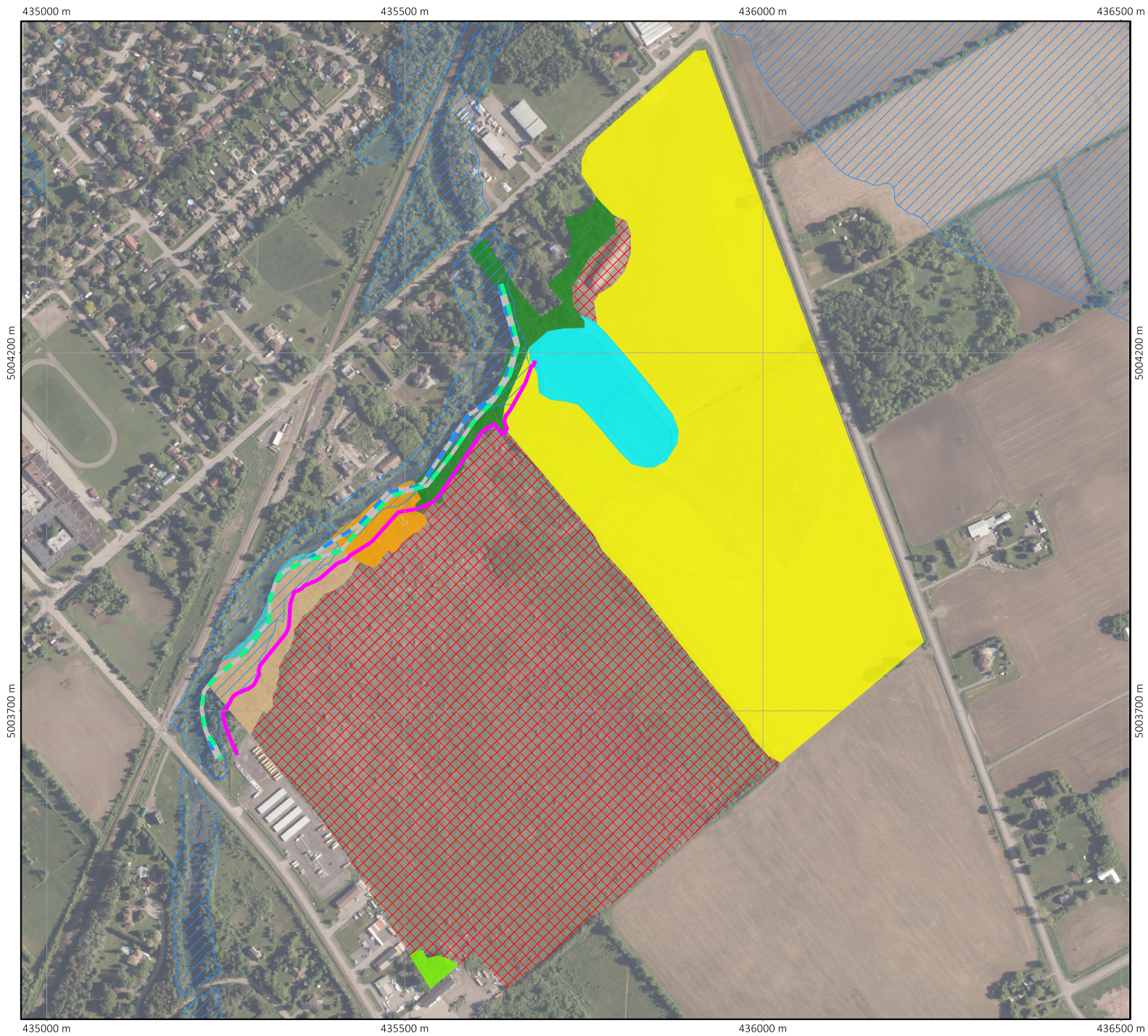
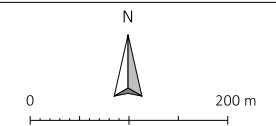


Figure 13 Updated ELC with Marlborough Creek setbacks

Legend

- ELC- updated**
- CUM / Commercial
 - FODM4-7
 - FODM7-2
 - MAMM1
 - OAG
 - SWM
 - WODM5-1
 - Cleared
- Floodplain
- Top of Bank
- Top of Slope
- Setback
- (greatest of:
30 m from TOB
15 m from TOS
Floodplain)*



Project: KILGOUR PROJECT CODE
 Map File: TAGG 1576 20240917 Map.map
 Universal Transverse Mercator - Zone 18 (N)
 Printed on: 2024-12-09



4.3.1 Pre-development Landcover

Trees

The Site was not observed to include any significant or otherwise notable trees warranting individual mapping and enumeration. A single, notable (i.e. large) American Elm (*Ulmus americana*) was present on the eastern boundary of the Site along the side of Eagleson Road (Figure 13). Otherwise, no trees with DBH greater than 40 cm or standalone specimen trees were observed within areas of the Site that would be subject to future development. There were trees throughout the western portion of the Site with some potential to support wildlife. Most of these trees were dead/dying Green Ash (*Fraxinus pennsylvanica*) or unidentifiable snags, with peeling bark providing some potential suitability for bat roosting. No Butternuts (*Juglans cinerea*) were observed on or directly adjacent to the Site.

As noted in previous sections, the EMP identified forest cover previously existing on the site as including local woodlots and hedgerows (Figure 2). The EMP suggests that trees within local woodlots should be retained where feasible but does not expressly require their retention.

Annual Row Crops Ecosite (OAGM1)

This ecosite is the most dominant on Site. It consists of the agricultural fields that make up most of the eastern portion of the Site. These fields were planted with corn and winter wheat during the 2019 growing season. This ecosite contains a single continuous hedgerow (H1 on Figure 12) that spans the length of Reach 2 on Site. This hedgerow is dominated by Common Buckthorn (*Rhamnus cathartica*), Green Ash, and American Elm, and contains willow (*Salix sp.*) shrubs, Raspberry shrubs (*Rubus idaeus*), Red Maple (*Acer rubrum*), Manitoba Maple (*Acer negundo*), White Cedar (*Thuja occidentalis*), and Red Osier Dogwood (*Cornus sericea*). All trees here are ≤ 20 cm DBH.

Graminoid Meadow Ecosite (MEG)

The Graminoid Meadow Ecosite makes up several areas within the more naturalized portion of the Site (western half of the Site). These are mainly open areas that are dominated by graminoids that have naturally regenerated since the western portion of the Site was last used for agriculture (sometime prior to 1976; geoOttawa). Based on available imagery, it appears the areas that make up the Graminoid Meadow Ecosite were left to naturalize prior to other areas in the western half of the Site (i.e., the surrounding areas in the western portion of the Site were more recently used for agriculture). This ecosite also contains patchy cover of tall shrubs, mainly Common Buckthorn.

Green Ash Deciduous Woodland Type (WODM4-2)

This vegetation type is also distributed throughout the western portion of the Site and is a result of natural regeneration since farming operations in this portion of the Site. It is dominated by Green Ash, most of which is dead or dying. The understory is predominantly young Green Ash and Common Buckthorn. The ground cover is dominated by knee-height graminoids and *Aster* spp. This vegetation type includes some scattered Red Maples.

Fresh-Moist Poplar Deciduous Woodland Type (WODM5-1)



Similar to the two ELC units described above, this vegetation type is distributed throughout the western portion of the Site and is undergoing natural regeneration. It contains relatively mature trees in dense stands compared to the rest of the western portion of the Site. It is dominated by Trembling Aspen (*Populus tremuloides*) and Red Maple. It also includes a fairly high cover of Green Ash trees, but most are in poor health. The understory is mainly Common Buckthorn and Hawthorn (*Crataegus*) while the ground cover is dominated by graminoids. There are some depressions throughout this vegetation type that held water during spring freshet that are likely a result of tire tracks from ATVs and historically used farm equipment. Some of these wet depressions contain patches of White Cedar.

Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest Type (FODM7-2)

This vegetation type is located along the riparian edge of Marlborough Creek, where the tree composition is similar to that of the adjacent WODM4-2. It has a significant presence of Green Ash and some Red Maple, but canopy cover is sufficiently dense to constitute forest cover.

Dry - Fresh Red Maple Deciduous Forest Type (FODM4-7)

The woodland in the southwestern corner of the Site is similar in tree composition to the nearby WODM5-1 ecosites, being almost fully dominated by Red Maple and Trembling Aspen, but the trees here are more densely arranged and in somewhat better health (given the lack of ash tree presence). There is minimal ground cover here given the dense canopy overhead. This woodland is older than the rest of the trees that fall within the WODM5-1 type as it existed sometime before 1963 (based on Natural Resource Canada's air photo library). This vegetation type, however, is common as successional regrowth to former agricultural lands, suggesting some previous history of significant clearing prior to that time. While trees here are slightly more mature than the other areas, they are not noticeably large with the maximum DBH being less than 40 cm (generally under 35 cm).

Graminoid Mineral Meadow Marsh Ecosite (MAMM1)

The south bank of Marlborough Creek in the northwest corner of the Site is covered with a band of medium-height grasses. It is flooded in the early spring but generally dries through the season as water levels in the creek lower.

Naturalized Deciduous Hedgerow Ecosite (FODM11)

Old hedgerows between the former farm fields of the southwestern portion of the Site (i.e., H2 – H6 on Figure 12) provide denser lines of trees within the regenerating woodland cover (WOD ecosites) found there. Trees along these lines are of the same species as the WODM5-1 type: Trembling Aspen and Red Maple with some Green Ash (though most ash trees along here are in poor condition). Trees in these lines are older and larger (average 35-40 cm DBH) than the surrounding WOD types.



4.3.2 Current Landcover

Trees

Most of the Site was cleared of existing vegetation in early 2020 following notification to the project planner on the development file per the requirements of the Site Alteration Bylaw (Appendix 3). A detailed tree survey will be completed in late 2025 or early 2026 to support the development of a TCR to review impacts on the remaining site trees in the ecosites discussed below (Figure 13).

Agricultural usage has continued over the eastern half of the Site, except within the portion converted to SWM pond usage. The western half of the Site, after clearing, was subsequently subject to grubbing to remove tree stumps, minor regrading, and regular mowing to limit regrowth of vegetation prior to site construction. Current site vegetation is described in Section 4.3.2 below.

Annual Row Crops Ecosite (OAGM1)

The eastern half of the Site, with the exception of the new SWM pond, remains in use as an active agricultural area. It consists of the agricultural fields that are regularly planted with row crops. The single, large American Elm (*Ulmus americana*) remains on the eastern boundary of the Site adjacent to Eagleson Road towards Ottawa Street (Figure 13). A small remnant line of ash and Manitoba Maples is present along the southern property boundary in the southeast. A narrow hedgerow of scrappy Manitoba Maples occurs along the side of Ottawa street in the northeast corner of the site (Figure 13).

Fresh-Moist Poplar Deciduous Woodland Type (WODM5-1)

Most of this ecosite was cleared in 2020. However, a 60 m wide band located along Marlborough Creek towards the western side of the Site remains. The broader feature had included some relatively larger trees with a mix of Trembling Aspen, Red Maple and Green Ash. The remaining trees, however, are relatively young as tree growth near the creek generally began after 2011 based on geoOttawa historical imagery (City of Ottawa 2025). The northernmost edge of this ecosite (i.e. the banks of Marlborough Creek) is classified as a narrow Graminoid Mineral Meadow Marsh inclusion.

Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest Type (FODM7-2)

This vegetation type is located along the riparian edge of Marlborough Creek, where the tree composition is similar to that of the adjacent WODM4-2. It has a significant presence of Green Ash and some Red Maple, but the canopy cover is sufficiently dense to constitute forest cover. The (remaining) ecosite is located fully within the setback to the creek.

Dry - Fresh Red Maple Deciduous Forest Type (FODM4-7)

A small (0.17 ha) triangular patch of forest remains in the southwestern corner of the Site. Dominated by Red Maple and Trembling Aspen, the largest trees (DBH still < 35 cm) occur around the perimeter of the feature, either on or just beyond the proper line. Trees within the feature occurring on the Site tend to be smaller and younger.



Cultural Meadow (CUM)

Most of the western half of the site comprises, after having been cleared, a cultural meadow with patches of grass and weedy forbs. The area is regularly mowed to keep vegetation height to a minimum. A small extension of the Cultural Meadow ecosite, which had existed as such prior to the 2020 clearing, separates the forest and woodland ecosites along Marlborough Creek. Other than a few trees directly along banks of the creek (well within the creek setback), no trees are present here.

4.4 Amphibians

A summary of observations made during evening amphibian surveys is outlined in Table 10. Amphibians were observed at four of the six stations during evening surveys. Only three species in total were observed: Spring Peeper (*Pseudacris crucifer*), American Toad (*Anaxyrus americanus*), and Green Frog (*Lithobates clamitans*). No amphibians were observed during the first survey conducted on April 16, 2019, despite suitable breeding conditions for early breeding species. Stations F1 and F2 were located along the northern edge of the corn field directly south of Marlborough Creek, at which Spring Peepers, American Toads, and Green Frogs were observed at different periods throughout the survey window. Stations F3 and F4 were located where the corn field meets the wooded area towards the centre of the property (i.e., along Reach 4). A chorus of American Toads was observed from Station F3 on June 17, 2019. No amphibians were observed at Station F3 during the other two survey dates. No amphibians were observed at Stations F4 or F5 during any of the amphibian surveys. Stations F5 and F6 were located along the eastern edge of the woodland in the southwestern corner of the Site. Spring Peepers and American Toads were observed from Station F6 on May 27 and June 17, 2019, respectively.



Table 10 Summarized results of evening amphibian surveys performed on Site in 2019

Date	Time	Air Temperature	Cloud Cover	Wind	Species Observed ¹
2019/04/16	21:15-22:05	6-7°C	10%	No wind	No amphibians observed
2019-05-27	21:40-22:20	11°C	~30%	Light breeze	Station F1: AMTO (3), SPPE (3) ² Station F2: SPPE (3) Station F3: No amphibians observed Station F4: No amphibians observed Station F5: No amphibians observed Station F6: SPPE (3) ³
2019-06-17	21:50-22:27	19°C	15%	Light breeze	Station F1: AMTO (chorus), GRFR (2) Station F2: GRFR (2) Station F3: AMTO (chorus) ⁴ Station F4: No amphibians observed Station F5: No amphibians observed Station F6: AMTO (chorus) ³

Table Notes: AMTO – American Toad, SPPE – Spring Peeper, GRFR – Green Frog

¹Numbers in parenthesis indicate the number of individuals heard calling at a station. “Chorus” indicates a full chorus where calls are continuous and overlapping and the number of individuals cannot be reliably estimated.

² Frogs observed from Station F1 were heard calling from the banks of Marlborough Creek.

³ Frogs observed from Station F6 were faintly heard calling from a distance of > 200 m. Frog populations heard from this station were thus well beyond the property boundary. No frogs were observed calling from the small woodlot in the southwest corner of the Site.

⁴ Frogs observed from Station F3 were faintly heard from a distance of > 200 m, i.e. from the other side of Eagleson Rd. No frogs were noted to be calling from the farm fields of the Site.

In each case where larger numbers of a species of amphibian was heard calling, the calls came from areas off Site, other than directly from along the banks of Marlborough Creek towards the eastern end of the property (i.e., even though choruses were heard at stations F3 and F4 on June 17, 2019, the calls were coming from off-site areas). Nowhere on Site constitutes Significant Amphibian Breeding Habitat as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF, 2015b), including Marlborough Creek and adjacent areas.



4.5 Turtles

A summary of observations made during basking turtle surveys is available in Table 11. Only one species of turtle was observed on Site, Painted Turtle (*Chrysemys picta marginata*). Painted Turtles were observed during three of the five surveys at stations T-C and T-E along Marlborough Creek. No SAR turtles were observed on Site or on adjacent lands during the 2019 field campaign.

Table 11 Summarized results of basking turtle surveys performed on Site in 2019

Date	Time	Air Temperature	Cloud Cover	General Weather Conditions	Species observed
2019/04/16	13:20-14:50	14°C	5-10%	Low wind, sunny	None observed at any stations
2019/05/06	13:00-14:45	11°C	50-90%	Low wind, sunny	Station A: No turtles Station B: No turtles Station C: No turtles Station D: No turtles Station E: 2 Painted Turtles
2019/05/07	15:20-16:21	17°C	30%	Low wind, sunny	None observed at any stations
2019/05/08	13:00-14:24	12°C	5%	Low wind, sunny	Station A: No turtles Station B: No turtles Station C: 1 Painted Turtle Station D: No turtles Station E: No turtles
2019/05/21	12:05-12:55	13°C	50-60%	Low wind, partly cloudy	Station A: No turtles Station B: No turtles Station C: 2 Painted Turtles Station D: No turtles Station E: No turtles

4.6 Birds

A total of 46 bird species were observed on Site during the three rounds of daytime surveys. All the birds observed are common in the Ottawa region. Two listed species, Wood Thrush (*Hylocichla mustelina*) and Eastern Wood-pewee (*Contopus virens*), were observed. Wood Thrush was observed from station B4 on May 31 and B2 on July 11, 2019 (see Figure 3). In each instance, a single Wood Thrush was noted to be present along the central-south edge of the Site. A single Eastern Wood-pewee was observed once on May 31, 2019 from B5. This Eastern Wood-pewee was heard calling from near Marlborough Creek. Both Wood Thrush and Eastern Wood-pewee are designated as species of Special Concern under the ESA (2007). Consequently, these species are not afforded any specific legal protections of individuals or habitat area as SAR under the ESA, though individuals and active nests are protected under the federal SARA and the Migratory Birds Convention Act (MBCA; Government of Canada, 1994).

Song Sparrow (*Melospiza melodia*) was the most abundant species on Site followed by Common Yellowthroat (*Geothlypis trichas*) and American Goldfinch (*Spinus tristis*). No regionally rare bird species (Cadman *et al.*, 1987) were observed. Other species that were incidentally observed while on Site but not during breeding bird surveys include Canada Goose (*Branta canadensis*), Hairy Woodpecker (*Leuconotopicus villosus*), Mallard (*Anas platyrhynchos*), Sharp-shinned Hawk (*Accipiter striatus*), and Wood Duck (*Aix sponsa*).

Neither Eastern Whip-poor-will nor Common Nighthawk were ever observed on Site.



Table 12 Bird species observed during the three rounds of daytime breeding bird surveys conducted on Site in 2019

Common Name	Scientific Name	Common Name	Scientific Name
Alder Flycatcher	<i>Empidonax alnorum</i>	Gray Catbird	<i>Dumetella carolinensis</i>
American Crow	<i>Corvus brachyrhynchos</i>	Hairy Woodpecker	<i>Leuconotopicus villosus</i>
American Goldfinch	<i>Spinus tristis</i>	House Wren	<i>Troglodytes aedon</i>
American Redstart	<i>Setophaga ruticilla</i>	Killdeer	<i>Charadrius vociferus</i>
American Robin	<i>Turdus migratorius</i>	Mallard	<i>Anas platyrhynchos</i>
Baltimore Oriole	<i>Icterus galbula</i>	Mourning Dove	<i>Zenaida macroura</i>
Black-and-White Warbler	<i>Mniotilta varia</i>	Nashville Warbler	<i>Leiothlypis ruficapilla</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>	Northern Cardinal	<i>Cardinalis cardinalis</i>
Brown-headed Cowbird	<i>Molothrus ater</i>	Northern Flicker	<i>Colaptes auratus</i>
Blue-headed Vireo	<i>Vireo solitarius</i>	Ovenbird	<i>Seiurus aurocapilla</i>
Blue Jay	<i>Cyanocitta cristata</i>	Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
Brown Thrasher	<i>Toxostoma rufum</i>	Ring-billed Gull	<i>Larus delawarensis</i>
Blue-winged Warbler	<i>Vermivora cyanoptera</i>	Red-eyed Vireo	<i>Vireo olivaceus</i>
Cedar Waxwing	<i>Bombcilla cedrorum</i>	Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Common Grackle	<i>Quiscalus quiscula</i>	Scarlet Tanager	<i>Piranga olivacea</i>
Common Yellowthroat	<i>Geothlypis trichas</i>	Song Sparrow	<i>Melospiza melodia</i>
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	Savannah Sparrow	<i>Passerculus sandwichensis</i>
Eastern Phoebe	<i>Sayornis phoebe</i>	Swamp Sparrow	<i>Melospiza georgiana</i>
European Starling	<i>Sturnus vulgaris</i>	Veery	<i>Catharus fuscescens</i>
Eastern Wood-Pewee	<i>Contopus virens</i>	Warbling Vireo	<i>Vireo gilvus</i>
Great Blue Heron	<i>Ardea herodias</i>	White-breasted Nuthatch	<i>Sitta carolinensis</i>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	Wild Turkey	<i>Meleagris gallopavo</i>
Gray Catbird	<i>Dumetella carolinensis</i>	Wood Thrush	<i>Hylocichla mustelina</i>
Hairy Woodpecker	<i>Leuconotopicus villosus</i>	Yellow Warbler	<i>Setophaga petechia</i>



4.7 Bats and Other Mammals

During the seven nights of data collection via acoustic monitoring (June 26 to July 4, 2019), five species of bats were recorded on the acoustic monitor installed near the southwestern corner of the Site (Bat1; Table 13). Most survey nights were warm (average nightly temperature >12°C) with low wind and no precipitation.

Importantly, the number of recordings obtained is not directly equivalent to the number of bats present in an area. A single bat may pass the monitor many times during an evening, triggering multiple recordings, while other bats foraging just beyond the monitor range may never trigger recordings. Very generally, however, the number of recordings per species can be indicative of relative abundances. In all cases here, the number of bat calls recorded per evening was small, suggesting the presence of relatively few bats in the area, which is unsurprising given the generally small DBH of trees on the Site.

The total number of bat recordings was low. The majority of recorded bat echolocations were made by Big Brown Bats (*Eptesicus fuscus*; 307 recordings total) or Hoary Bats (*Lasiurus cinereus*; 161 recordings total), which are both still relatively common in Ottawa. Silver-haired Bats (*Lasionycteris noctivagans*; 96 recordings total) and Eastern Red Bats (*Lasiurus borealis*; 26 recordings) were also observed. On five evenings, bat calls were auto-identified as those of Little Brown Myotis, though there were never more than two calls in an evening.

Little Brown Myotis is a colonial species; during the spring and summer, areas of suitable habitat tend to support maternity colonies of several hundred bats (Burnett & August, 1981). The very small number of Little Brown Myotis detected on Site suggests that the area does not provide a suitable roosting area. The detection of only one or two calls during five of the seven acoustic monitoring evenings could reflect either the presence of the occasional transient bat (individuals can travel over 3 km from summer roosts while feeding (Environment Canada, 2015)) or, more likely, could be misinterpretations of other bats. All other bat species detected in the area are larger and tend to call in the 18 to 35 kHz range. Little Brown Myotis, being a much smaller species, calls above 45 kHz. Larger bats, however, will call in this range as they close in on prey. The 45 kHz+ calls were most likely recordings of such activity in large bats that do occur in the area. As such, based on the acoustic monitoring data, Little Brown Myotis is considered to have at most, transient presence on site, though they are most likely entirely absent.

Table 13 Number of bat recordings from acoustic monitoring performed on Site June 26-July 4, 2019

Date	Big Brown Bat	Eastern Red Bat	Hoary Bat	Silver-haired Bat	Little Brown Bat
Station	Bat 1	Bat 1	Bat 1	Bat 1	Bat 1
2019-06-26	17	0	5	14	0
2019-06-27	42	1	14	12	0
2019-06-28	41	0	25	15	1
2019-06-29	33	1	8	9	2
2019-06-30	10	1	9	7	0
2019-07-01	46	7	30	8	1
2019-07-02	85	16	11	6	2
2019-07-03	51	5	22	18	2
2019-07-04	23	2	37	7	0
Total	307	26	161	96	7



In addition to the bat species noted above, the following mammals and/or signs of them were observed on and/or within the vicinity of the Site: Horse (*Equus caballus*), Raccoon (*Procyon lotor*), Red Fox (*Vulpes vulpes*), and White-tailed Deer (*Odocoileus virginianus*).

4.8 Species at Risk

The potential for SAR to occur on Site, based on our review of existing information, field surveys, and the information request to the MNRF, is indicated in Table 14.



Table 14 Assessment of Species at Risk Potential for the Site, 2019

Species Name	Provincial (ESA) Status	Habitat Requirement	Habitat on Site	Project Concerns Associated with Habitat on Site
Birds				
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Special Concern	Variety of habitats and forest types, almost always near a major lake or river. Usually nest in large trees such as pine and poplar.	No habitat directly on Site. May be present along the Jock River ~850 m northwest of the Site. Not observed during the 2019 field campaign.	Low potential for transient occurrence. Not a concern for this project.
Bank Swallow (<i>Riparia riparia</i>)	Threatened	Nest in banks or earthen walls cut by meandering streams and rivers, but artificial banks created by mining may also be used. Foraging occurs over fields, streams, wetlands, farmlands, and still water.	Open areas in the eastern half of the Site may provide suitable foraging habitat. No available nesting habitat nearby, except for along the banks of the Jock River. The Site falls outside of the typical foraging range for Bank Swallow if they are present along the stretch of the Jock River closest to the Site. Not observed during the 2019 field campaign.	Negligible potential for presence. Not a concern for this project.
Barn Swallow (<i>Hirundo rustica</i>)	Special Concern	Terrestrial open and anthropogenic structures for nesting; near open areas for feeding.	There are records of Barn Swallow occurrences within 1 km of the Site (MNRF, 2016). Open areas in the eastern half of the Site may provide suitable foraging habitat, but there are no suitable nesting structures directly on Site and no individuals were observed during the 2019 field campaign.	The open fields that make up the eastern portion of the Site may provide suitable foraging habitat and would warrant protection under the ESA if there were a nest located within 200 m. As no nesting structures are present on the Site, and no individuals were observed on or near to the Site, the species is not a concern for this project.
Bobolink (<i>Dolichonyx oryzivorus</i>)	Threatened	Periodically mown, dry meadow for nesting. Habitat (meadow) should be > 10 ha, and preferably > 30 ha before Bobolink are attracted to Site. Not near tall trees.	There are records of Bobolink occurrences within 2 km of the Site (MNRF, 2016). However, no typical habitat currently exists on Site. Bobolink are not typically found in active row crop monocultures like those on Site (the fields were planted with corn in 2019). The Graminoid Meadow Ecosite (MEG) in the western portion of the Site may be considered potential Bobolink habitat if it were continuous open habitat. However, the MEG areas are patches divided by treed hedgerows that result in patches of MEG areas that are	Low potential for occurrence if agricultural fields on and off-Site continue to be predominantly used for row crops. If fields on and/or adjacent to the Site are rotated for hay prior to project works, there is a higher potential for occurrence since Bobolink is known to occur in the area. If the fields on Site are rotated for hay, no project works should occur within the agricultural fields on Site between April and August inclusive without first ensuring the absence of grassland bird nests during that period. Otherwise, this species is not a concern for this project.



Species Name	Provincial (ESA) Status	Habitat Requirement	Habitat on Site	Project Concerns Associated with Habitat on Site
			considered too small and interrupted for Bobolink. Not observed during the 2019 field campaign.	
Canada Warbler (<i>Cardellina canadensis</i>)	Special Concern	Breeds in a range of deciduous and coniferous forests (usually wet) with a well-developed, dense shrub layer. Nests are usually located on the forest ground on mossy logs or roots, along streambanks, or on hummocks.	None of the wooded areas on Site contain typical habitat (no well-developed understories or forest floors). The only potentially suitable habitat in the area would likely be along mature, unaltered, and continuous wooded areas along the Jock River. Not observed during the 2019 field campaign.	Negligible potential for presence. Not a concern for this project.
Chimney Swift (<i>Chaetura pelagica</i>)	Threatened	Nests in open chimneys and, very rarely, in tree hollows (tree > 60 cm DBH). Tend to forage close to water as this is where the flying insects they eat congregate.	No nesting habitat on Site. Chimneys of buildings in the vicinity of the Site may be suitable nesting habitat if they are not used during the breeding season. Open areas along the Jock River and Marlborough Creek may provide foraging habitat if nests are present in the area. Not observed during the 2019 field campaign.	Low potential for transient occurrence. Not a concern for this project.
Common Nighthawk (<i>Chordeiles minor</i>)	Special Concern	Nests in wide variety of open sites, including beaches, fields, and gravel rooftops.	No suitable habitat on Site. If present in the general area, they may nest on the roof of South Carleton High School northwest of the Site. Not observed during the 2019 field campaign.	Low potential for transient occurrence. Not a concern for this project.
Eastern Meadowlark (<i>Sturnella magna</i>)	Threatened	Periodically mown, dry meadow for nesting. Habitat (meadow) should be > 10 ha, and preferably > 30 ha before meadowlark are attracted to Site. Not near tall trees.	There are recent records of Eastern Meadowlark occurrences within 2 km of the Site (MNRF, 2016). However, no typical habitat currently exists on Site. Eastern Meadowlarks are not typically found in active row crop monocultures like those on Site (the fields were planted with corn in 2019). The Graminoid Meadow Ecosite (MEG) in the western portion of the Site may be considered potential habitat if it were continuous open habitat. However, the MEG areas are patches divided by treed hedgerows that result in patches of MEG areas that are considered too	Low potential for occurrence if agricultural fields on and off-Site continue to be predominantly used for row crops. If fields on and/or adjacent to the Site are rotated for hay prior to project works, there is a higher potential for occurrence since Bobolink is known to occur in the area. If the fields on Site are rotated for hay, no project works should occur within the agricultural fields on Site between April and August inclusive without first ensuring the absence of grassland bird nests during that period. Otherwise, this species is not a concern for this project.



Species Name	Provincial (ESA) Status	Habitat Requirement	Habitat on Site	Project Concerns Associated with Habitat on Site
			small and interrupted for Eastern Meadowlark. Not observed during the 2019 field campaign.	
Eastern Whip-poor-will (<i>Caprimulgus vociferous</i>)	Special Concern	Prefers areas that are a mix of open and forested habitats such as savannahs, open woodlands, and forest openings. Nests on the ground or forest floor.	Habitat on and/or near the Site is somewhat suitable, but there are no recorded occurrences within 2 km. Not observed during the 2019 field campaign.	Negligible potential for presence. Not a concern for this project.
Eastern Wood-Pewee (<i>Contopus virens</i>)	Special Concern	Woodland species, often found near clearings and edges.	Wooded areas along Marlborough Creek provide potentially suitable habitat and a single individual was observed there during the first round of breeding bird surveys in 2019 (but not subsequently). There are also recent records of Eastern Wood-Pewee occurrences within 1 km of the Site (MNRF, 2016).	This species is listed as Special Concern and so does not receive any specific legal protection as a SAR under the ESA, though individuals and active nests are protected under the federal SARA and the MBCA. Suitable habitat along the creek will be retained. Construction must be phased and monitored to prevent harm to individuals or active nests if present on Site during any works.
Least Bittern (<i>Ixobrychus exilis</i>)	Threatened	Found in large, quiet marshes and usually near cattails.	No suitable habitat on or near the Site. The stretch of Marlborough Creek passing along the northwestern corner of the Site is exposed to frequent residential, road, and railway noise, making it unsuitable for this shy species. Not observed during the 2019 field campaign.	Negligible potential for presence. Not a concern for this project.
Peregrine Falcon (<i>Falco peregrinus</i>)	Special Concern	Usually nest on tall, steep cliff ledges close to large bodies of water or on ledges of tall buildings.	No suitable habitat on or adjacent to the Site. Not observed during the 2019 field campaign.	Negligible potential for presence. Not a concern for this project.
Wood Thrush (<i>Hylocichla mustelina</i>)	Special Concern	Deciduous or mixed woodlands.	Wooded areas in the western portion of the Site provide suitable habitat though broader forest areas to the south would be preferable. One individual was observed along the southern edge on Site during two rounds of breeding bird surveys in 2019. There are also recent records of Wood Thrush occurrences within 1 km of Site (MNRF, 2016).	This species is listed as Special Concern, and so does not receive any specific legal protection as a SAR under the ESA, though individuals and active nests are protected under the federal SARA and the MBCA. Preferable habitat to the south of the Site will remain. Construction must be phased and monitored to prevent harm to individuals or active nests if present on Site.
Mammals				



Species Name	Provincial (ESA) Status	Habitat Requirement	Habitat on Site	Project Concerns Associated with Habitat on Site
Little Brown Myotis (<i>Myotis lucifugus</i>)	Endangered	Widespread, roosting in trees and buildings. Hibernate in caves or abandoned mines.	Dead/dying Green Ash with peeling bark and snags in the western portion of the Site could provide suitable roosting habitat. Several potentially suitable foraging areas exist on and adjacent to the Site: agricultural fields in the eastern portion of the Site and south of the Site, edges of wooded areas along Marlborough Creek and over the creek itself, and open meadow areas (MEG ecosite) in the western portion of the Site. Observations from 2019 found the species was likely absent from the Site or potentially transient. It is possible individuals access the Site on occasion, but they do not appear to roost there.	Limited potential for presence on the Site if the species occurs in the broader vicinity, though acoustic monitoring for the Site in 2019 suggested the species is not present or that its presence is insignificant. Not a concern for this project. To prevent impacts to bat roosting habitat on Site in general, however, no clearing of trees should take place between May and September inclusive without first confirming the absence of bats. Trees should not be cleared within the month of June at all.
Tri-Coloured Bat (<i>Perimyotis subflavus</i>)	Endangered	Widespread, roosting in trees and buildings. Hibernate in caves or abandoned mines.	Dead/dying Green Ash with peeling bark and snags in the western portion of the Site could provide suitable roosting habitat. Several potentially suitable foraging areas exist on and adjacent to the Site: agricultural fields in the eastern portion of the Site and south of the Site, edges of wooded areas along Marlborough Creek and over the creek itself, and open meadow areas (MEG ecosite) in the western portion of the Site. No individuals, however, were detected on Site.	Limited potential for presence on the Site if the species occurs in the broader vicinity, though acoustic monitoring for the Site in 2019 suggested the species is not present or that its presence is insignificant. Not a concern for this project. To prevent impacts to bat roosting habitat on Site in general, however, no clearing of trees should take place between May and September inclusive without first confirming the absence of bats. Trees should not be cleared within the month of June at all.
Northern Long-Eared Bat (<i>Myotis septentrionalis</i>)	Endangered	Associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. Hibernate in caves or abandoned mines.	No suitable habitat on or adjacent to Site. Not observed during the 2019 field campaign.	Negligible potential for presence. Not a concern for this project.
Eastern Small-Footed Bat (<i>Myotis leibii</i>)	Endangered	Coniferous forest in hilly country. Hibernate in smaller caves. Subject to air movement.	No suitable habitat on or adjacent to Site. Not observed during the 2019 field campaign.	Negligible potential for presence. Not a concern for this project.
Turtles				
Blanding's Turtle (<i>Emydoidea blandingii</i>)	Threatened	Prefers shallow water usually in large wetlands or shallow lakes. Can be found far from water bodies if searching for mates or nesting sites,	Blanding's Turtles were observed within 2 km of Marlborough Creek on the western end of the Site in 2019 (personal communications with a local	Some potential for occurrence is recognized in Marlborough Creek. With the updated habitat definition within the ESA, no areas beyond the creek itself



Species Name	Provincial (ESA) Status	Habitat Requirement	Habitat on Site	Project Concerns Associated with Habitat on Site
		which usually contain gravel, cobble, and/or sand.	resident and the Kemptville District of the MNRF). However, none were observed on or adjacent to the Site in 2019, and the existing record is located more than 2 km from any other Site surface water features.	constitute protected habitat. Regardless, development (other than the establishment of a new, naturalized outlet channel for the SWM pond) will be considered directly adjacent to the creek, and a 30 m wide riparian buffer will be maintained in its natural state. This approach will ensure that no impacts are anticipated to Blanding's Turtle.
Snapping Turtle (<i>Chelydra serpentina</i>)	Special Concern	Prefers shallow water usually in large wetlands or shallow lakes. Can be found far from water bodies if searching for mates or nesting sites, which usually contain gravel, cobble, and/or sand.	Suitable basking and overwintering habitats exist in Marlborough Creek along the northwestern edge of the Site as well as in the nearby Jock River. Other surface water features on Site may act as travel corridors (when they contain water). Roadside ditches in the broader area may provide suitable nesting habitat. Not observed during the 2019 field campaign and no records of occurrences in the area (MNRF, 2016).	Moderate potential for occurrence given that this species is relatively common. Marlborough Creek (the most likely feature on Site to contain Snapping Turtle) is not to be altered under the proposed development. An additional 30 m buffer around this feature will be respected such that no impacts are anticipated to Snapping Turtle.
Vascular Plants				
Butternut (<i>Juglans cinerea</i>)	Endangered	Variable but typically on well-drained soils.	Soil conditions on the Site are suitable but no individuals were observed on or within 50 m of Site.	Negligible potential for presence. Not a concern for this project.
Arthropods				
Monarch (<i>Danaus plexippus</i>)	Special Concern	Larvae (caterpillars) feed on milkweed plants in meadows and opens areas where milkweed grows. Adult butterflies are found in farmlands, meadows, open wetlands, prairies, roadsides, city gardens, and parks where wildflowers provide nectar.	No milkweed was observed on Site. The Site contains some wildflowers in the MEG ecosite, albeit in very low abundance. The agricultural (corn) fields on Site are not typical habitat.	Low to moderate potential for occurrence given that this species is relatively common. However, since this species is listed as Special Concern, it does not receive any specific legal protections of individuals or habitat area as a SAR under the ESA.



5.0 PROJECT DESCRIPTION

Two options were initially proposed for the development of a residential community on the Site. Both community designs provided a residential community on the western half of the Site. The options differed, though, in how the lands of the eastern half of Site would be used. This area is currently entirely under active agriculture. Under the “Residential and Employment Use Option”, the eastern lands would have been divided primarily into commercially zoned parcels for employment. Under the “Residential Use Option”, those lands would have been used for further residential development.

Under both options, the entire Site was to be regraded and built upon, except for the retained buffer along Marlborough Creek. This would include removing all Site trees (again, except those in the creek buffer), and the removal of the Site headwater features Reaches 1 through 4. Taggart opted to proceed with a mostly residential approach and has accordingly completed a more detailed site concept (Figure 14).

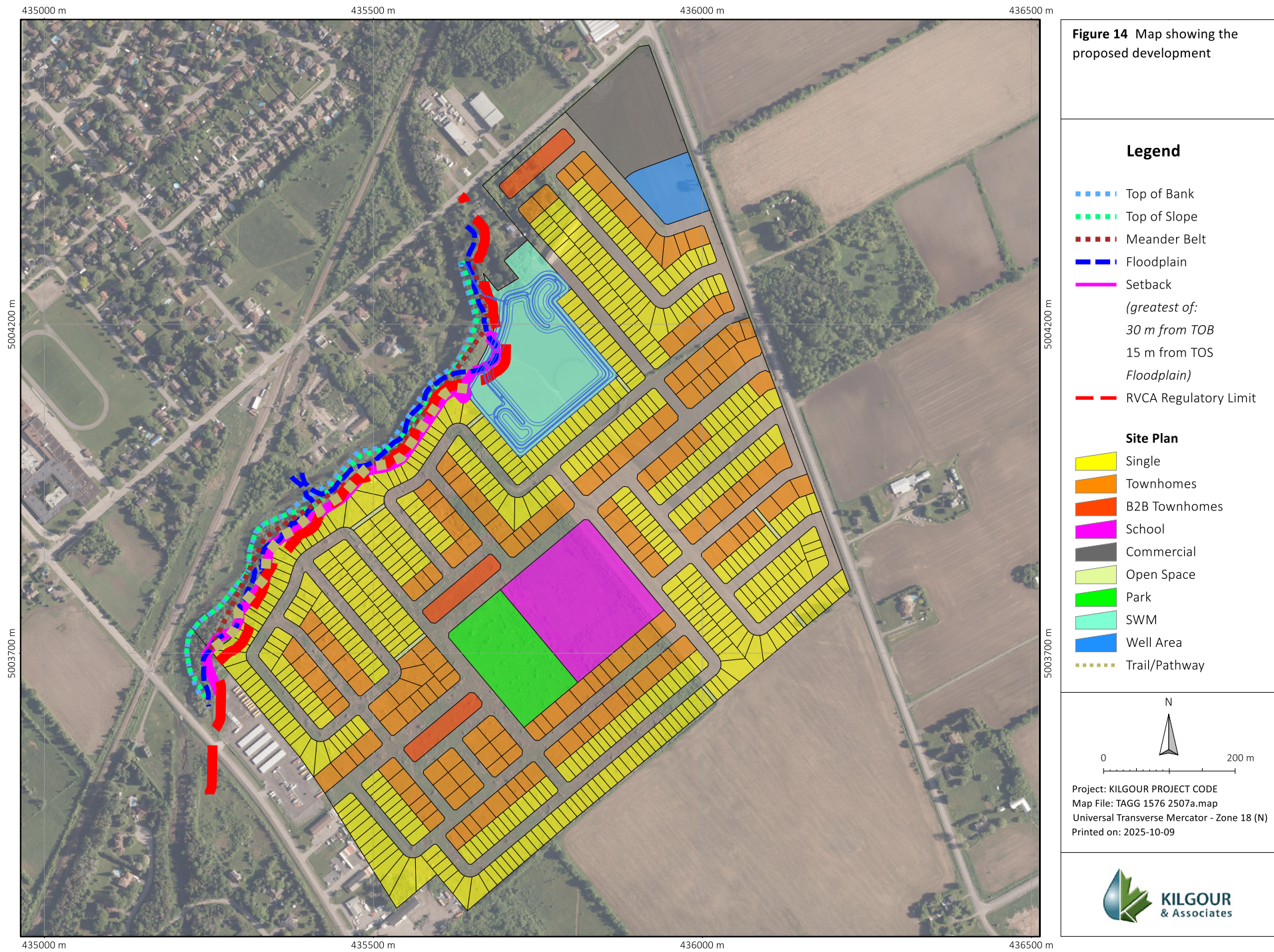
Under both residential and commercial options initially considered in the 2020 EIS, the entire site was to be subject to development activity (i.e. with all existing vegetation removed and the land surface being fully regraded) except for a retained natural buffer along Marlborough Creek. Following the initial EIS, site preparations proceeded accordingly; the proposed development footprint was cleared of trees and vegetation, and some earthworks have begun. The decision by Tamarack Homes to proceed with the fully residential option for the Site did not impose any change in the development footprint as it has, or would have, been fully cleared regardless.

The development of the Site as a residential community will (re)commence in the spring of 2026. The new community will include 536 single-family homes, 144 semi-detached homes, 387 townhomes, 106 back-to-back units, a 3.9 ha SWM pond block (which has already been created), a 2.0 ha community park, a 3.1 ha school block, and a 2.0 ha commercial block in the northeast most corner of the Site.

All development will be fully outside the Marlborough Creek setback, with two exceptions. A minor adjustment of the floodplain will be completed in the northwest corner of the SWM pond block (leading to a corresponding adjustment of the setback line), and an east-west pathway will be included within the creek buffer. The floodplain adjustment will be completed as part of the SWM pond application. For the pathway, Section 6.4 of the EMP specifically allows pathways within the vegetated setback to watercourses. Per the EMP, the pathway within the vegetated area will be designed and located (near the outer edge of the corridor) so as to avoid erosion or bank destabilization, with no direct connection to the bank. The Marlborough Creek pathway would be limited to ~2 m in width, consistent with a nature trail per the City’s *Park Development Manual, 2nd Edition* (City of Ottawa, 2017). The pathway surfacing will consist of permeable material (e.g. stone dust or wood chip), and it will be routed among existing tree cover to limit tree clearing to the fullest extent feasible.

The Marlborough Creek pathway will connect at its eastern end to recreational pathways around the SWM pond and will extend behind the houses of Streets 1 and 18 to the western edge of the community. Figure 18 of the EMP calls for the Marlborough Creek pathway to ultimately continue 90 m further west to connect to Ottawa McBean St, and/or to cross Marlborough Creek and follow the south side of the Via Rail corridor to connect to Ottawa St. Both connection points, however, are currently held by other landowners. As such, westward and/or northward connections to existing built-up sections of the village would be part of future land development projects led by other groups.





6.0 IMPACT ASSESSMENT

6.1 Impacts to Surface Water Features

The roadside ditches along Eagleson Rd. and Ottawa St. may be subject to some disturbance and/or reconstruction during the development of the Site, but will otherwise be fully retained. As these features do not provide habitat for fish, frogs or turtles, such disturbances are not considered to be consequential so long as standard erosion and sediment controls are employed during construction to prevent the transport of any sediment to downstream receivers.

Headwater Reaches 1 through 4 will be removed from the Site. Reaches 1 through 3 were assigned management recommendations of “Mitigation” under Headwater Drainage Feature Assessment for the Site (Table 9). Per the HDFA findings (Section 4.2.2), there is no requirement to either keep these features or to specifically replace their form (i.e. create new headwater channels per se) if removed. The only requirement for these features is to maintain/replicate the functional services they provide. These features currently serve to convey runoff from the active agricultural areas of the Site to Marlborough Creek and likely provide some allochthonous input and filtration functionality as part of that conveyance.

HDF Reaches 1, 2, and 3 will be removed. Their functional services can be provided by a stormwater management system for the community. Stormwater collection systems can be anticipated to collect direct site runoff to the Marlborough Creek receiver. The SWM pond at the downstream end of the system, with surrounding trees in vegetation within the SWM block, is expected to provide allochthonous material. Further, the pond must be designed to manage outflow rates to maintain the existing hydroperiods of the receiver. With the functional services of Reaches 1, 2 and 3 provided by the SWM system, no net negative impacts are anticipated to the broader watershed following their removal.

Reach 4 was assigned a management recommendation of “Conservation” under the Headwater Drainage Features Assessment for the Site (Table 9). Similar to Reaches 1 – 3, this feature may also be removed. However, it must be replaced by a new feature. The new feature need not be the same in form or size, but it must be relocated and designed using natural channel design techniques to maintain or enhance the overall productivity of the reach. The outlet channel for the SWM pond will serve as the replacement for Reach 4. That SWM pond has been sized to provide an Enhanced Level of Protection (80% TSS Removal) and post to pre-development control for the 2 to 100-year storm events before directing outflows to Marlborough Creek (DSEL, 2025).

In its original form, Reach 4 comprised a single, long, intermittent, linear run with no notable habitat elements. As such, it did not support any fish, frogs or turtles. Similar to Reaches 1 -3, its only noted function was to convey site runoff to Marlborough Creek and provide some allochthonous material. At ~40 m in length, the new SWM pond outlet channel will be significantly shorter than Reach 4 (see the initial design concept in Appendix D). However, it will follow a course with natural sinuosity and repeating riffle pool sequences conducive to supporting local forage fish species. The channel will also include sweeper log elements intended to support basking by local turtle species.

As the feature will connect the SWM pond (which functions to collect site runoff) to Marlborough Creek, and will be situated within the forested natural corridor of that creek, it replaces the existing functionality of



Reach 4 in terms of conveyance and allochthonous inputs. Even with its shorter overall length, given the included habitat elements and permanent hydration provided by the SWM pond, the new outlet channel is anticipated to support fish and turtle productivity that was otherwise absent from the original feature. As such, the replacement of Reach 4 with the SWM pond outlet channel meets the requirements of the “Conservation” management recommendation and ensures no net negative impacts to the broader watershed.

Marlborough Creek will be fully preserved and protected within a retained corridor of natural habitat with a width of 30 m or more, corresponding with the required setback. Further, the *Marlborough Creek Erosion Mitigation Assessment* (GEO Morphix Ltd., 2025) determined that the proposed SWM facilities effectively address any potential erosion risk for the receiving watercourse. As such, no negative impacts are anticipated to this feature.

6.2 Impacts to Trees and Vegetation

Most existing trees and vegetation on the Site, outside of the setback around Marlborough Creek, were previously removed. The eastern side of the Site, however, an area of 29 ha, is currently completely devoid of natural vegetation, being under active agricultural usage. Much of the western side of the Site had limited tree cover, consisting of meadows and recently regenerating woodlands with only ~30% canopy cover.

A final, detailed list of trees to be removed will be developed in a TCR to be completed for the detailed design stage of each phase of development. This will consider trees around the perimeter of the OAG ecosite farm fields in the east, along the southern edge of the WODM5-1 ecosite in the northwest, and within the remnant FODM4-7 ecosite in the southwest corner. The removal of any of these trees from the property, however, will ultimately be mitigated primarily through the planting of trees on or adjacent to house lots throughout the new community and within common areas such as stormwater management areas and parks.

Currently, 94% of the Site is fully devoid of tree cover. Most of the remaining 6% of the Site will retain its existing tree cover. With tree planting at a minimum level equivalent to one tree per lot and additional tree planting in common areas, over 1000 trees will be planted throughout the development. Tree planting within the area to be developed can be anticipated to increase canopy cover within currently bare areas to ~25% at maturity, which represents a significant increase and contribution towards the citywide target of 40% canopy cover.

Existing riparian trees along Marlborough Creek will be retained and protected within a reserved corridor of natural habitat with a width of 30 m or more. The large American Elm along Eagleson Road (Figure 14), will be situated within the well block supporting the new community. As such, this notable tree can be retained. The largest trees within the remnant FODM7-2 pocket in the southwest corner are mostly located on or just beyond the Site boundary. As such, these trees, and possibly several smaller or medium-sized trees within the rear yards of the houses planned for that corner, will be retained if feasible.

6.3 Impacts to Species at Risk

No SAR legally protected under the ESA were found to use habitat on the Site during the 2019 field campaign. It is possible, however, that Little Brown Myotis may transiently occur in wooded areas on the Site. So long



as no clearing of wooded areas occurs when bat species may be present, no negative impacts would be anticipated to these individuals.

Blanding's Turtles were not observed on the Site, though an occurrence record for the species does occur on Ottawa Street near the western boundary of the Village of Richmond. This point occurs just within 2 km of the westernmost end of Marlborough Creek on the Site, thereby defining this small portion of the Site as legally protected Category 2 Blanding's Turtle habitat (MNRF, 2013). Blanding's Turtle Category 2 habitat is regulated to include a 30 m buffer around suitable wetland features (i.e., Marlborough Creek). However, as no development will occur within 30 m of the creek and this area is to be maintained in its natural state, no impacts are anticipated to either the species or its habitat. All other channelized features on the Site are situated more than 2 km away from any recorded Blanding's Turtle occurrences and are thus not deemed to constitute Blanding's Turtle habitat based on definitions of their Category 1, 2, and 3 habitats (MNRF, 2013). As shallow, linear farm ditches with firm substrate, the other channelized features on the Site would provide very limited habitat suitability regardless.

Regardless, all portions of areas between 30 m and 250 m from Marlborough Creek constitute Category 3 habitat. The functionality for which Category 3 habitat is nominally designated for protection is the provision of overland transit between wetlands. The actual provision of that functionality, however, requires the designated area to provide access to suitable wetlands. The nearest wetland across the Site is a small swamp area >750 m to the south, adjacent to Dobson Lane. The heavily treed area, however, surrounded by drier forests and farmland, would not be anticipated to provide suitable habitat for the species, regardless. Under the ESA, development activity may proceed within designated habitat areas (nominal or otherwise) so long as that development does not limit the functionality for which it was designated for protection. As the development area beyond the 30 m setback to Marlborough Creek would not serve as a transit corridor for Blanding's Turtles anyway, development could proceed there without limiting turtle transit. With the full preservation of Category 2 habitat on the Site, site development does not constitute a negative impact to Blanding's Turtle habitat.

Two bird species listed as Special Concern, Wood Thrush and Eastern Wood-Pewee, were observed during daytime breeding bird surveys. These species are not afforded any specific legal protection of individuals or habitat areas as SAR under the ESA, though individuals and active nests are protected under the federal SARA and the MBCA. Regardless, Wood Thrush was observed along the southern border of the Site, and additional suitable habitat that will not be altered under the proposed development exists south of the Site. A single Eastern Wood-pewee was observed along the wooded riparian area immediately adjacent to the Marlborough Creek, which will be preserved. As such, no significant impacts are anticipated to the habitat of either species. Limiting the clearing of trees to outside of the breeding season will prevent any potential impact to individuals.

Barn Swallow and Snapping Turtle were not observed during the 2019 field campaign, but have a moderate potential to interact with the proposed development. Open areas in the eastern half of the Site could provide suitable foraging habitat for Barn Swallow, but there is no available nesting habitat directly on Site and no individuals were present. Suitable basking and overwintering habitats for Snapping Turtles exist in Marlborough Creek along the northwestern edge of the Site as well as in the nearby Jock River. These suitable habitat areas will be retained under the proposed development.



Eastern Red Bats, Hoary Bats, and Silver-haired Bats were not listed as SAR during the initial studies on site and are currently still not subject to protection under the ESA, though they will be subject to such protection as of January 2025. All three bat species were recorded onsite during the 2019 field program. However, as noted above, all trees within the proposed development footprint have already been removed. Standard wildlife mitigation measures (including the retention of trees within the Marlborough Creek setback) that were prescribed by the EIS for the protection of other bat species (at-risk or otherwise) still comprise the correct approach for the protection of the newly listed bat species. With no other trees left to be removed, there are no further bat-habitat considerations for the project.

The fieldwork for the 2020 EIS found no Black Ash (or Butternuts) on the Site, and none were noted during the 2021 setback check. Preparatory groundwork took place within the development footprint between 2020 and 2022. As such, there are currently no concerns for Black Ash (or Butternuts). A recheck of the retained forested buffer along Marlborough Creek for SAR trees is warranted in 2025 for due diligence, but no presence of Black Ash is anticipated.

7.0 MITIGATIONS

7.1 Surface Water Features

Any works near water will, at minimum, require standard erosion and sediment control mitigation measures to protect receiving waters from sediment-laden runoff, including:

- a multi-barrier approach to provide erosion and sediment control;
- retention of existing vegetation and stabilization of exposed soils with vegetation where possible;
- limiting the duration of soil exposure with phased construction;
- limiting the size of disturbed areas by minimizing nonessential clearing and grading;
- minimizing slope length and gradient of disturbed areas;
- maintaining overland sheet flow and avoid concentrated flows; and
- storing/stockpiling all soil away (e.g., greater than 15 m) from watercourses, drainage features and tops of steep slopes.

All changes to Site drainage must be done in consultation with and under a permit from the RVCA. As Marlborough Creek is the only fish-bearing feature on the Site, and it is not subject to any alteration or disturbance within >30 m of its riparian corridor, no permits or consultation with Fisheries and Oceans Canada (DFO) are required.

The outlet channel for the Site stormwater management facility will be planned and constructed following principles of natural channel design. The concept design (Appendix D) will be situated within a naturalized corridor with 30 m setbacks and designed to provide fish habitat suitable for forage fish common in the area, as well as structural elements to support turtle basking. A five-year follow-up monitoring program is recommended to review the completed installation of the feature. The monitoring plan must be developed in conjunction with the creek design. It must include monitoring in years one, three, and five post-construction and identify the successful establishment of habitat supporting a locally representative forage fish community, the inclusion and persistence of turtle basking elements, the survival of intended riparian plantings, and the absence (or acceptably low presence) of invasive species.



The use of Low Impact Development features (LIDs) such as vegetated swales to convey runoff through the community in the final site design is encouraged, as it may further enhance the overall replication of functionality, providing additional opportunity for infiltration. As such, LIDs are recommended for inclusion as part of the detailed design of the community if both site soils and the final site landcover plan are compatible.

Marlborough Creek must be fully preserved and protected within a retained corridor of natural habitat with a width of 30 m or more.

7.2 Trees and Vegetation

Please note that this report does not constitute permission to remove any trees from the Site. A TCR must be completed prior to the commencement of site construction as part of the detailed design process for each construction phase. The TCR must provide detailed inventories of trees that will be subject to developmental impacts during that phase, with specific mitigation and offsetting recommendations appropriate for the location and time. Removal of trees associated with each phase of construction can only be undertaken following appropriate consultation with City planning staff as part of the TCR process for that phase. No trees may be removed from any other portion of the site not yet subject to a phase-specific TCR.

To minimize impacts to trees adjacent to or to be retained on the Site, the following general protection measures must be included within the phase-specific TCRs:

- Tree removal must be limited to that which is necessary to accommodate construction.
- To minimize impact to remaining trees during Site development:
 - Erect a fence beyond the critical root zone (CRZ; i.e., 10x the trunk diameter) of trees. The fence should be highly visible (orange construction fence) and paired with erosion control fencing. Pruning of branches is recommended in areas of potential conflict with construction equipment;
 - Do not place any material or equipment within the CRZ of trees;
 - Do not attach any signs, notices, or posters to any trees;
 - Do not raise or lower the existing grade within the CRZ of trees without approval;
 - Tunnel or bore when digging within the CRZ of a tree;
 - Do not damage the root system, trunk, or branches of any remaining trees; and
 - Ensure that exhaust fumes from all equipment are NOT directed towards any tree's canopy.

While much of the Marlborough Creek riparian corridor is forested, more open areas do occur towards the western end of the Site. These areas must be replanted with appropriate tree species native to the region to restore the forest canopy.

The goal of the site landscape plan will be to provide an equivalent of one tree on every lot in residential areas. It is recognized that lot-specific considerations may preclude having a tree directly on each lot directly. Planting two or more trees on larger corner lots may be otherwise used to offset any deficit. Ultimately, however, trees planted in residential areas must be located on the City-owned portion of each property. Further trees are to be planted where feasible in open lands, parks, school blocks, SWM blocks and other public/publicly accessible spaces.



The following are the minimum tree setbacks and planting specifications:

- Minimum setbacks and separations:
 - 1.5m from sidewalk or MUP/cycle track;
 - 2.5m from a curb;
 - Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway;
 - 7.5m between large growing trees, and 4m between small growing trees; and
 - Park or open space planting should consider 10m spacing.
- Tree planting specifications:
 - Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous;
 - Maximize the use of large deciduous species wherever possible to maximize future canopy coverage;
 - Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification and include watering and warranty as described in the specification (can be provided by Forestry Services);
 - Plant only locally native trees;
 - Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors;
 - No root barriers, dead-man anchor systems, or planters are permitted; and
 - No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

7.3 Wildlife

7.3.1 Species at Risk

Trees on the Site have potential to support various bat species, albeit in small numbers, including the possibility of transient Little Brown Myotis. As such, trees on the Site must not be cut down during the roosting season (May to September inclusive; MNRF, 2015c). Therefore, to protect bats in general, no trees should be cleared between May and September. Clearing trees outside of the bird breeding/nesting window, which mostly overlaps with the bat window (generally early April to late August; Government of Canada, 2018) would ensure no impacts to Wood Thrush and Eastern Wood-pewee as well as other bird species in general.

To ensure Blanding's Turtles resident in Marlborough Creek are protected during site construction and after (i.e. are protected from the new community), fencing will be required to prevent turtle access to construction/community areas. During construction, temporary turtle fencing will be provided by silt fencing along the northern boundary, as required for ESC. Subsequently, as part of the final landscape plan for the



community, permanent turtle fencing is required along the boundary of the community within the Marlborough Creek riparian zone. All permanent fencing must comply with the guidelines in *Reptile and Amphibian Exclusion Fencing: Best Practices* (MECP, 2024). While it is recognized that, for the western half of the Site, turtle fencing will most likely be incorporated into the design of rear yard fencing planned for that area, turtle fencing for all portions of the Site adjacent to Marlborough Creek (i.e. including for the SMM pond block) must be detailed within the formal site plan for the project.

The proposed development is not anticipated to impact Blanding's Turtles, and will not otherwise occur within any portion of their protected habitat.

7.3.2 General Wildlife Mitigations

During several field visits to the Site, common wildlife species were observed, all of which are represented throughout the adjacent landscape. The following mitigation measures shall be implemented on the Site during construction of the project to generally protect wildlife:

- Areas shall not be cleared during sensitive times of the year for wildlife (breeding season), unless mitigation measures are implemented and/or the habitat has been inspected by a qualified Biologist.
- Do not harm, feed, or unnecessarily harass wildlife.
- Manage waste to prevent attracting wildlife to the Site. Effective mitigation measures include litter prevention and keeping all trash secured in wildlife-proof containers and promptly removing it from the Site, especially during warm weather.
- Drive slowly and avoid hitting wildlife.
- Manage stockpiles and equipment on Site to prevent wildlife from being attracted to artificial habitat. Cover and contain any piles of soil, fill, brush, rocks and other loose materials and cap ends of pipes where necessary to keep wildlife out. Ensure that trailers, bins, boxes, and vacant buildings are secured at the end of each work day to prevent access by wildlife.
- Check the entire work site for wildlife prior to beginning work each day.
- Inspect protective fencing and/or other installed wildlife exclusion measures daily and after each rain event to ensure their integrity and continued function.
- Monitor construction activities to ensure compliance with the project-specific protocol (where applicable) or any other requirements.
- The MBCA protects the nests and young of migratory breeding birds in Canada. The City of Ottawa guidelines stipulate no clearing of trees or vegetation between April 1 and August 15, unless a qualified Biologist has determined that no nesting is occurring within 5 days prior to the clearing (City of Ottawa, 2015).
- Follow the best practices for the construction and maintenance of bird-safe buildings, such as applying visual markers on windows to prevent birds from colliding with glass and reducing the intensity and direction of night lighting (turn off lights at night if possible). See



<https://flap.org/workplaces-safe-for-birds/> for more resources and tips on designing and maintaining bird-friendly buildings.

8.0 CLOSURE

It is our professional opinion that no negative impacts are anticipated to significant natural heritage features or SAR or their habitat under the proposed development if the recommended mitigations are followed.

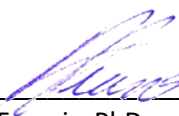
This report was prepared for exclusive use by Tamarack Homes and its authorized agents. It may be distributed only by Tamarack Homes. Questions relating to the data and interpretation can be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.



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Appendix A Qualifications of Report Authors



Anthony Francis, PhD

Dr. Francis is a Senior Ecologist with 20 years' consulting experience to both government agencies and private industry. He has worked on a diversity of projects relating to species at risk, invasive species, terrestrial and aquatic habitat, environmental effects monitoring and mitigation, and fate/effects of contaminants. Within each of these subject areas, Dr. Francis has completed projects addressing specific site concerns and broader policy initiatives.

In the Ottawa area Dr. Francis helps clients work their way through the land development process by producing key supporting studies such Environmental Impact Statements, Integrated Environmental Reviews, and by obtaining various permits and approvals from local regulatory agencies including the conservation authorities and Ministries of Environment and Natural Resources. Dr. Francis is our local in-house geomatics specialist, capable of carrying out detailed and complex analyses of geospatial data of plant and animal distribution. He often utilizes his skills to carry out constraint studies prior to a client purchasing or planning a development for a property.

Maren Nielsen, BES, EMA

Maren is a Biologist and Project Manager with over eight years of comprehensive field, laboratory, and consulting experience. She has worked extensively in the environmental sector, assisting clients through complex land development, ecological restoration, species at risk, and fisheries permitting and approvals processes, ensuring compliance with key environmental regulations while achieving project goals. She carries out field programs for the collection, analysis, and monitoring of water, fish, benthos, sediment, and soils as well as a variety of vegetation, wetland, wildlife surveys, and construction monitoring. Maren plays a key role in delivering high-quality assessments, including Environmental Impact Studies (EIS), Environmental Assessments (EA), Species at Risk (SAR) assessments, Headwater Drainage Feature Assessments (HDFA), Existing Conditions Reports, and Environmental Constraints Analyses. Since joining Kilgour & Associates Ltd. in 2023, Maren has contributed her expertise to a diverse portfolio of land development and environmental monitoring projects for government agencies and private industry. Maren is a certified wetland evaluator under the Ontario Wetland Evaluation System (OWES).



Appendix B City of Ottawa EIS Comments



May 14, 2025

Sarah Al Hajjar
Taggart Investments, Tamarack Homes
Via email: sarah.alhajjard@taggart.ca

**Subject: Plan of Subdivision – 5970, 6012 and 6038 Ottawa Street –
Formal Review Comments, Second Submission**

Please find below the consolidated comments from the formal review of the above noted application.

Planning

List of Studies and Plans Reviewed:

- ☐ **Draft Plan of Subdivision of Part of Lot 26 Concession 2, Geographic Township of Goulbourn and Park Lots 1 and 2 and Part of Park Lot 3 (South Ottawa Street) Village of Richmond and Part of Units 9,11,23,25, Index Plan 4D-24 City of Ottawa**, prepared by Annis, O'Sullivan, Vollebakk Ltd, dated February 13, 2020, revision 12 dated October 3, 2024.
- ☐ **Ottawa Street: Plan of Subdivision & Zoning Bylaw Amendment Applications (Planning Rationale)**, prepared by Taggart, dated November 2020, revised March 2025.
- ☐ **Stage 1 Archaeological Assessment**, prepared by Paterson Group, dated November 12, 2020, revised January 28, 2025.
- ☐ **Tamarack Comment Response on 1st review Comments**, prepared by Tamarack Homes, dated March 26, 2025.

General Comments:

1. A Plan of survey is required.
2. Please provide the Concept Plan as a separate plan in the next submission.
3. While a Revised Stage 1 Archaeological Assessment was provided along with the letter from the Ministry, a revised Stage 2 Archaeological Assessment was not submitted. Please provide along with the corresponding Ministry letter in the next submission.
4. A revised Integrated Environmental Review Statement was not provided in this submission.

5. Please provide a Parking Plan to demonstrate the amount of on-street parking provided based on Building Better and Smarter Suburbs (BBSS) direction.
6. Legal and sufficient outlet for stormwater, water, and sanitary will need to be confirmed before draft approval and it is understood that sanitary capacity is not yet available in the Village.
7. Necessary soil volumes for trees will not be permitted to be split, nor interrupted by utility trenches and shall be attempted to be as square as possible, and not greater than h:w of 1.5.
8. Large trees shall be proposed in the development.
9. Council has accepted the safer roads initiative and local roads need to be designed to control speeds to 30 km/hr (as opposed to control from signage) by curvilinear shape as done in Scandinavia.
10. The subdivision design shall show sustainability design elements.
11. As per Official Plan sections 4.7 and 4.9 the design shall show subdivision level elements of energy efficiency and reduction, and architectural elements of same.
12. No work will occur on site until a commence work notice is provided by engineering staff of Development Review. The application was notified of this but has done construction work regardless.
13. The application requires an agreement with the other developers to use their infrastructure and provide the necessary, shared treatment and water reservoir storage volumes. Further, no interconnection/interconnectivity was shown.

Draft Plan of Subdivision of Part of Lot 26 Concession 2, Geographic Township of Goulbourn and Park Lots 1 and 2 and Part of Park Lot 3 (South Ottawa Street) Village of Richmond and Part of Units 9,11,23,25, Index Plan 4D-24 City of Ottawa, prepared by Annis, O'Sullivan, Vollebekk Ltd, dated February 13, 2020, revision 12 dated October 3, 2024.

14. Please include the horizontal and vertical datum used to establish the surveys for the lands.
15. A collector road running parallel to Ottawa Street is required. This collector road requires a 26m protected ROW width.
16. Pathways are required to increase pedestrian connectivity through the subdivision, and provide walkability to the parks, school, and proposed

commercial/employment areas. Please refer to Schedule B of the Community Design Plan for information regarding pathway plans.

17. Consider what the interface between the industrial lands on McBean Street and the rear and interior yards of abutting residential lots (Lots 331-345, 378-389 and Block 657). Deeper lots are recommended for these properties to ensure that there is ample room for landscaping buffers.
18. Ensure the meanderbelt width identified in Appendix F of the Marlborough Creek Meander Belt Width Delineation Report (GeoMorphix, March 2025) is identified on the draft plan. It would be beneficial to provide a Marlborough Creek constraints map which identifies the lotting and the various required setbacks (see list below). This inclusion will better illustrate if the boundaries of Block 627 need to be revised.
 - a. Top of bank/slope
 - b. 30m setback from Top of bank
 - c. Flood Plain limit
 - d. Meanderbelt width
19. The rear lotting houses adjacent to naturalized Blocks disconnect the natural feature from the public. Please redesign the site to open this area up to the public.
20. The current subdivision design does not utilize the agricultural views identified in the CDP. Please provide a lotting configuration that takes advantage of these views.
21. This site is the southern entrance to the village. Please review the lotting so that not only rear yards face the southern entry point.
22. Midblock pedestrian connections are required throughout the subdivision to strengthen connectivity and offer more direct pedestrian routes to destinations and amenities. Some examples include:
23. It is recommended that Street 9 be extended to the north (rather than ending at Block 45), to serve as a more direct connection to the school and park (Block 42) for the community in the north. This link should also serve to connect the park to the linear greenspace to the north.
24. Try to retain and integrate environmental features such as hedgerows and local woodlots where possible, as shown on Schedule D of the CDP. Study whether there are any opportunities for the realignment and extension of Street 9 to retain a hedgerow.

25. Additional information regarding the municipal well block is required to ensure it is adequately sized.

Planning Rationale, prepared by Peter Hume, dated March 2025.

26. The Planning Rationale seems primarily focussed on the residential aspect of the subdivision. This site offers unique aspects both as constraints and positive impacts that need to be addressed throughout the report. These items should inform the subdivision design rather than be reacted to afterwards. These include but are not limited to:
 - a. Adjacent industrial lands along McBean;
 - b. Active rail line;
 - c. Watercourse and natural heritage features;
 - d. Village boundary site;
 - e. Agricultural views; and
 - f. Gateway and Focal Points.
27. The Planning Rationale provides little to no discussion on the following aspects of the plan of subdivision:
 - a. Commercial Block;
 - b. Natural Heritage features and how it is integrated into the subdivision design;
 - c. Municipal Well Block; and
 - d. Buffering from the industrial lands along McBean Street.
28. The Planning Rationale refers to two parks throughout the report. The layout of the subdivision has changed, consolidating the park blocks into one block. Please ensure the Planning Rationale is updated appropriately including the discussions regarding parks.
29. The executive summary briefly raises the serviceability of the development; however, serviceability is not further discussed in the report. The servicing of the site should be discussed in more detailed as it related to policies in the PPS, Official Plan and Secondary Plan.
30. The 'Proposed Development' Section of the report (pages 5 and 6) states that a stormwater management pond will be built. Based on aerial photography, it appears the SWM pond has been built, at least in part. Further discussion is required.

31. The 'Proposed Development' Section of the report (pages 5 and 6), under Draft Plan of Subdivision, does not refer to the commercial block or school block.
32. The 'Proposed Development' Section of the report (pages 5 and 6), under ZBLA, does not identify the SWM Block, Communal Well Block, or the Commercial Block.
33. The overview of the proposed residential zoning does not refer to a Village Residential Third Density (V3) subzone which is required.
34. The surrounding context should also discuss the location of the local High School.
35. Please provide a discussion on the context of the site as it relates to the Village as a whole.
36. In the Transportation – Roads Section of the report, it notes that Schedule H of the Official Plan identifies a collector street on the lands which runs parallel to Ottawa Street. No further discussion is provided in the Planning Rationale on why the proposed collector road does not run parallel.
37. This section further raises that the Community Design Plan identifies several street intersections as locations for Gateways or Focal Points. This section of the CDP also identifies important views from this site. The report does not further discuss these important aspects of the site.
38. The PPS section of the report needs to be updated to reflect the current Provincial Planning Statement (2024). Additional comments may follow after the Planning Rationale is updated.
39. The PPS Section speaks more to the residential policies. This Section needs to be bolstered to also discuss policies related to:
 - a. Infrastructure for the site;
 - b. The rail line;
 - c. Land use compatability;
 - d. Trails and walkability;
 - e. Natural heritage; and
 - f. Agriculture.
40. While the application had been filed under the old Official Plan, it is subject to the policies of the new Official Plan. Some discussion points are

provided below, however additional comments may follow once the Planning Rationale is updated.

41. Page 17 - paragraph one speaks to existing lands uses limiting the impact of the subdivision on existing residential uses. Please provide a discussion on how these have informed the design of the subdivision. Are there land use compatibility issues that need to be addressed?
42. A statement is made in the same paragraph that states the location 'allows for active transportation to [...] the Village Main Street [...] ensuring that adverse impacts are minimized'. First, please discuss how active transportation is achieved to the Village core. And second, what are the adverse impacts and how does active transportation mitigate them?
43. Please ensure the Official Plan discussion includes all relevant policies for the subdivision, not just those which speak to residential intensification.
44. Please provide separate sections for the Secondary Plan and Community Design Plan discussions.
45. The Secondary Plan section needs to address (other policies may also apply):
 - a. Infrastructure (currently there is no water or sanitary capacity to service the proposed development);
 - b. Southeast Development Lands Designation policies:
 - i. Does the development meet policy 44 related to density requirements?
 - ii. How has the design addressed the requirements of policy 46, and what are the resulting changes proposed through the OPA?
 - c. Park Policies;
 - d. Village Greenspace policies; and
 - e. Village Commercial policies.
46. As per Section 3.6, policy 56 of the Secondary plan relating to the Industrial lands, the rationale requires a discussion of what how buffering and screening will be coordinated between the residential and industrial lands.
47. Similar discussion is required in relation to the Community Design Plan. It is understood that there are policies that are provided verbatim in the Secondary Plan. This can be noted in the section, but additional provisions found below need to be addressed in the CDP section of the report. Again,

it is the applicant's responsibility to ensure all relevant provision are addressed, staff are raising those which come to mind when reviewing the application:

- a. Section 7.1 - Views, Gateways and Focal Points;
 - b. Rural Character, as per Section 7.3.1 The Eastern Ontario Way;
 - c. Section 7.4 – Subdivision Design; and
 - d. Section 7.5 – Streetscape Design along Arterial and Collector Roads.
48. The layout of the phasing plan on page 22 does not meet that of the draft plan provided in the second submission.
 49. Regarding Guideline 1, it is insufficient to state the draft conditions will ensure this is met. Provide discussion on what proposed entry point features and gateway features are being proposed. This can be conceptual in nature and open to additional discussion, but the rationale must identify that thought has been put into how these features will tie into the plan. Similar discussion is required in relation to the 'views'. As per Section 7.1, provision 1 of the CDP *as a target, at least 50% of the frontage abutting the view should have public visibility.*
 50. In relation to Guideline 3, please include a discussion regarding pedestrian connectivity and how pathways are being utilized in the subdivision to increase active transportation in the Village. Schedule B of the Community Design Plan identifies potential pathway locations.
 51. This site abuts agricultural lands on two sides. It is important to discuss how Guideline 4 has informed the development. This Guideline is in keeping with the policy direction of the Secondary Plan and provision in the CDP.
 52. The Guideline 7 discussion also identifies that "village commercial is not part of the initial subdivision but can be accommodated in later phases of the subdivision". The phasing plan on page 22 shows the commercial Block as part of Phase 1. As previously mentioned, additional discussion is required throughout the plan regarding the commercial block.
 53. The Zoning By-law section (page 29) of the report seems like an after thought. The second paragraph refers to the VM/VM3 zone which refers to Village Mixed Use and should state V3 (Village Residential Third Density), with a subzone to be determined at a later date. In order to review the preliminary details of the zoning, staff required the proposed subzone details.

54. Any modifications to the chosen subzone performance standards must be identified and rationalized.
55. Please note that the City no longer accepts dual-zoned school blocks. Please update.
56. The zoning does not consider the zoning for the following:
 - a. The stormwater management pond;
 - b. The municipal well block; and
 - c. The commercial block.
57. While it is understood that full zoning details will be addressed post draft approval, preliminary zoning information is required prior to draft approval to ensure the proposed lotting is adequate for the site

Please contact Sarah McCormick, Planner III, for any follow-up questions.

Urban Design

List of Studies and Plans Reviewed:

- ☐ **Draft Plan of Subdivision of Part of Lot 26 Concession 2, Geographic Township of Goulbourn and Park Lots 1 and 2 and Part of Park Lot 3 (South Ottawa Street) Village of Richmond and Part of Units 9,11,23,25, Index Plan 4D-24 City of Ottawa**, prepared by Annis, O'Sullivan, Vollebekk Ltd, dated February 13, 2020, revision 12 dated October 3, 2024.
- ☐ **Ottawa Street: Plan of Subdivision & Zoning Bylaw Amendment Applications (Planning Rationale)**, prepared by Taggart, dated November 2020, revised March 2025.

Comments:

58. There are still concentrated areas of townhouse development with individual front driveways. Staff are concerned about the ability to provide sufficient on street parking. Please provide a [Parking Plan](#) as per the City's Terms of Reference.
59. The requested zone exceptions to permit reduced lot widths or front yard setbacks have not been rationalized. Please provide a concept plan to demonstrate the ability to plant street trees with the sensitive marine clay soils within the subdivision. The subdivision should also include areas for medium and large size tree plantings to ensure that the rural character is maintained.

60. The draft plan has not demonstrated that a walkway connection can be provided along the watercourse. This must be demonstrated prior to draft approval to ensure that appropriate space and connection locations are provided.
61. Visual connection to the drain and stormwater management pond are important to the rural character and for surveillance, please provide roadway frontage on these features.
62. Please demonstrate that there is sufficient room for green space between the proposed window streets and the Eagleson right-of-way.
63. Please provide a concept landscape plan.

Please contact Lisa Stern, Planner III – Urban Design, for follow-up questions.

Engineering

List of Studies and Plans Reviewed:

- ☐ **Draft Plan of Subdivision of Part of Lot 26 Concession 2, Geographic Township of Goulbourn and Park Lots 1 and 2 and Part of Park Lot 3 (South Ottawa Street) Village of Richmond and Part of Units 9,11,23,25, Index Plan 4D-24 City of Ottawa**, prepared by Annis, O'Sullivan, Vollebakk Ltd, dated February 13, 2020, revision 12 dated October 3, 2024.
- ☐ **Functional Servicing Report, DSEL Project No. 18-1042**, prepared by DSEL, dated March 20, 2025.
- ☐ **Geotechnical Investigation, Report PG4216-1**, prepared by Paterson Group, revision 4 dated March 14, 2025.
- ☐ **LID Feasibility Review, PH5013-MEMO.01 Revision 1**, prepared by Paterson Group, dated March 14, 2025.
- ☐ **Malborough Creek Meander Belt Width delineation**, prepared by GEO Morphix, dated March 10, 2025.
- ☐ **Phase I – Environmental Site Assessment Update, report PE4097-2**, prepared by Paterson Group, dated December 6, 2024.
- ☐ **Sump Pump Feasibility Report, PG4216-Let.02**, prepared by Paterson Group, dated March 19, 2025.
- ☐ **Malborough Creek Outfall Design Planform and Profile**, GEO-1, prepared by GEO Morphix, revision 1 dated March 7, 2025.

- **Malbrough Creek Outfall Design Details**, DET-1, prepared by GEO Morphix, revision 1 dated March 7, 2025.
- **Geotechnical Response to City Comments, Memorandum**, file PG4216-MEMO.03 Revision 1, prepared by Paterson Group, dated March 19, 2025.
- **Hydrogeological Response to City Comments, Memorandum**, file PG4216-MEMO.05, prepared by Paterson Group, dated March 19, 2025.

Comments:

- 64. The application does not have sufficient documentation to support the application currently. Please have the applicant provide reports on:
 - a. Specifically how sufficient capacity at the Richmond sanitary pump station will be availed.
 - b. The operation of the water provision (community well) and supporting reports. The lands cannot be draft approved without confirming that there is sufficient supply of quality water to the lands and that the proposal is physically and financially viable.
 - c. A hydrogeological report is required for the proposed stormwater pond.
- 65. A stormwater management (SWM) pond is shown on the lands. Works for an Environmental Compliance Approval (ECA) done outside of that ECA are automatically upgraded to a direct submission and must wait 9-11 months for approval.
- 66. As per recent school lay-by information: Street no.9 should be a 26 m ROW for the length of the school block, and Street no. 20 should also be a 26 m ROW for the length of the school block.
- 67. Please confirm that the school board acknowledges and accepts the runoff coefficient for the school block.
- 68. Sump pumps are not permitted without the MSS first including them.

Malbrough Creek Outfall Design Planform and Profile, GEO-1, prepared by GEO Morphix, revision 1 dated March 7, 2025.

- 69. The first note, under the heading of Timing of Works, should specify actual dates for the contractor is unlikely to check.
- 70. The second note, under the heading of Timing of Works, specifies dates for tree clearing that do not agree with local requirements.

Malbourough Creek Outfall Design Details, DET-1, prepared by GEO Morphix, revision 1 dated March 7, 2025.

71. The EIS author needs to comment on the Outfall to ensure it provides the required ecological function required to address the removal of the tributaries.

Grading Plan, 04D, prepared by DSEL, dated November 2020.

Preliminary comments:

72. It appears the plan shows a grade raise beyond that permitted- please provide grade raise calculations.
73. The datums used to establish the horizontal and vertical datums for the survey need to be shown on at least one of the grading plans.

Erosion and Sediment Control Plan, 03F, prepared by prepared by DSEL, dated November 2020.

Preliminary comments:

74. The plan shows an access at a location that requires ownership and the ownership has not been confirmed. The silt fence splits the site in two; please provide rationale for the split. Sediment traps are suggested to be replaced due to the presence of clay. In due course additional comments will be provided.

Geotechnical Investigation, report PG4216-1, prepared by Paterson Group Inc., revision 4 dated March 14, 2025.

75. The seasonal high groundwater investigation remains inadequate. Section 4.3 does not reconcile with data found in Appendix 2 with numerous locations of having groundwater at surface (and some above). Section 4.3, nor other parts of the report, suggest what to do with the high groundwater elevations. Please be reminded that other developments have had to wait nine, or more, months between trenching and acceptable groundwater elevation.
76. Discussion of consolidation analysis is required.
77. Liquefaction analysis is required. Stating, in section 5.4m, that the soils underlying the site are not susceptible to liquefaction requires comprehensive rationale. Any peer-reviewed and published papers relied on here, or elsewhere require fully accessible copies to be provided to the City. Section 5.4, states that the soils underlying the site are not susceptible to liquefaction and yet groundwater is very high and BH 3-25, amongst others, is classed as loose.

78. Slope stability analysis may be required during detailed design.
79. The end of section 5.2 suggests brown silty clay for use, but the investigation has not shown that the brown silty clay on site is materially different than the grey silty clay. This also applies to:
 - a. the second-to-last paragraph, under the heading of Temporary Access Roads and Construction Traffic, of Section 5.6;
 - b. the last paragraph of page 31; and
 - c. In due course, the content of the last paragraph, of Section 5.6, will need to be carried.
80. Section 5.4, in whole, is not understood, and requires expansion and rationale.
81. Based on the sensitivities found some of the development should be site class D
82. Please reconcile blow count of P with "compact" for BH 6-24. Please reconcile blow count of P with "hard" for BH9-24. Please reconcile blow count of P with "hard" for BH12-24
83. The plan Designated Silty Clay Areas, prepared by Paterson Group inc., drawing no. PG4216-5, dated February, 2020, revision 3, dated March 14, 2025, appears to not take a conservative approach to the area of silty clay, please provide a conservative plan (and discuss how the forthcoming design is conservative.
84. The plan Designated Silty Clay Areas, prepared by Paterson Group Inc., drawing no. PG4216-5, dated February, 2020, revision 3, dated March 14, 2025, may also be the area proposed for sump pumps, depending on reading the last paragraph under the heading of Subsurface Profile, in Section 1.0 Background Information. It is suggested that the silty clays should not be the "line drawn in the sand" and that, rather, the entire development has a concern of groundwater. The plan does not speak to a conservative design of how the highly fluctuating groundwater will be kept down.
85. The sensitive marine clay area does not appear to be conservatively mapped. Please review the area and soils data, that TP 1-24, and others, suggests is not conservative.
86. The geotechnical reporting requires calculations and enhanced investigation for concurrence to request/require sump pumps.

Hydrogeological Report, report PG4216-1 Revision 1, prepared by Paterson Group Inc., dated February 19, 2021.

87. A preliminary grading plan should be provided to the geotechnical consultant for section 2.0.
88. The discussion in section 5.2.5 requires significantly more robust rationale than what is provided presently. The LID feasibility report states that it is on-going and further information will be reviewed in due course, but to move forward to draft approval details need to be determined presently.
89. Please provide a long-term groundwater analysis, with monitored results, collected regularly, at an absolute minimum of that provided in part 8.2 of Technical Bulletin ISTB-2018-04. Please note that here, and elsewhere, the Guidelines and policy documents of the City are all published as the "base requirement", section 1.2
90. Please provide the results of laboratory tests that confirm the stated permeability stated in section was found.
91. Notwithstanding the comment above permeability shall be determined in accordance with section 8.3 of Technical Bulletin ISTB-2018-04, at a minimum. The response provided is to direct the reader to PG4216-LET.02, however the reporting is incomplete.
92. Section 4.5 should state what limits of parameters the report will accept.

Tamarack Hydraulic Analysis, project ref # 75-41-211554, prepared by C3 Water, dated August 5, 2021.

93. No revised report was provided. It is suggested that the report's contents will need to be revised when source and connection/connectivity are finalised.

Malbrough Creek Meander Belt Width Delineation, prepared by GEO Morphix Ltd., March 10, 2025.

94. The report should include design for the pond outlet and review erosive forces as per section 6.3.1 of the Sewer Design Guidelines.
95. The meander belt width was not calculated but estimated; please calculate the meander belt width.
96. A complete field investigation was not performed.
97. It is suggested the corridor is potentially dynamic based on the presence of sensitive marine clay in the area.

98. Reach delineation is required to be confirmed during field verification for the section titled Watercourse Characteristics.
99. Discussion is required on where lots lines may extend to (either in the report, or as an umbrella statement over the report).
100. The Rapid Geomorphic Assessment should not be used.
101. The Rapid Stream Assessment should not be used
102. The last paragraph of Section 3.2 starts out by stating that falling trees indicates channel widening, but then turns around and connects falling trees to human activity, but does not continue to say that the channel widening comes from some other (undetermined) source/s and should do so- another reason not to use rapid assessment techniques.
103. Please rotate the photo in page 1 of Appendix B.
104. It is suggested that “steep” might be “steel” for the annotation of Photo 9.
105. No lots (residential, SWM pond, everything) should extend into the meander belt width as shown currently.

Functional Servicing Report, Project No 18-1042, prepared by DSEL, dated March 20, 2025.

106. The headwater drainage feature discussed in section 1.1, reach 4, does not appear to be carried to conclusion.
107. For section 4, please note that enhanced exfiltration techniques are required including, but not limited to, using pressure-rated pipe and wrapping all sanitary maintenance holes with Blueskin™ and applying protective covering. The response suggested additional comments in section 4.1, however no additional discussion was found
108. Contrary to the ending comments of section 4.4 capacity is not available at the pump station for the proposal. The response suggested that capacity is confirmed in section 4.2 of the revised report however no additional capacity has been provided.
109. Section 5.2.3 claims that the preliminary grading shown on Drawing 04D respects the grade raise restriction, but it does not.
110. As per section 7.2.6.1.8 of the Sewer Design Guidelines, revised per Technical Bulletin ISTB-2018-01, please provide a HGL analysis for the sanitary sewer showing that the sanitary sewers are designed such that they provide a 25-year level of protection.

111. As the design includes partially submerged storm sewers the design will require an oil/grit separator towards two-thirds of the way along the submerged section. Though there is no reference for such items, it remains suggested as beneficial.
112. LID is required to be conclusively discussed in section 5.2.5.
113. The parameters shown in Section 3.1 of the report are "system-level" parameters, relevant to applications serving more than 3,000 people. These are typically used for master planning and the design of "large" watermains (305 mm and larger) and water facilities. If the development is phased, similarly to the Western development lands, the standard design parameters will apply to the design of local watermains. Local watermains are governed by required fire flows, which significantly exceed the average and peak demands calculated using system-level and design parameters.
114. Please provide rationale for the peak flow value proposed in Table 4.1
115. Sanitary laterals shall be colour-coded green per the CLI ECA Design Criteria
116. Storm Sewer laterals shall be 150 mm in diameter and colour coded white per the CLI ECA Design Criteria; please revise Table 5.1.
117. As noted in sections 3.3 and 4.3 the required infrastructure is not in place, so as per policy 23, of section 4.7.1, of the Official Plan the application is premature to receive draft approval. Further, reliability of the water system must be confirmed prior to draft approval as this is an integral aspect of the feasibility of the subdivision's drinking water system
118. The 5th bullet point of section 5.2, shall be limited to 3.0 m/s please revise Table 5.1
119. Table 5.1 should modify the max allowable flow depth on municipal roads to 35 cm above the bottom of the gutter.
120. In that the pond has a calculated drawdown between 24 and 48 hours the reporting should propose a conservative mixture of river levels and storm event in the end of Section 5.2.4
121. Bulkhead barriers, referenced in section 7.0 are neither understood, nor is it understood how they will not simply holdback flows until they no longer do- and then release all the sediment held back. Further, the element is not listed in the document "Erosion and Sediment Control Guide for Urban Construction, 2019, referenced in the storm sewer CLI ECA so will not be permitted.

122. The water budget assessment does not state what the target/s is /are. Please provide a target agreed upon by all appropriate consultants and existing studies and existing criteria and proposed studies.
123. The Grading Plan, prepared by DSEL, drawing no. 1042-04D, dated March 2025, should have existing grading information.
124. The proposed grading plan shows grade raises beyond the limit of the Geotechnical Report, please provide the actual grade raise calculations
125. As per the CLI ECA process please provide a segmented Environmental Risk Assessment for the sediment and erosion control
126. As per the CLI ECA process, following the Erosion and Sediment Control Guidelines for Urban Construction (2019), please provide a RUSLE equation per Appendix A of the CLI ECA agreement between the City and MECP.
 - a. This proposed development needs to target for control the stormwater volumes generated from the 90th percentile rainfall event.
 - b. Control must be in the following hierarchical order, with each step exhausted before proceeding to the next: 1) retention (infiltration, reuse, or evapotranspiration), 2) LID filtration, and 3) conventional Stormwater management. Step 3, conventional Stormwater management, should proceed only once Maximum Extent Possible has been attained for Steps 1 and 2 for retention and filtration. If conventional methods are necessary then enhanced, normal, or basic levels of protection (80%, 70%, or 60% respectively) for suspended solids removal are required based on the receiver- (in this case 80 %).
 - c. A treatment train approach is needed
127. Please review the the storm HGL considering the flood level in the Marlborough Creek.
128. Please note that SWM modelling has not been reviewed yet due to the additional design work needed for draft approval- comments will be provided with additional reporting.
129. the range of required fire flows should be clarified now as this is directly related to the serviceability of the site
130. Details on I&I mitigation measures should be in the serviceability analysis.

Railway Study, Prepared by Tamarack Richmond Corporation, dated December 2020

131. No revised report has been provided. The applicant believes that the previous comments provided no longer apply as the railway has been transferred from CN to ViaRail. However, all of the comments remain appropriate to the application because the name of the owner is immaterial to the comments/commentary provided.

Previous comments provided:

132. The report is not accepted as the report is not prepared by a registered planner, nor a professional engineer, currently licensed in Ontario.
133. The comments on the page headed Safety Barriers states a 30 m setback from the top of bank but that is not fully carried in the sections page and the plan. It is suggested that the top of bank be shown on the sections.
134. It is suggested that were a berm required that it would be provided beyond the corridor and so the comment of it not being possible to construct berms with the 30 m property setback should be revised.
135. Rationale is required on the 7th page that the abutting Marlborough Creek being lower than the rail line indicates that the alternative barrier of the standard mitigation portfolio is sufficient. It is suggested that the, collective, criteria of figures 2 and 17 is needed.
136. Please include the tops of banks on the sections A-A and B-B.
137. It is suggested that a noise barrier be shown in the plan view and sections A-A and B-B.
138. Please confirm that the fencing shown in the plate with no label on page 8 has the required height.
139. The discussion under the heading "Warning Clauses" states that warning clauses are not required and, also, that potential purchasers will be notified. It is suggested that notice on title should be required for at least lots that will have zoning control applied.
140. In due course zoning will be required that deny all residential development in the rear of some lots of Street 12.

LID Feasibility Review, PH5013-MEMO.01 Revision 1, prepared by Paterson Group, dated March 14, 2025.

141. Please use the most conservative values for Table 1. Values from December are never going to be the most conservative.

142. The documentation makes the mistakes of misrepresenting IWSTB-2024-04 and discarding the Low Impact Development Technical Guidance Report. IWSTB-2024-04 does not say that LID cannot be used due to certain parameters, rather, it says infiltration/exfiltration systems will not be permitted in certain circumstances/situations. The IWSTB-2024-04 and the Low Impact Development Technical Guidance Report do not compete for ultimate supremacy like the plot of Highlander, but are a happy, fulfilling marriage of direction for design.
143. Section 3 should use actual values.
144. The, apparently arbitrary, values used in section 4.0 Seasonal Groundwater, should not be used and, instead, the seasonal high groundwater values should be used.
145. Were the correct groundwater values used, the reporting would note that infiltration trenches would not work being at the groundwater elevation; please provide an alternative with sufficient conceptual details, with conservative design to see that sufficient LID will work and fit and provide the necessary long-term rates. Please also note that the infiltration trench approach, implemented elsewhere, was a very drawn-out approach and undesirable from a number of departments for a list of non-site-specific reasons (risk of clogging, unknown history, long-term performance questions, replacement cost, cleaning issues, etc.).
146. Section 4 is hard to follow, seems self-conflicted, and is thin on rationale. Section 4 should be very clear on only providing the seasonal highest groundwater elevation (and if the reporting suggests that additional data is required should await such data).
147. Section 6.0 Conclusions notes that the site may have difficulty meeting the criteria outlined by the City, but it is not known specifically/exactly which criteria is being referred to there. A report that does meet criteria is required. It is known that parts of the geographic area may have challenges- reporting needs to rise up to such challenges.
148. It is suggested that, strictly based on the title of the document, that it needs to be exhaustively expanded upon and the end of the second paragraph of Section 6.0 Conclusions re-states the anticipated inference, that the selected LID will not work, but without putting forth the anticipated alternatives. Please also note that the Functional Servicing Report, Section 5.2, establishes some of the relevant LID criteria.
149. As per IWSTB-2024-04, clearly known by the reporting, the bold font can be removed from the end of the first paragraph of section 4.0, and then the sentence removed about a predicted, considered groundwater level.

150. A number of the items set out in IWSTB-2024-04, clearly known by the reporting, were not provided in the document; please exhaustively detail all of the required documentation.
151. Please provide an alternative with sufficient conceptual details, with conservative design to see that sufficient LID will work and fit and provide the necessary long-term rates amongst other treatment train elements.
152. Please provide an alternative design with pre-treatment elements.

Sump Pump Feasibility Report, PG4216-Let.02, prepared by Paterson Group, dated March 19, 2025.

153. As stated above sump pumps cannot be proposed without them first being proposed in the MSS that covers the development lands.
154. A comprehensive investigation is required before proposing sump pumps- they need to be shown to be “needed” before they are offered. While remaining in the dark as to exactly how the geotechnical industry in Ottawa does its review of sensitive marine clays and grade raise restriction/s, the depth is less than and the shear strength of the clay is more than what is normally found for such a restriction- grade raise restriction calculations are required as well as comprehensive discussion in a significantly modified document that addresses all of the concerns of the modifications of section 5.12.1 of the Sewer Design Guidelines from Technical Bulletin ISTB-2018-04.
155. Section 2, sub-headed Groundwater Monitoring Results, seems to focus on the difference of groundwater elevations, when it should focus on the high groundwater elevations.
156. Section 2, sub-headed Groundwater Monitoring Results, refers to a desiccated crust: please remove this phrase from this, and all future, Paterson reports unless data confirms that the soil is not merely ‘dried’ and a different colour.
157. The last paragraph of section 2.0 is disagreed to. Should the reporting wish, it can re-do analysis until it finds results it considers acceptable, but, in the meantime the results obtained are the results to use.
158. A seasonal high groundwater elevation, the single most critical element of the document, was not provided.
159. Section 4.0 leaves many questions unanswered.
160. The section titled Sump Pumps (Study Area) within Section 4.0, does not provide responses to the backfill permeability and the rate of groundwater ingress. As per Technical Bulletin ISTB-2018-04, Appendix A, please

provide the permeability results of the “complete soil sequence”. As per the paper “Compilation of Consolidation Properties Data of Champlain Sea clay from Ottawa Region”, dated April 2024, by Tavakkoli, Oh, and Vanapalli, the soils in the Ottawa area do not have consistent soil properties and, instead, to be determined by testing.

161. The content of the section titled Clay Continuity, within Section 4.0, is contested.
162. Please provide a laboratory-determined hydraulic conductivity rate.
163. The content of the second paragraph of the section titled Permeability of Soils and Groundwater Ingress Rate is contested.
164. The geotechnical reporting requires calculations and enhanced investigation for concurrence to request/require sump pumps.
165. Sufficient investigations must be completed to confirm that the soils are of generally low hydraulic conductivity, and that these soils are sufficiently laterally and vertically continuous.
166. The reporting needs to identify any seams of higher hydraulic conductivity (e.g. sand) or other discontinuities that may act as secondary permeability features. Sites where such discontinuities have been identified may require an increased level of investigation (e.g. increased borehole frequency)..
167. Additional soil characterization testing (grain size analysis) is required for the threshold of the use of sump pumps.
168. The low permeability sequence must be laterally continuous throughout the development area (or the area to be serviced with sump pump systems) and vertically continuous throughout the development area to a minimum depth of 1.5 metres below the underside of footing elevations, or a minimum of 1.0 metres below the lowest elevation of disturbed soils.
169. For the monitoring wells, deeper monitoring wells with screens coinciding with the expected elevations of the deepest services in the future municipal rights-of-way shall be installed at a subset of these monitoring wells such that a maximum spacing of no greater than 300 meters is achieved..
170. The seasonal high water table (HWT) conditions determined as above shall be compared to the proposed USF elevations. If the qualified groundwater professional is satisfied that there is a minimum of 0.3 metres freeboard between the HWT elevation and the USF elevation, the groundwater professional may opt to forego additional investigations as defined below. It is noted in the Sump Pump Feasibility Report that the expected USF elevations are generally below the measured pre-development seasonal high groundwater level. The report goes onto to note that predevelopment

GW levels are generally higher than post-development GW levels and depend on the inverts of the proposed site servicing pipes- however this has not been proven. As the minimum of 0.3 meters freeboard between expected USF elevations and HWT elevation is not achieved, the additional investigations must be completed following consultation with City of Ottawa hydrogeological staff..

171. The assessment of the permeability of the clay materials did not include field observations of soil conditions, there was no discussion about potential seams nor secondary porosity, nor the degree of fracturing of the clay (if any).
172. The slug tests performed in January 9, 2025 do not specify whether saturated conditions were present (and the temperature was well below the freezing temperature).
173. For the estimation of rate of groundwater ingress, please clarify what the assumed subsurface profile is below the proposed footings in the calculation. Further, it is unclear how the groundwater ingress rate was calculated and what assumptions were made in that calculation.
174. It is unclear how the comparison of reserve capacity of the pump works. Is it a Litres to Litres volume comparison, or something else?.

Work Plan for Water Well Testing and Reporting, South Richmond Communal Water Supply, at southwest corner of Eagleson Road and 6096 Ottawa Street, file no. 23-5749, prepared by Dillon Consulting, dated February 18, 2025.

175. City Official Plan Policy 4.9.5 (8) requires consideration for potential impacts of existing and permitted uses prior to establishing a new municipal drinking water well; further that the City shall avoid establishing a new municipal drinking water well in areas where activities that may constitute a significant threat to drinking water are permitted.
176. It is noted that the proposed location of test well OSTW1 is close to an existing rail line, which has the potential to be a significant threat. Rail line transportation corridors constitute a potential risk of contaminant spills and there is a common use of herbicides/pesticides along rail lines to manage vegetation growth; both activities would be threat to the drinking water aquifers.
177. It is recommended that the separation distance between the rail line and the future production well be maximized, and the future production well should be prohibited within a minimum of 100m of the rail line to ensure the rail line does not fall within the future WHPA-A.
178. In addition, it should be confirmed that the casing depth is sufficient to separate and protect the supply aquifer. On-site investigations should

examine the potential connection between the supply aquifer to the surface (i.e. vulnerability); if the aquifer is deemed to be vulnerable to surface contamination, then a separation distance of greater than 100m will be required to protect the future municipal supply well, and the proposed Ottawa Street location may not be appropriate for a communal well.

179. Rationale for test well locations should be provided in the memo.
180. Drilling another well close to TW1 presents some risks. TW1 had an open hole for a considerable period of time, during which poor water quality at depth was allowed to mix with better water quality above. There may now be residual poor water quality between 46 m and 100m (the proposed casing bottom and well depth). The three sampling events proposed during the 72-hour pumping test might help determine if this part of the aquifer system has been impacted (i.e., if the water quality improves over the course of 72 hours). This is to say that if poor water quality is encountered in TW2 it may be due to TW1 having remained in place for a while and may not necessarily indicate a widespread issue with the zone above 100 m. Our experience is that the March-Nepean aquifer system generally provides good water quality. TW1 was drilled to 152.7 m, which is the deepest known well in Richmond — i.e., water quality at this depth had not been explored in Richmond prior to the drilling of TW1.
181. Placing a production well on the other side of a rail line from development will require significant delay from consultation with the rail authority - again, the City advises that irrefutable legal consent is required to be given in the name of the City.
182. The usage of OSTW1 for review of TW2 is not provided rationale; it is suggested that OSTW1 is too distant to TW2 to be representative.
183. Note that placement/area of any water treatment plant must be agreed upon by the City as we will eventually be assuming this infrastructure.

Please contact Damien Whittaker, Infrastructure Project Manager, for follow-up questions.

Noise

List of Studies and Plans Reviewed:

- ☐ **Transportation Noise & Vibration Feasibility Assessment**, prepared by Gradient Wind, dated March 4, 2025.

Comments:

184. The following comments previously provided for the first submission have not been adequately addressed:

- a. A report detailing the crash barrier for the train corridor needs to be submitted.
- b. At least three alternative layouts need to be proposed to minimise the amount of noise barriers needed for the proposal.
- c. Please confirm the future Confederation LRT rail line in section 4.3.2.
- d. It is suggested that an OLA receptor is required in the west corner of the proposal.

Please contact Damien Whittaker, Infrastructure Project Manager, for follow-up questions.

Transportation

List of Studies and Plans Reviewed:

- **Transportation Impact Assessment, 2023-080**, prepared by CGH Transportation, dated December 2024.

Comments:

Transportation Engineering Services (TES)

- 185. *Section 2.2.4 (Existing) Cycling and Pedestrian Facilities*: Regarding the statement, “Per the geoOttawa layers, Ottawa Street depicts paved shoulders between McBean Street, however these do not exist and the City is studying the need to provide facilities in this location.”:
 - a) Please change to “between McBean Street and Eagleson Road”; and,
 - b) Please delete “and the City is studying the need to provide facilities in this location.”

Previous City comment on this issue was meant to highlight that the GeoOttawa layer was being reviewed for accuracy. Provision of a paved shoulder is not currently being studied.

- 186. *Section 2.3.1.2 Transportation Master Plan – Part 1*: Please note that the Ottawa City Council meeting on November 13th, 2024, approved removal of the McBean Street cycling project from the 2023 Transportation Master Plan Active Transportation Project List. The same motion also limited the associated McBean Street Resurfacing project scope to widening the sidewalks and resurfacing the roadway only.
- 187. *Section 4.2 Trip Generation*: Assumptions about the size of the commercial and school components, and therefore assumptions about their trip

generation should be included in the TIA to ensure any road modifications proposed for the development accurately consider all future potential traffic generation.

188. *Section 4.4 Trip Assignment:* Volumes in Figure 12 appear to be slightly lower than the total auto driver volumes in Table 9. Please review and confirm.
189. *Section 6.1 Design for Sustainable Modes:*
- a. It is stated that, *“The Richmond CDP and Secondary Plan show a pathway from the subject lands through the north of the site continuing along the railway line terminating at Ottawa Street. The sidewalks and pathways proposed along the northern extent of the site satisfy this connectivity.”* The proposed sidewalks and pathways provide connectivity east-west along the north of the site, but not north-south. Provide a north-south pathway block at the 90-degree bend of Street No. 18, in-between Block 311 and Block 310.
 - b. TES also recommends the following additional pathway blocks:
 - i. North-south, at the southern edge of the site (south of Street No. 9), west of Street No. 10.
 - ii. East-west, at the west edge of the site (west of Street No. 18), approximately between Block 332 and Block 333.
 - iii. East-west connecting Street No. 2, Street No. 3, and Street No. 2, in the vicinity of Blocks 75, 76, 41, 42, 23, 22, 584, and 583.
 - iv. East-west connecting Street No. 8 and Street No. 9, in the vicinity of Blocks 464, 463, 483, and 484.
 - c. Section 4.1.2 11) of the City of Ottawa Official Plan requires that all new local streets within Village boundaries include a sidewalk on at least one side. Please revise Figure 13 to satisfy the Official Plan requirements.
 - d. Provision of a multi-use pathway on the new collector does not meet the City of Ottawa multi-use pathway policy of the Transportation Master Plan. Revise cycling facilities on the new collector street to unidirectional cycle tracks per standard Official Plan requirements and the City of Ottawa Designing Neighbourhood Collector Streets document.
190. *Section 6.2 New Street Networks:*

- a. Per previous comment: *“Justify the multiple 90-degree bents proposed for New Collector Road between McBean Street and Eagleson Road, particularly for the residential scenario concept plan. New Collector Road is envisioned as relatively straight in the Village of Richmond CDP and Map 8 of Annex B of the TMP (or Schedule G of the Official Plan), and the multiple bents proposed may prevent New Collector Road from fulfilling its function in the transportation network as envisioned by the CDP and TMP.”* Straighten the collector street alignment and shift the park and school block further south, as illustrated below:



- a. Increase collector street ROW to 26.0-metre per standard collector street ROW requirements of Schedule C16 of the Official Plan.
- c) Increase the ROWs of local streets adjacent to the school block to 20.0m-metres to provide additional space of on-street lay-bys.
- d) Provide ROW protection on Eagleson Rd to 30m (15m from the centerline) as per OP Schedule C16.
 - a. For collector/local intersections, increase corner triangle dimensions to 3m along the local street by 9m along the collector street.
 - b. For collector/collector or collector/arterial intersections, increase the corner triangle dimension to two overlapping 5m x 15m triangles.
 - c. Figure 15 is appreciated. Review spacing of traffic calming measures against recommended spacing in the 30km/h Design Toolbox and consider additional measures in the following locations:
 - i. The north-south section of Street No. 17
 - ii. The east-west section of Street No. 9 and Street No. 11, between Street No. 10 and the north-south section of Street No. 9
 - iii. The east-west sections of Street No. 6

- iv. The north-south section of Street No. 2 and Street No. 3.
- v. The east-west section of Street No. 2 (adjacent to Ottawa Street)

191. Section 12.2.4 Recommended Design Elements:

- Consider whether any auxiliary right-turn lanes are recommended/warranted for the study area intersections.
- TES will consider the need for the various warranted left-turn lanes and provide direction on the need for an RMA as soon as possible.

Streetlighting

- 192. Street Light Design required. Marker lighting required at entrances of subdivision. Possible transitional lighting may be required based on any geometry changes.
- 193. Streetlight review of subdivision required.
- 194. The project must provide funding to upgrade all street lighting infrastructure (including new duct and wire) to meet all new Street Lighting requirements as set out in Council approved right-of-way lighting policy. The applicant is 100% responsible for all costs of any required street light plant alterations and/or repairs. Alterations and/or repairs are required where the existing street light plant is directly or indirectly, adversely affected by the scope of work under this circulation. All street light plant alterations and/or repairs must be performed by the city's street light maintenance contractor.
- 195. Please provide a capital account and submit digital Micro Station drawings to the Street Lighting Department C/O Ryan Zaichkowsky 613-809-7422 email: ryan.zaichkowsky@ottawa.ca, so that we may proceed with the street lighting design, along the affected areas of the ROW/roadway (including pathways and sidewalks).

Traffic Engineering

- 196. No comments.

Traffic Signal Design

- 197. No comments for this current circulation. The Traffic Signal Design Unit reserves the right to make future comments based on subsequent submissions.
- 198. If there are any future proposed changes in the existing roadway geometry that would require the installation of a pedestrian crossover (Type B or Type C), the signalization of an intersection or modifications to an existing

signalized intersection, the City of Ottawa Traffic Signal Design Unit would be required to complete a traffic signal plant design and would need to be engaged in reviews during the functional design stage.

199. If there are any future proposed changes in the existing roadway geometry that require signalizing of an intersection or changing an existing signalized intersection, the City of Ottawa Traffic Signal Design Unit is required to complete a traffic signal plant design and will need to be engaged in reviews during the functional design stage.
200. As applicable, once RMA drawings are approved, please submit design files to Diana Barrett: Diana.Barrett@ottawa.ca.
201. Please ensure the files sent to us meet the following criteria:
 - Drawings to be in NAD83 coordinates
 - Drawings should not include any x-references within design
 - Drawings must be in model space
 - Drawings to be in CAD format (.dwg)
 - Drawings to be in 2D (.dwg)
 - Include: proposed geometry, proposed pavement markings and signage, AutoTURN vehicle templates, proposed and/or existing utilities (only within project limits), existing base mapping/topo (only within project limits), proposed landscape/streetscape if available.
202. Please contact Clirim Krasniqi: 613-266-1985 or clirim.krasniqi@ottawa.ca and Diana Barrett: 613-807-3035 or Diana.Barrett@ottawa.ca to discuss traffic signal design related requirements.

Transit Services

203. No comments on the TIA analysis.
204. The Planning Rationale (updated March 2025) states that: "The subdivision uses a modified grid street pattern due to the fact that the subdivision can outlet to McBean Street and Eagleson Road in only one location." The reason for McBean is apparent - due to adjacent property restrictions, but the reason for Eagleson is not. Please clarify why the access to Eagleson Road could not be in a different location that would allow for a single, continuous collector street linking directly between McBean and Eagleson. If there is good reason for this restricted access location, please also clarify why the draft plan could not be designed with a single, continuous collector street linking the two accesses. In contrast, the proposed multiple,

discontinuous collector roads linking McBean to Eagleson are indirect and inefficient for transit, pedestrians, and cycling alike.

- 205. Front-facing townhome lots along the collector streets with closely spaced driveways significantly limit possible bus stop locations. Look for opportunities to re-orient lots to side streets.
- 206. Bulb-outs / narrowing at collector/collector intersections will need to accommodate bus turning movements, please provide bus turning movement drawings when the designs are drafted.
- 207. Temporary bus turnaround facilities may be required at the edge of each phase of development to enable interim transit service in advance of the completion of the series of collector street links between McBean Street and Eagleson Road.

Transportation Project Manager

- 208. Providing a pedestrian connection to Ottawa Street along McBean must be addressed. The applicant is requested to pave the shoulder along McBean, from the site access to the rail corridor.
- 209. Signalization of the Eagleson and Ottawa St intersection is DC eligible. It is noted that signal warrants are not met at this time.
- 210. Please address the above comments and re-submit the TIA and digital files of ICA outputs (Synchro/Sidra/Rodel, if applicable).

Please contact Josiane Gervais, Transportation Project Manager, for follow-up questions.

Environment

List of Studies and Plans Reviewed:

- ☐ **Environmental Impact Statement for the Proposed development of 6012 Ottawa Street Area, report TAGG 786**, prepared by Kilgour & Associated, dated December 6, 2024, update of January 14, 2020 draft report.

Comments:

- 211. The subdivision needs to provide the pathway along Marlborough Creek as illustrated in Schedule A of the Village of Richmond Secondary plan and Figure 18 of the Village of Richmond Environmental Management Plan. Access to the path and riparian lands should be provided from street 18 as far west as practical.

212. Headwater Drainage Features - what is the plan for the mitigation for Reaches 1 through 3 and for the conservation of Reach 4? This discussion would be facilitated through the provision of a map/figure indicating the presence and labeling the reaches.
213. The EIS indicates that reaches 1 through 3 will be mitigated by providing SWM or through the use of vegetated swales through the development. This needs to be expanded upon as it is not clear how the provision of the typical SWM will "mimic online wet vegetation pockets or constructed wetland features" as described in the EIS.
214. For reach 4, the EIS indicates that the feature is currently 795 m long and that the outlet to the SWM would address the requirement for the reach to be "conserved" though be use of a "suitably constructed outlet channel", within the Marlborough Creek riparian area that would be naturalized and follow the principals of natural design to provide fish habitat (with potential to support turtles and frogs).
215. Now that the design of this outlet is available, please have the EIS review proposal and demonstrate how the design ensures the functions are adequately replaced for this area. Also, please discuss how the current function of the reach 4 and the accommodation of flow will be achieved for the lands where flow is received from the neighbouring lands/features.
216. Canopy Cover - the removal of the majority of the on-site vegetation has limited with ability to retain trees within park blocks and other sites where it may be feasible. Further, the City's 40% forest canopy policy looks to provide forest canopy, please describe how this site could provide an urban canopy, taking into account any restrictions. For example, could parts of the Marlborough Creek riparian area be improved with additional plantings? It is addressed in the EIS in the statement "These areas will be replanted with appropriate tree species native to the region to restore forest canopy." however it needs to be more of a formal recommendation to be implemented.

Please contact Matthew Hayley, Environmental Planner, for follow-up questions.

Forestry

List of Studies and Plans Reviewed:

- ☐ **Draft Plan of Subdivision of Part of Lot 26 Concession 2, Geographic Township of Goulbourn and Park Lots 1 and 2 and Part of Park Lot 3 (South Ottawa Street) Village of Richmond and Part of Units 9,11,23,25, Index Plan 4D-24 City of Ottawa**, prepared by Annis, O'Sullivan, Vollebekk Ltd, dated February 13, 2020, revision 12 dated October 3, 2024.

Comments:

217. Comments previously provided during the first submission still apply. These comments have been included below as a courtesy.
218. There are several municipally owned trees along Ottawa St and Eagleson Rd. Any municipally owned tree will require permission and compensation for removal.
219. The City owned, 88 cm DBH elm, located along Eagleson Rd is to be retained and protected. Grading in proximity to the tree will have to be considered in a manner that supports tree retention and health.
220. Please consider retaining the dry fresh red maple deciduous forest type (FODM4-7 as described in the environmental impact statement) in the very southwest corner of the site as park land.
221. Please ensure the CUP is designed in conjunction with tree planting locations. Streetlights, laterals and other utilities often conflict with tree planting locations and should be considered in the design phase. Lateral services should be placed next to or under the driveways so they do not conflict with front yard greenspaces.
222. Given the SMC planting restrictions, it is likely the subdivision as a whole will have a tree count deficit. The primary goal is to provide a tree on every lot but we understand that is not always possible, especially with townhouse developments. Corner lots are usually able to receive more than 2 trees to also help offset the deficit.
223. Please ensure that tree planting is located on municipal property. Credit will not be given towards the subdivision tree count through private plantings.
224. Conflicts have been found in other SMC developments with side yard (corner lots) plantings where the step from a side door eliminates planting opportunity. Please ensure corner lots provide sufficient foundation setbacks for side yard planting.
225. The following are the City's guidelines for minimum setbacks and tree planting specifications:

Minimum Setbacks:

- Maintain 1.5m from sidewalk or MUP/cycle track.
- Maintain 2.5m from curb.
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.

- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.
- Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

Tree Specifications:

- a. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- b. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.
- c. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- d. Plant native trees whenever possible.
- e. No root barriers, dead-man anchor systems, or planters are permitted.
- f. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree).

Please contact Mark Richardson, Forester, for follow-up questions.

Parkland

List of Studies and Plans Reviewed:

- **Draft Plan of Subdivision of Part of Lot 26 Concession 2, Geographic Township of Goulbourn and Park Lots 1 and 2 and Part of Park Lot 3 (South Ottawa Street) Village of Richmond and Part of Units 9,11,23,25, Index Plan 4D-24 City of Ottawa**, prepared by Annis, O'Sullivan, Vollebekk Ltd, dated February 13, 2020, revision 12 dated October 3, 2024.

Comments:

226. Parkland Dedication is required in accordance with [By-law No. 2022-280](#).
227. The Planning Rationale indicates that a total of 1,173 dwelling units are proposed for the subdivision. As the density of the proposed subdivision is greater than 18 units/net hectare, the applicable parkland dedication rate is 1 ha/600 units. This equates to 1.955 ha
228. For the commercial block, parkland dedication is 2% of the site area. As per the draft plan of subdivision the Commercial Block is proposed at 2.042 ha. The parkland dedication requirement is 2% of 2.042 ha = 0.041 ha

229. Based on the draft plan of subdivision and the information given regarding planned residential units, the combined total of parkland dedication is 1.955 ha + 0.041 sq.m. = 1.996 ha. Parkland dedication will be required as land conveyance.
230. Because of the revised scale in the park size, the parkette location must be reconsidered. The park block needs to abut the storm water pond to facilitate efficient City maintenance of the two facilities. Further, this co-location will provide a larger sense of greenspace recreation opportunity to residents. A minimum of 50% frontage on local roads is preferred for the parkette. Community views into the storm pond are also required and it should not be backlotted on more than one side.
231. With the smaller park size, the importance of connectivity to the network of other Village parks and amenities is increased. Connectivity from the park to the Village to the north must be provided via active transportation options.
232. Parks and Facilities Planning reiterates the need for water servicing to a community park for amenities like a splash pad and field house, and that water usage at the park will be accommodated in the servicing studies.

Please contact Anissa McAlpine, Parks Planner, for follow-up questions.

Heritage

List of Studies and Plans Reviewed:

- ☐ **Draft Plan of Subdivision of Part of Lot 26 Concession 2 Geographic Township of Goulbourn and Park Lots 1 and 2 and Part Of Park Lot 3 (South Ottawa Street) Village of Richmond and Part of Units 9, 11, 19, 23, 25 Index Plan 4D-24 City of Ottawa**, prepared by Annis, O'Sullivan, Vollebekk Ltd., dated February 13, 2020, revision 12 dated October 3, 2024.
- ☐ **Ottawa Street: Richmond Secondary Plan Amendment Application (Planning Rationale)**, prepared by Taggart Investments, dated February 2025.

Deficiencies:

18. Please provide a Heritage Act Acknowledgement Report with details of 60 Day Notice of Intent to Demolish.

Comments:

19. 6038 Ottawa Street is listed on the City's Heritage Register as a non-designated property. Prior to demolition of the building on site, the applicant is required to provide the City of Ottawa with a 60-day Notice of Intent to Demolish. It is recommended that this Notice of Intent to Demolish be submitted as early as possible to fulfill requirements of Heritage Act Acknowledgement Report.

Please contact Greg MacPherson, Heritage Planner, for follow-up questions.

Ottawa-Carleton District School Board

Comments:

233. It is understood that the plan contains an estimated 1173 new residential units (536 single family, 144 semi-detached, 387 townhouse units, and 106 back-to-back units). The plan also includes two parks and a stormwater pond.

As mentioned above, the draft plan contains one of two OCDSB designated elementary school sites to be located within the Richmond Village Community Design Plan area. The school site within this draft plan is identified as Block 687 on the Preliminary Draft Plan dated 2025-03-26.

234. Staff has reviewed the draft plan. The OCDSB elementary school site is 7.77 acres in size, has a square configuration and park adjacency.

Our only concern is there may be a plan to place a roundabout at the corner of the school site, where street 20 and 9 intersect, as per the Preliminary Draft Plan. A roundabout would impact the amount of usable frontage for the school site and vehicle/pedestrian interaction. We therefore request that no roundabouts be placed at any corner of the school site.

235. Subject to the above being met, we request that the following conditions be inserted into the City's draft plan conditions for approval on behalf of the OCDSB.
- a. That the owner be required to inform prospective purchasers that school accommodation pressures exist in the Ottawa-Carleton District School Board schools designated to serve this development, which are currently being addressed by the utilization of portable classrooms and/or by directing students to schools outside their community.
 - b. That the owner acknowledges and agrees to reserve Block 687 in the subject draft plan of subdivision as an elementary school site for the Ottawa-Carleton District School Board, on the understanding that the size, configuration and servicing of the school site will be to the



satisfaction of the Ottawa-Carleton District School Board and the General Manager, Planning, Infrastructure and Economic Development Department.

- c. That the owner agrees to enter into a legal agreement with the Ottawa-Carleton District School Board for the reservation of the designated elementary school site known as Block 687, for a period of up to seven (7) years from the date of registration of the plan which contains the subject school site.
- d. No uses, such as, but not limited to: stormwater ponds or utility lines or easements, of any kind shall be located on designated school site blocks without the express written concurrence of the Ottawa-Carleton District School Board.
- e. The owner shall neither deposit nor permit to be deposited fill, debris, building materials or equipment, nor allow vehicle access for any purpose on the designated school block lands of the subdivision. Furthermore, the owner shall neither remove nor permit to remove any fill, topsoil, trees or shrubs from the said lands without the express written concurrence of the Ottawa-Carleton District School Board.

Please contact Tina Ganji, Planner, for follow-up questions.

Rideau Valley Conservation Authority

Comments:

51. Comments will be provided separately at a later date.

Please contact Stephan Bohan, Planner – RVCA, for follow-up questions.

Next Submission

- ☐ The next submission should address each of the comments, to ensure the effectiveness and consistency of the next review.
- ☐ A cover letter must be included that states how each comment was addressed in the resubmission. Please co-ordinate the numbering of each resubmission comment with the above noted comment number.
- ☐ Plans are to be standard A1 size (594 mm x 841 mm) or Arch D size (609.6 mm x 914.4 mm) sheets, utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400 or 1:500).
- ☐ All addenda or revisions to any studies or plans must be provided in PDF. All PDF documents are to be unlocked, flattened and not saved as a portfolio file.



Should there be any questions on the above, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Sincerely,

A handwritten signature in cursive script that reads "Sarah McCormick".

Sarah McCormick
Planner III
Development Review Rural Services
Planning, Development and Building Department

c.c. Damien Whittaker, Senior Engineer – Infrastructure
Anissa McAlpine, Parks Planner, City of Ottawa
Matthew Hayley, Environmental Planner II, City of Ottawa
Josiane Gervais, Transportation Engineer, City of Ottawa
Lisa Stern, Planner III – Urban Design, City of Ottawa
Mark Richardson, Planning Forester

Appendix C Notification of Tree Clearing



Ottawa Street and Eagleson Road - Taggart Richmond

From McCormick, Sarah <sarah.mccormick@ottawa.ca>

Date Tue 2020-02-18 9:18 AM

To Peter Hume <peter.hume@hpurban.ca>

Cc Hayley, Matthew <Matthew.Hayley@ottawa.ca>

 1 attachment (10 MB)

TAGG 786_EIS_20200114 - compressed.pdf;

Good morning Peter,

Thank you for providing this information, however staff would be unable to review and provide recommendation to the EIS/TCR outside of formal development application as a fulsome review of the entire development could not be completed. I apologize if this was unclear in my previous email.

Staff maintain the position that the site should not be predominantly clear cut ahead of a formal development application. Further, as per the pre-application consultation notes, staff recommend that mature hedgerows are maintained as much as possible when designing the subdivision.

Finally, I would also recommend that you give Councillor Moffatt a heads up on the clearing, as he may receive more calls regarding the tree clearing and perceived site works than planning staff will.

Regards,

Sarah McCormick MCIP, RPP

Planner II / Urbaniste II

Development Review, Rural Services / Examen des projets d'aménagement, Service ruraux

Planning, Infrastructure and Economic Development Department

Services de planifications, d'infrastructure et de développement économique

City of Ottawa / Ville d'Ottawa

110 av Laurier Avenue West/ouest - 4th Floor/4^e étage

Ottawa, ON, K1P 1J1

 613.580.2424 ext./poste 24487

From: Peter Hume <peter.hume@hpurban.ca>

Sent: February 06, 2020 6:24 PM

To: McCormick, Sarah <sarah.mccormick@ottawa.ca>; MacPherson, Amy <Amy.MacPherson@ottawa.ca>

Cc: Hayley, Matthew <Matthew.Hayley@ottawa.ca>; Richardson, Mark <Mark.Richardson@ottawa.ca>

Subject: RE: Ottawa Street and Eagleson Road - Taggart Richmond

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Hi Sarah,
Here is the EIS/TCR for Taggart Richmond. Any tree removal will be consistent with the EIS/TCR.
Thanks,
Peter

From: McCormick, Sarah <sarah.mccormick@ottawa.ca>
Sent: February 6, 2020 8:08 AM
To: Peter Hume <peter.hume@hpurban.ca>; MacPherson, Amy <Amy.MacPherson@ottawa.ca>
Cc: Hayley, Matthew <Matthew.Hayley@ottawa.ca>; Richardson, Mark <Mark.Richardson@ottawa.ca>
Subject: RE: Ottawa Street and Eagleson Road - Taggart Richmond

Thank you Peter.

I would also recommend that you give the Councillor a heads up of the anticipated works as he will likely be the one to receive calls from the public.

Regards,

Sarah McCormick MCIP, RPP

Planner II / Urbaniste II

Development Review, Rural Services / Examen des projets d'aménagement, Service ruraux

Planning, Infrastructure and Economic Development Department

Services de planifications, d'infrastructure et de développement économique

City of Ottawa / Ville d'Ottawa

110 av Laurier Avenue West/ouest - 4th Floor/4^e étage

Ottawa, ON, K1P 1J1

☎ 613.580.2424 ext./poste 24487

From: Peter Hume <peter.hume@hpurban.ca>
Sent: February 05, 2020 4:40 PM
To: MacPherson, Amy <Amy.MacPherson@ottawa.ca>; McCormick, Sarah <sarah.mccormick@ottawa.ca>
Cc: Hayley, Matthew <Matthew.Hayley@ottawa.ca>; Richardson, Mark <Mark.Richardson@ottawa.ca>
Subject: RE: Ottawa Street and Eagleson Road - Taggart Richmond

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I have a draft EIS/TCR which I am just getting approval to send to you.

I am also getting a more focused area for our tree work which I will circulate to you.

Thanks,

Peter

From: MacPherson, Amy <Amy.MacPherson@ottawa.ca>
Sent: February 5, 2020 4:32 PM
To: McCormick, Sarah <sarah.mccormick@ottawa.ca>; Peter Hume <peter.hume@hpurban.ca>
Cc: Hayley, Matthew <Matthew.Hayley@ottawa.ca>; Richardson, Mark <Mark.Richardson@ottawa.ca>
Subject: RE: Ottawa Street and Eagleson Road - Taggart Richmond

Hello everyone,

While Section 11 of the Site Alteration By-law does not apply in this area, several other basic rules in the by-law including the provisions in Schedule A do (i.e., notification, sediment & erosion control, etc.). The sole exception would be in the portions of the property that are regulated by the RVCA (i.e., the lands along Marlborough Creek) where the Conservation Authority has jurisdiction instead.

I also support Sarah's comments regarding potential impacts to endangered and threatened species and their habitat; has any work been done to investigate this issue, or to demonstrate compliance with the requirements of the Endangered Species Act?

Regards,

Amy

Amy MacPherson

Natural Systems Planner

Urbaniste, Systèmes naturels

City of Ottawa | Ville d'Ottawa

☎ 613.580.2424 ext./poste 14873

ottawa.ca/planning/ / ottawa.ca/urbanisme

From: Richardson, Mark <Mark.Richardson@ottawa.ca>**Sent:** February 05, 2020 4:14 PM**To:** McCormick, Sarah <sarah.mccormick@ottawa.ca>; Peter Hume <peter.hume@hpurban.ca>**Cc:** MacPherson, Amy <Amy.MacPherson@ottawa.ca>; Hayley, Matthew <Matthew.Hayley@ottawa.ca>**Subject:** RE: Ottawa Street and Eagleson Road - Taggart Richmond

Hello Sarah, Peter,

This is outside the urban boundary which exempts the property from any requirements under the Urban Tree Conservation Bylaw. I'll let Amy and Matthew provide input on any requirements they might have.

Regards

Mark Richardson R.P.F.

☎ 613.580.2424 ext./poste 23839

From: McCormick, Sarah <sarah.mccormick@ottawa.ca>**Sent:** February 05, 2020 3:53 PM**To:** Peter Hume <peter.hume@hpurban.ca>**Cc:** MacPherson, Amy <Amy.MacPherson@ottawa.ca>; Richardson, Mark <Mark.Richardson@ottawa.ca>; Hayley, Matthew <Matthew.Hayley@ottawa.ca>**Subject:** RE: Ottawa Street and Eagleson Road - Taggart Richmond

Hi Peter,

Thank you for the heads up.

Staff do have concerns regarding the presumed clear cutting of the site. As per the pre-application consultation notes, an EIS is required due to potential for endangered and threatened species on the lot, as well as potential habitat for species at risk. Further the EIS was to assess the existing woodlands using the NHTM method to determine whether they are considered significant. Staff also required a TCR and encouraged the retention of hedgerows. While we cannot consider the impacts of the tree removal without the completion of the EIS and the TCR, staff's position is that the more mature trees, treed areas and hedgerows are maintained.

I have copied Amy MacPherson, Mark Richardson and Matthew Hayley for their input as well. It has also come to my attention that a revised concept plan has been prepared and submitted as part of a consent application. Staff would recommend that this revised draft be submitted for preliminary review as part of the open pre-application consultation (PC2018-0053).

Thank you,

Sarah McCormick MCIP, RPP

Planner II / Urbaniste II

Development Review, Rural Services / Examen des projets d'aménagement, Service ruraux

Planning, Infrastructure and Economic Development Department

Services de planifications, d'infrastructure et de développement économique

City of Ottawa / Ville d'Ottawa

110 av Laurier Avenue West/ouest - 4th Floor/4^e étage

Ottawa, ON, K1P 1J1

☎ 613.580.2424 ext./poste 24487

From: Peter Hume <peter.hume@hpurban.ca>**Sent:** February 05, 2020 3:09 PM**To:** McCormick, Sarah <sarah.mccormick@ottawa.ca>**Subject:** RE: Ottawa Street and Eagleson Road - Taggart Richmond

Hello Sarah,

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I am writing to advise you that Taggart is going to be undertaking some work in on their Richmond property. Although we have not yet filed a development application we wanted to advise you that to make sure that you were aware that we will be working in the area.

As part of our geotechnical investigation we will be digging a large number of test pits so that we have a very accurate geo tech picture – we call it the Swiss Cheese program as the land tends to look like swiss cheese. While we are digging and have equipment on site we want to moving some dirt to different parts of the site – we will not be doing anything that requires a permit – we just don't want to run afoul of the site alteration bylaw.

In addition, to moving dirt we would like to have our forester go in an harvest the trees in the south western part of the site. I will also be sending a note to Mark Richardson although I don't think we need a tree permit for the site more of an awareness issue.

If you need more information please get in touch.

Thanks,

Peter

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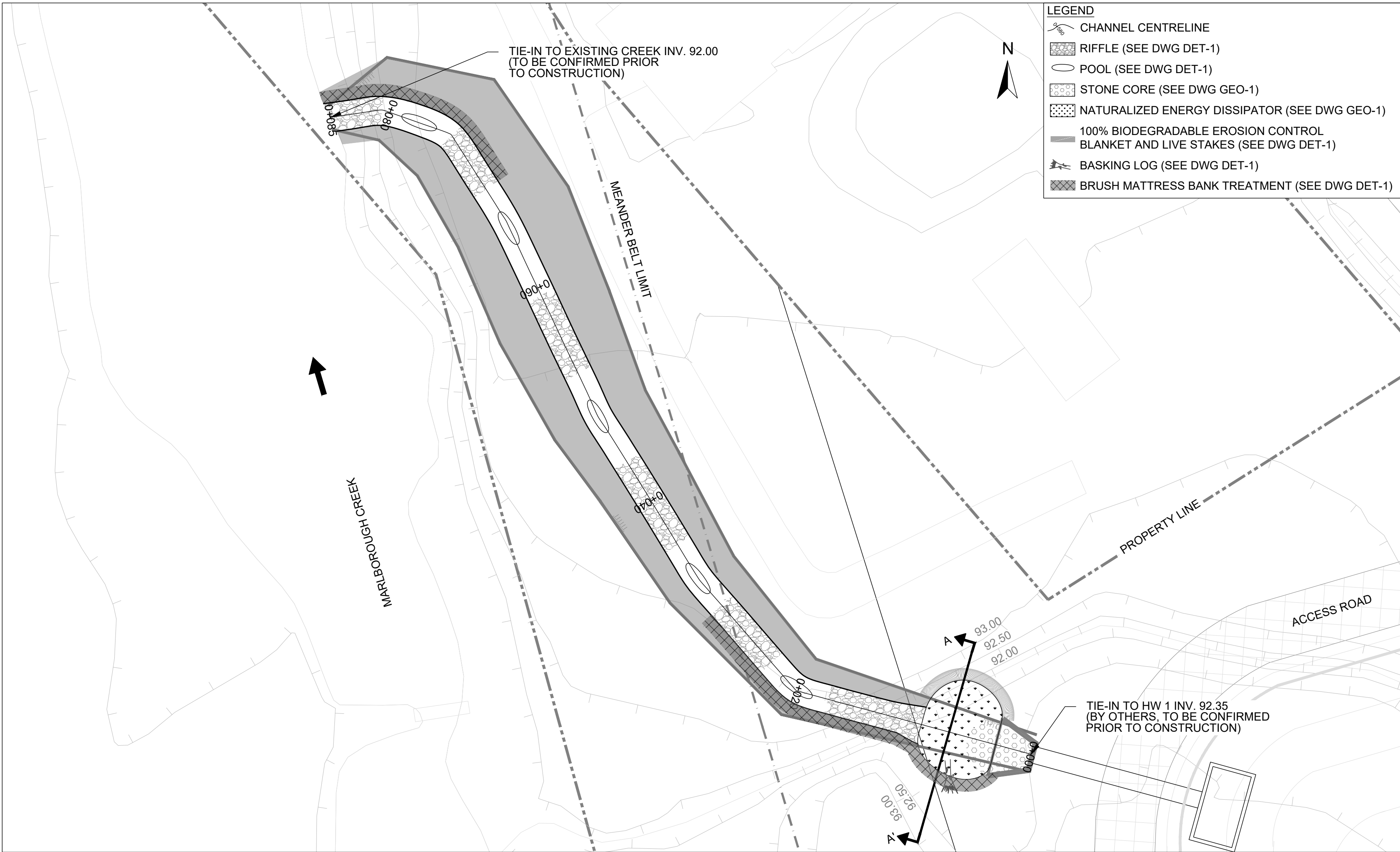
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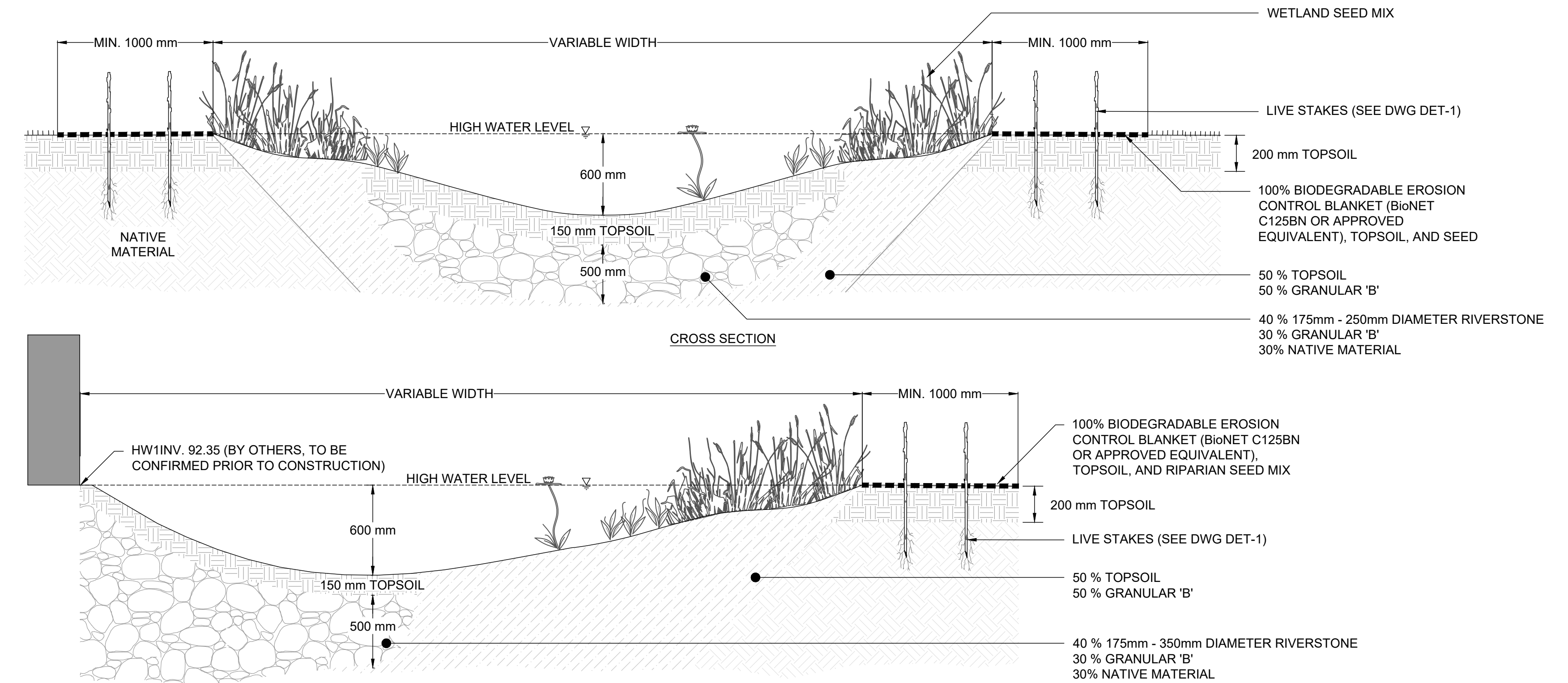
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Appendix D SWM Pond Outlet Concept

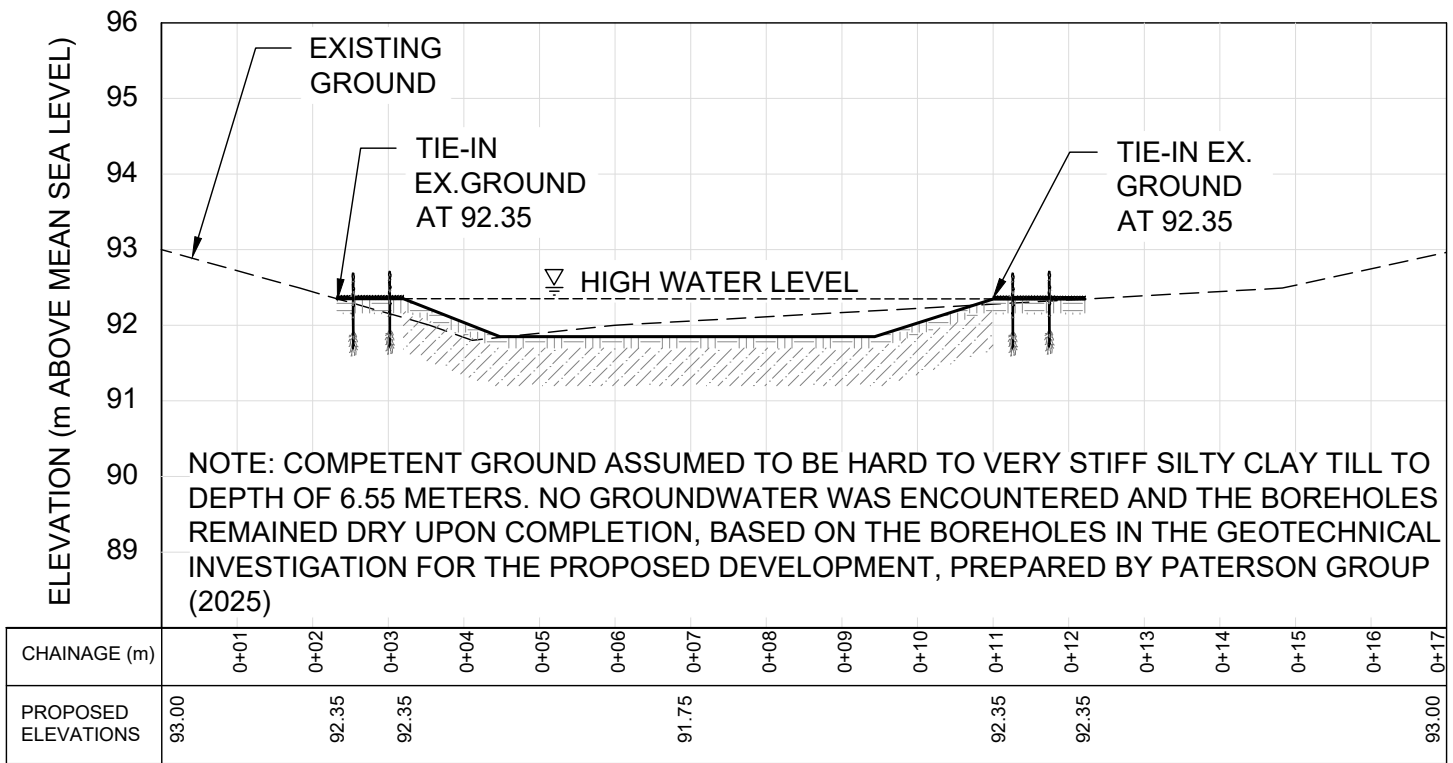




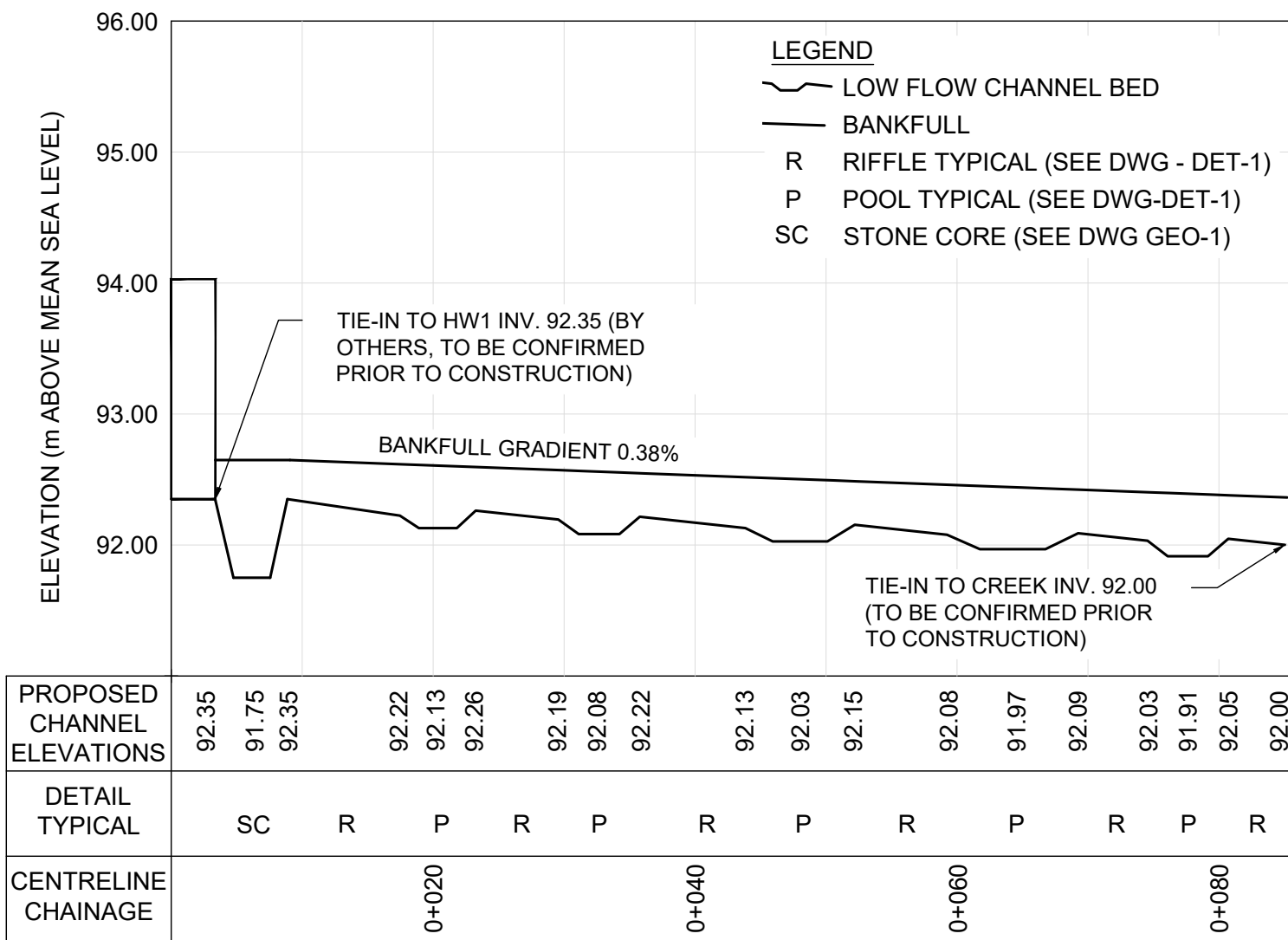
PLANFORM
1:250



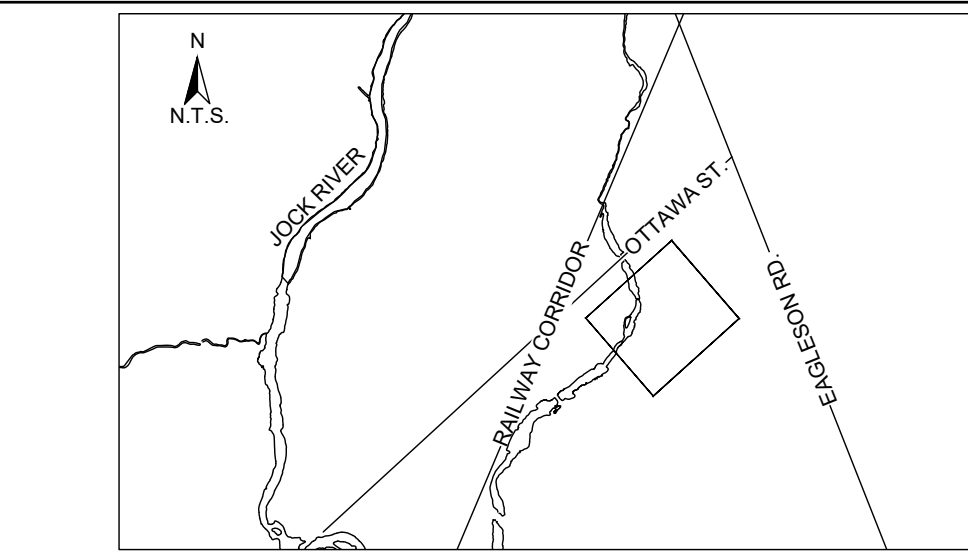
STONE CORE NATURALIZED ENERGY DISSIPATER
N.T.S.



CROSS SECTION A - A'
1:100



PROFILE
H = 1:500; V=1:50



- GENERAL NOTES
- THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2025) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
 - ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
 - THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
 - THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
 - LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER, AND THE CONTRACT ADMINISTRATOR.
 - CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
 - ON-SITE SUPPORT FROM PROJECT ENGINEERS (E.G. GEOTECHNICAL, HYDROLOGICAL, AND/OR WATER RESOURCES ENGINEER) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
 - BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL, OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

- TIMING OF WORKS
- WORKS SHALL BE COMPLETED DURING THE DESIGNATED IN-WATER WORKS WINDOW (JULY 15TH TO MARCH 15TH) SET OUT BY MNRF/O.
 - TREE CLEARING IS TO BE COMPLETED OUTSIDE THE BIRD NESTING SEASON (APRIL 15TH TO AUGUST 31ST) AND THE BAT ROOSTING WINDOW (APRIL 1ST TO SEPTEMBER 30TH) TO COMPLY WITH THE FEDERAL MIGRATORY BIRDS CONVENTION ACT AND THE PROVINCIAL ENDANGERED SPECIES ACT. ANY TREES THAT REQUIRE REMOVAL OUTSIDE OF THIS TIMING WINDOW MUST FIRST BE INSPECTED BY A QUALIFIED BIOLOGIST TO DETERMINE THE PRESENCE OF NESTING BIRDS OR BATS.
 - THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY DURING FAVOURABLE WEATHER CONDITIONS.
 - COMPLETE THE WORKS WITH MINIMAL AVOIDABLE INTERRUPTIONS ONCE THEY COMMENCE.

- SITE AND MATERIAL MANAGEMENT
- ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WATERBODY IN A STABLE AREA ABOVE THE ACTIVE FLOODPLAIN, OR IN A DESIGNATED STAGING/STORAGE AREA.
 - IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED TO A STABLE AREA ABOVE ACTIVE FLOODPLAIN.
 - STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
 - STABILIZE, TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
 - MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
 - ALL VEGETATION ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELINEATED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
 - ALL GRADES IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
 - AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

- EROSION AND SEDIMENT CONTROL
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS.
 - FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-CISEC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES. DETERIORATING AND IN-OR NEAR-WATER WORKS SHOULD CONCERN THE PROPONENT. THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
 - EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS OR REPLACEMENTS MUST BE COMPLETED WITHIN 24 HOURS AFTER THEY HAVE BEEN IDENTIFIED DURING THE MONITORING.
 - EROSION AND SEDIMENT CONTROLS MAY REQUIRE PERIODIC ADJUSTMENTS TO REFLECT CHANGING SITE CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THESE ADJUSTMENTS TO ENSURE PROPER FUNCTION.
 - ANY CHANGES TO THE EROSION AND SEDIMENT CONTROL PLAN BEYOND MINOR ADJUSTMENTS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
 - ADDITIONAL EROSION AND SEDIMENT CONTROL SUPPLIES MUST BE KEPT ON SITE IN ORDER TO FACILITATE IMMEDIATE REPAIRS AND/OR UPGRADES AS NEEDED.
 - ALL TEMPORARY SEDIMENT CONTROLS MUST BE REMOVED AFTER THE CONTRACT ADMINISTRATOR DEEMS THE SITE TO BE STABLE.
 - THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION.
 - IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

- DELETERIOUS SUBSTANCE CONTROL/SPILL MANAGEMENT
- PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAVINE OR STORM SEWER SYSTEM.
 - ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL, AND GREASE.
 - NO EQUIPMENT REFUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
 - A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
 - THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.

- WORK AREA ISOLATION
- ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
 - CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDES OF THE WATERCOURSE OR WETLAND.
 - THE UNWATERING/DISCHARGE LOCATION MUST BE LOCATED AT LEAST 30 m FROM ANY WATERCOURSE OR WETLAND IN AN AREA WITH DENSE VEGETATIVE GROUND COVER, AND WHERE THE DISCHARGE CAN RETURN TO THE WATERBODY DOWNSTREAM OF THE WORK AREA OVER THE GROUND COVER.
 - FISH MUST BE REMOVED FROM THE WORK AREA ONCE ISOLATED. FISH SALVAGE MUST BE COMPLETED BY A QUALIFIED TECHNICIAN WITH A LICENSE FROM THE ONTARIO MINISTRY OF NATURAL RESOURCES.

2.	25/09/30	SE	SECOND DETAILED DESIGN SUBMISSION
1.	25/03/07	LD	FIRST DETAILED DESIGN SUBMISSION
DATE		BY	REVISIONS
DESIGNED BY: LD/SE		CHECKED BY: PV	
DRAWN BY: SE		DATE: MARCH 2025	

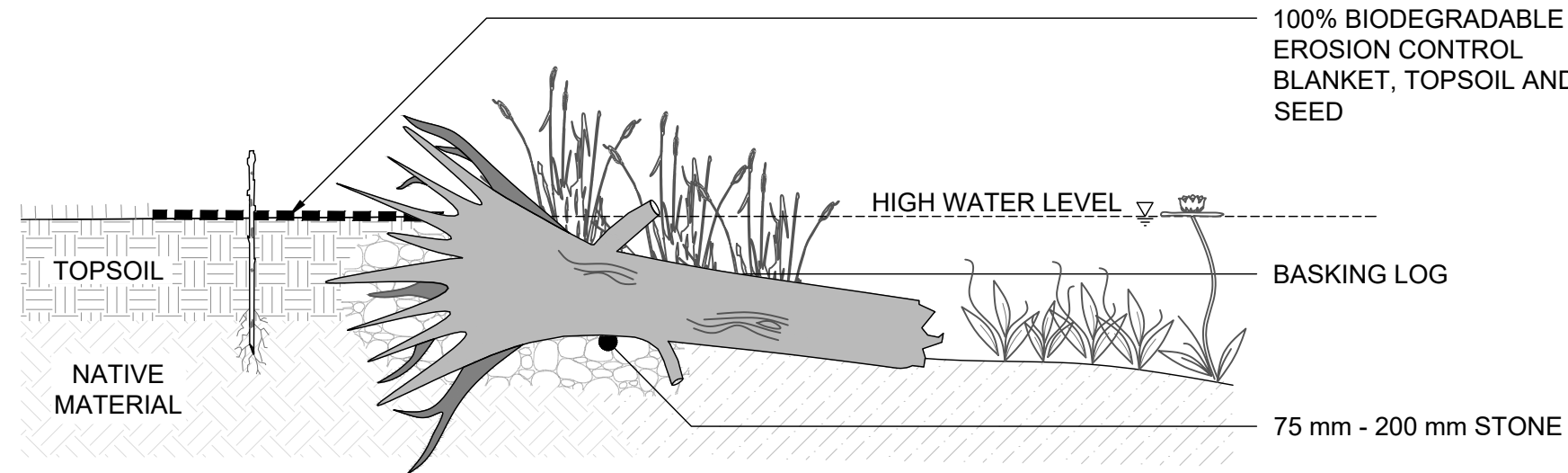
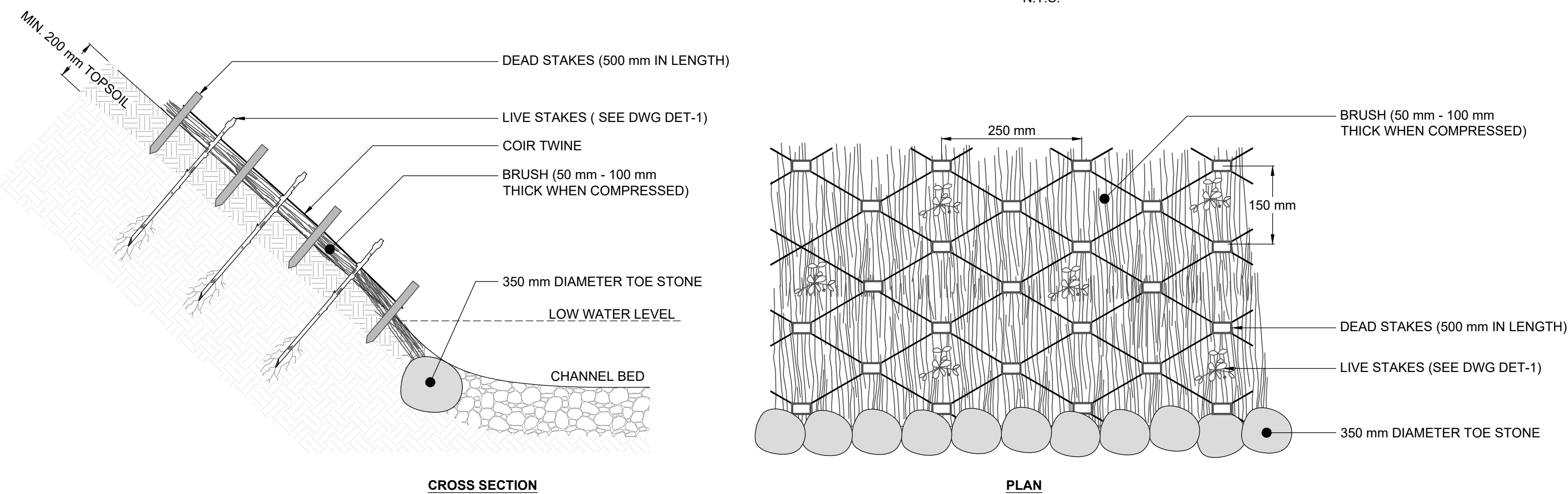
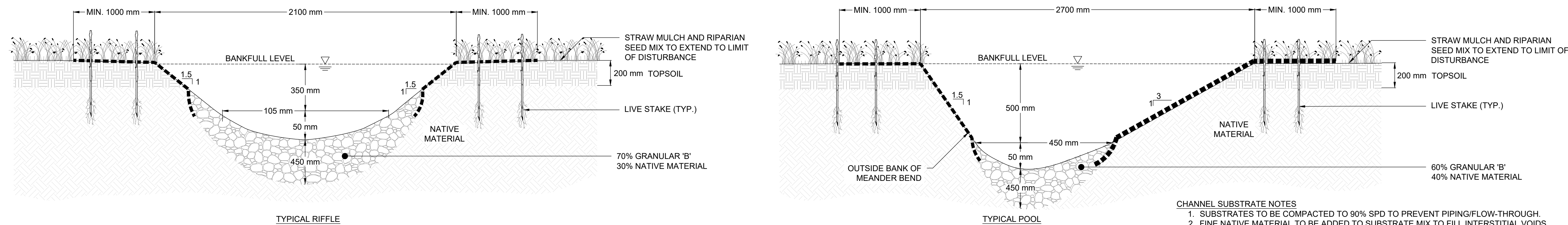


TAMARACK RICHMOND
6038 OTTAWA STREET
RICHMOND, ON

MARLBOROUGH CREEK
SWMP OUTFALL DESIGN
PLANFORM, CROSS-SECTION AND PROFILE

PROJECT No.: PN25011	DRAWING No.: GEO-1
SCALE: AS NOTED	SHEET 1 OF 2

SCALED FOR PLOT ON 'ARCH D'



- NOTES**
1. ANCHOR AND SUPPORT BASKING LOGS WITH 75 mm - 200 mm STONE MIX.
 2. FIRMLY COMPACT STONE MIX TO PREVENT THROUGH FLOW.
 3. BURY 1/3 OF LOG INTO SOIL.
 4. LENGTH OF BASKING LOGS ARE TO BE INSTALLED 1000 - 1500 mm INTO WET AREA.
 5. ANCHOR LOGS TO BE A MINIMUM 500 mm IN DIAMETER AND 2000 - 2500 mm IN LENGTH.
 6. BASKING LOGS SHOULD BE ANGLED TO PROMOTE TURTLE BASKING.
 7. BASKING LOGS SHOULD BE A MIXTURE OF SUITABLE HARDWOOD AND SOFTWOOD SPECIES.

BASKING LOG

N.T.S.

RIPARIAN SEED MIX

SCIENTIFIC NAME	COMMON NAME	PERCENTAGE
<i>ACORUS AMERICANUS</i>	SWEET FLAG	10
<i>ASCLEPIAS INCARNATA</i>	SWAMP MILKWEED	10
<i>CAREX SCOPARIA</i>	BLUNT BROOM SEDGE	15
<i>CAREX VULPINOIDEA</i>	FOX SEDGE	15
<i>ELYMUS VIRGINICUS</i>	VIRGINIA WILD RYE	15
<i>EUPATORIUM MACULATUM</i>	SPOTTED JOE PYE WEED	5
<i>SCIRPUS ATROVIRENS</i>	GREEN BULLRUSH	5
<i>SYMPHYOTRICHUM PUNICEUM</i>	PURPLE STEMMED ASTER	15
<i>VERBENA HASTATA</i>	BLUE VERVAIN	10

NOTES:

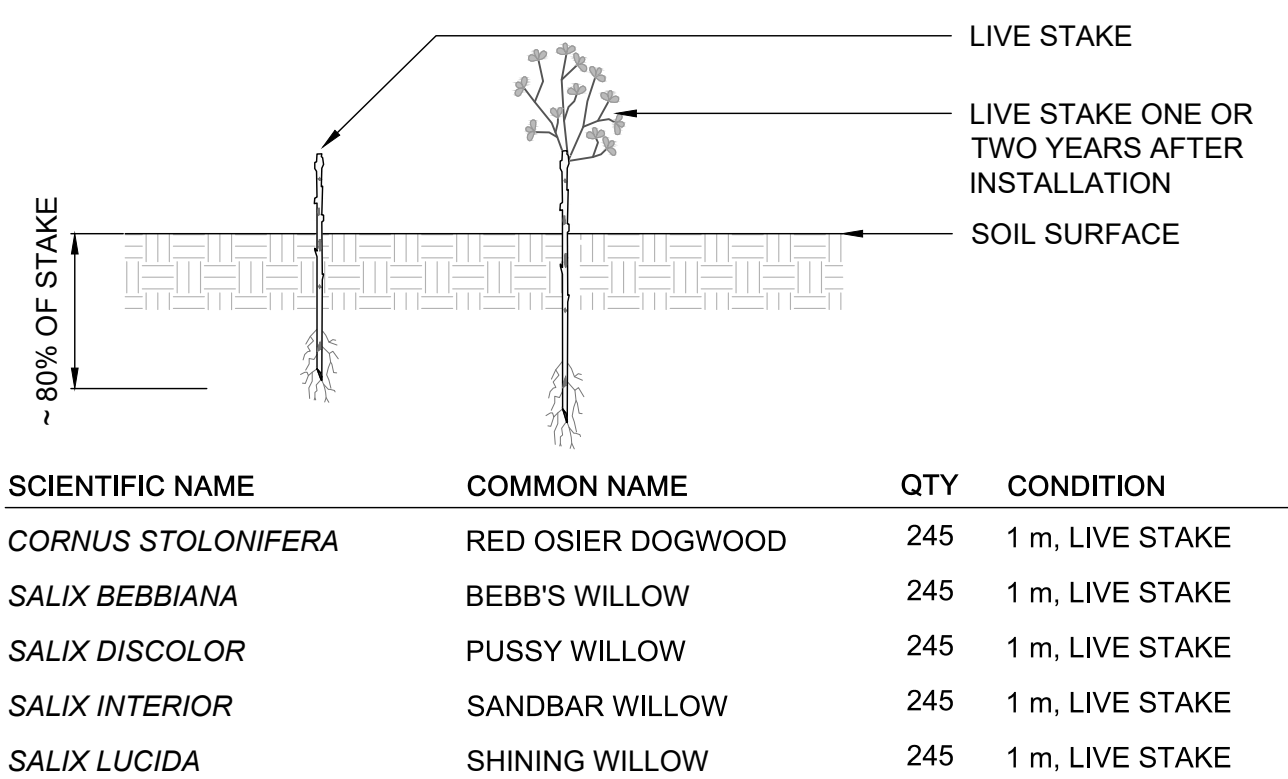
1. APPLY SEED MIX AT A RATE OF 30 kg PER HECTARE.
2. SEEDING SHALL OVERLAP ADJACENT GROUND COVER BY 300 mm.
3. SIMULTANEOUSLY APPLY A NURSE CROP OF ANNUAL OATS (AVENA SATIVA) AT A RATE OF 30 kg PER HECTARE.
4. WATER SOIL AFTER SEED APPLICATION.

WETLAND SEED MIX

SCIENTIFIC NAME	COMMON NAME	PERCENTAGE
<i>ASCLEPIAS INCARNATA</i>	SWAMP MILKWEED	5
<i>CAREX BEBBI</i>	BEBBS SEDGE	15
<i>CAREX LURIDA</i>	LURID SEDGE	4
<i>CAREX SCOPARIA</i>	BLUNT BROOM SEDGE	10
<i>CAREX VULPINOIDEA</i>	FOX SEDGE	10
<i>ELYMUS VIRGINICUS</i>	VIRGINIA WILD RYE	15
<i>EUPATORIUM PERFOROLIATUM</i>	BONESET	2
<i>EUTROCHUM MACULATUM</i>	SPOTTED JOE PYE WEED	2
<i>GLYCERIA STRIATA</i>	FOWL MANNA GRASS	5
<i>JUNCUS EFFUSUS</i>	SOFT RUSH	5
<i>LOBELIA SIPHILITICA</i>	BLUE LOBELIA	1
<i>MIMULUS RINGENS</i>	MONKEY FLOWER	1
<i>SCIRPUS ATROVIRENS</i>	DARK GREEN BULRUSH	5
<i>SCIRPUS CYPERINUS</i>	WOOLGRASS	5
<i>SYMPHYOTRICHUM NOVAE-ANGLIAE</i>	NEW ENGLAND ASTER	2
<i>SYMPHYOTRICHUM PILOSUM</i>	HEATH ASTER	2
<i>SYMPHYOTRICHUM PUNICEUM</i>	PURPLE STEMMED ASTER	1
<i>VERBENA HASTATA</i>	BLUE VERVAIN	10

NOTES:

1. APPLY SEED MIX AT A RATE OF 30 kg PER HECTARE.
2. SEEDING SHALL OVERLAP ADJACENT GROUND COVER BY 300 mm.
3. SIMULTANEOUSLY APPLY A NURSE CROP OF ANNUAL OATS (AVENA SATIVA) AT A RATE OF 30 kg PER HECTARE.
4. WATER SOIL AFTER SEED APPLICATION.



LIVE STAKING

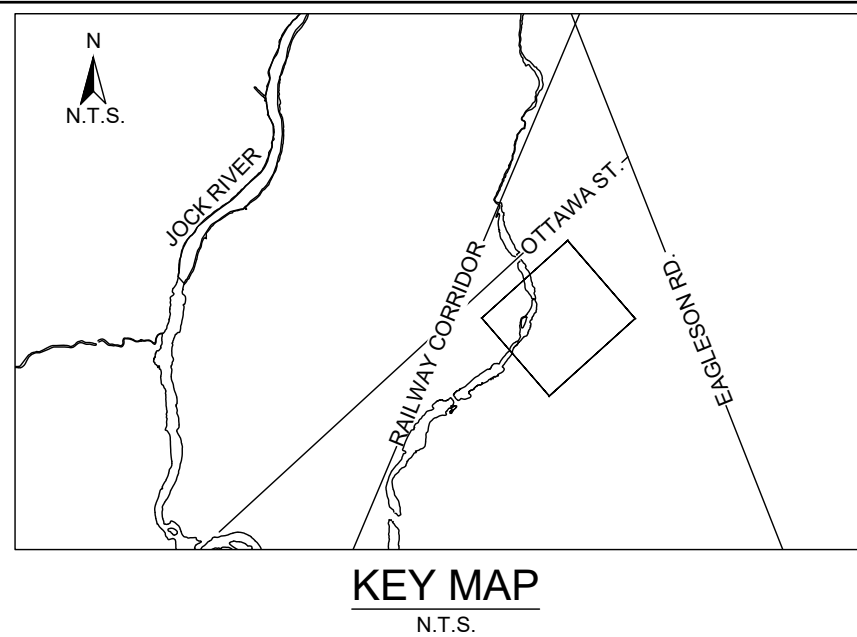
N.T.S.

NOTES

1. QUANTITY TO BE DETERMINED BASED ON AREA OF DISTURBANCE TO BE RESTORED
2. LIVE STAKES SHOULD BE FROM AT MINIMUM 2-YEAR OLD STOCK.
3. LIVE STAKES ARE TO BE INSTALLED AT A DENSITY OF 3 STAKES PER SQUARE METRE.
4. LIVE STAKES SHOULD BE PRE-SOAKED (SUBMERGED IN WATER) FOR AT LEAST 24 HOURS AFTER HARVESTING AND IMMEDIATELY BEFORE INSTALLATION.
5. LIVE STAKES SHOULD NOT BE STORED FOR A PERIOD LONGER THAN 2 DAYS, UNLESS THEY ARE BEING SOAKED.
6. THE CONTRACTOR SHALL PROTECT PLANT MATERIALS FROM DRYING FROM THE TIME OF HARVEST UNTIL INSTALLED.
7. LIVE STAKES ARE TO BE A MINIMUM OF 25 mm IN DIAMETER AND CUT TO A LENGTH OF 1000 mm.
8. CUT ANGLE AT THE BOTTOM OF THE STAKE AND FLAT ON THE TOP.
9. TRIM ALL SIDE BRANCHES WHILE TAKING CARE NOT TO DAMAGE THE BARK.
10. INSTALL STAKES WITH GUIDS POINTING UPWARDS AND THICKER STEM IN THE BED.
11. LIVE STAKES SHOULD BE INSTALLED USING A LARGE RUBBER Mallet.
12. 80% OF THE STAKE IS TO BE BELOW SURFACE.
13. TAMP THE LIVE STAKE INTO THE GROUND AT RIGHT ANGLE TO THE SURFACE.
14. IN COMPACT SOIL A PILOT HOLE SHOULD BE USED TO LIMIT DAMAGE TO THE STAKES.
15. IF USING A PILOT HOLE REPAK SOIL AROUND THE LIVE STAKE.
16. LIVE STAKES SHOULD STAND FIRM FROM THE SOIL FOLLOWING INSTALLATION.
17. ALL STAKES NOT PLANTED TO THE SPECIFICATIONS ABOVE WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

EROSION CONTROL BLANKET SPECIFICATIONS

1. A BIODEGRADABLE EROSION CONTROL BLANKET (ECB) SHALL BE INSTALLED ON ALL DISTURBED NATURAL SURFACES FOLLOWING THE PLACEMENT OF TOPSOIL AND APPLICATION OF THE NATIVE SEED MIX.
2. THE ECB MUST BE CONSTRUCTED OF 100% WOVEN COCONUT FIBRE (E.G., COIR) OR STRAW MAT WITHIN A GEOJUTE NETTING (TOP AND BOTTOM) WITH BIODEGRADABLE THREAD.
NON-BIODEGRADABLE MATERIAL INCLUDING POLYPROPYLENE OR PLASTICS WITH A BIODEGRADABLE RATING ARE NOT ACCEPTABLE. THE MINIMUM WEIGHT OF THE ECB MUST BE 400 g/m² (12 oz./yd²).
3. TO INSTALL, THE ECB MUST BE UNROLLED DOWNSLOPE OR IN DIRECTION OF WATER FLOW. ADJACENT ECBs SHOULD OVERLAP A MINIMUM OF 150 mm ALONG THE EDGES. AT THE END OF EACH ROLL, FOLD BACK 100 mm TO 200 mm OF THE ECB. OVERLAP THIS 100 mm TO 200 mm OVER THE START OF THE NEXT ROLL. SECURE THE TWO LAYERS TO THE GROUND SECURELY.
4. BIODEGRADABLE OR TAPERED WOODEN STAKES SHALL BE USED TO SECURE THE BLANKET. STAKES SHALL BE INSTALLED AT THE SPACING RECOMMENDED BY THE ECB MANUFACTURER TO PREVENT SURFACE RUNOFF FROM ERODING THE UNDERLYING SOIL.



GENERAL NOTES

- THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHOL LTD. (2025) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THE DESIGNER'S TECHNICAL DESIGN BRIEF. THE CONTRACTOR SHALL REVIEW ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING THE CONSTRUCTION PERIOD.
- THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATIONS.
- LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER, AND THE CONTRACT ADMINISTRATOR.
- THE CONTRACTOR SHALL BE SUPERVISED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
- THE CONTRACTOR SHALL BE REQUIRED TO OBTAIN A PERMIT FROM THE LOCAL GOVERNMENT AND/OR WATER RESOURCES ENGINEER) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REINFORCEMENT CONSTRUCTION.
- THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE LOCAL GOVERNMENT WITHDRAWING THIS PERMISSION, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT CONSTITUTE AN ENDORSEMENT OF THE PROJECT OR THE PROJECT'S COMPLIANCE WITH FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

TIMING OF WORKS

1. WORKS SHALL BE COMPLETED DURING THE DESIGNATED IN-WATER WORKS WINDOW (JULY 15TH TO MARCH 15TH) SET OUT BY MN/DFO.
2. TREE CLEARING IS TO BE COMPLETED OUTSIDE THE BIRD NESTING SEASON (APRIL 15TH TO AUGUST 31ST) AND THE BIRD ROOSTING WINDOW (APRIL 1ST TO SEPTEMBER 30TH) TO COMPLY WITH THE FEDERAL MIGRATORY BIRD ACT AND THE CANADIAN PROVINCIAL ENDANGERED SPECIES ACT. ANY TREES THAT REQUIRE REMOVAL OUTSIDE OF THIS TIMING WINDOW MUST FIRST BE INSPECTED BY A QUALIFIED BIOLOGIST TO DETERMINE THE PRESENCE OF NESTING BIRDS OR BATS.
3. THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY UNDER FAVORABLE WEATHER CONDITIONS.
4. COMPLETE THE WORKS WITH MINIMAL AVOIDABLE INTERRUPTIONS ONCE THEY COMMENCE.

SITE AND MATERIAL MANAGEMENT

- ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 M' AWAY FROM ANY WATERBODY IN A STABLE AREA ABOVE THE ACTIVE FLOODPLAIN, OR IN A DESIGNATED STORAGE AREA.
- IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR FLOODING MUST BE SECURED TO ELIMINATE SUCH A POSSIBILITY. ALL UNFIXED ITEMS MUST BE MOVED TO A DESIGNATED STORAGE AREA OR TO A FLOOD-PROOFED AREA.
- STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
- ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL OR BETTER CONDITION. ANY TEMPORARY OR PERMANENTLY ANY DISTURBED AREAS AS WORK PROGRESSES, OR ON AS CONDITIONS ALLOW.
- MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS MUST BE REVEGETATED WITH SEEDS AND MULCH.
- APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
- ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL OR BETTER CONDITION WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
- ALL DISTURBED AREAS MUST BE MAINTAINED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
- ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL OR BETTER CONDITION FOR EMERGENCIES.
- NO OTHER PERSONS OR VEHICLES ARE ALLOWED TO ENTER THE PROJECT AREA WITHOUT THE AUTHORITY OF THE PERSONS WHO SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

EROSION AND SEDIMENT CONTROL

2. ALL FLOWING EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS INCLUDING INSTALLATION OF THE PROPOSED ESC MEASURES. A QUALIFIED AGENT OF THE PROPONENT (E.G. ENGINEER, GEOTECHNICAL CONSULTANT, ETC.) MUST MONITOR THE PROGRESS OF THE ESC MEASURES. THE CONDITION OF THE ESC MEASURES, DEWATERING, AND IN-OR-NEAR-WATER WORKS SHOULD CONCERN THE AGENT OF THE PROPONENT. THE AGENT OF THE PROPONENT WILL CONTACT THE PROJECT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
3. EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS AND UPGRADES MUST BE COMPLETED IMMEDIATELY.
4. EROSION AND SEDIMENT CONTROLS MAY REQUIRE PERIODIC ADJUSTMENTS TO REFLECT CHANGING SITE CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THESE ADJUSTMENTS TO ENSURE PROPER FUNCTION.
5. ANY CHANGES TO THE EROSION AND SEDIMENT CONTROL PLAN BEYOND MINOR ADJUSTMENTS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
6. MATERIALS AND EQUIPMENT SUPPLIES MUST BE KEPT ON SITE AT ALL TIMES TO FACILITATE IMMEDIATE REPAIRS AND/OR UPGRADES AS NEEDED.
7. ALL TRANSFERRABLE SEDIMENT CONTROLS MUST BE REMOVED AFTER THE COMPLETION OF THE CONSTRUCTION TO BE STABLE.
8. THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING EROSION AND SEDIMENT WITHIN THE PROJECT AREA DURING THE TOTAL PERIOD OF THE CONSTRUCTION. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ONSITE SUPERVISOR/INSPECTOR SHALL BE REQUIRED TO REPAIR OR REPLACE THE EROSION AND SEDIMENT ADJUSTMENT ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

DELETERIOUS SUBSTANCE CONTROL/SPILL MANAGEMENT

1. PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAVINE OR STORM SEWER SYSTEM. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, AND PROPERLY MAINTAINED.
2. NO EQUIPMENT REFUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
3. ALL MATERIALS AND EQUIPMENT MUST BE READILY ACCESSIBLE ON SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
4. THE CONTRACT MANAGER MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SPILL, OR ANY SERIOUS INCIDENT FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SP ACTION CENTER) AT 1-800-268-6960.

WORK AREA ISOLATION

1. ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
2. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM THE DRY SIDE OF THE WATERCOURSE OR WETLAND.
3. THE UNWATERING DISCHARGE LOCATION MUST BE LOCATED AT LEAST 30 M FROM ANY WATERCOURSE OR WETLAND IN AN AREA WITH DENSE VEGETATIVE GROUNDCOVER, AND WHERE THE DISCHARGE CAN RETURN TO THE WATERBODY DOWNSTREAM IN THE WORK AREA OR TO THE GROUND COVER.
4. FISH BE REMOVED FROM THE WORK AREA OR IS ISOLATED. FISH SALVAGE MUST BE COMPLETED BY A QUALIFIED TECHNICIAN WITH A LICENSE FROM THE ONTARIO MINISTRY OF NATURAL RESOURCES.

2.	25/09/30	SE	SECOND DETAILED DESIGN SUBMISSION	
1.	25/03/07	LD	FIRST DETAILED DESIGN SUBMISSION	
	DATE	BY	REVISIONS	
DESIGNED BY: LD/SE			CHECKED BY: PV	
DRAWN BY: SE			DATE: MARCH 2025	

TAMARACK RICHMOND
6038 OTTAWA STREET
RICHMOND, ON

MARLBOROUGH CREEK
SWMP OUTFALL DESIGN
OUTFALL AND RESTORATION DETAILS

PROJECT No.: PN25011	DRAWING No.: DET-1
SCALE: AS NOTED	SHEET 2 OF 2

SCALED FOR PLOT ON 'ARCH D'