

Magnolia East Parcel: Environmental Impact Study for the Draft Plan of Subdivision

2026-05-08

Final Report

Submitted To:

CAIVAN

Bronwyn Anderson
Caivan (Stittsville) Inc.
3713 Borrisokane Road
Ottawa, ON
K2J 4J4

KILGOUR & ASSOCIATES LTD.
www.kilgourassociates.com

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List of Acronyms and Abbreviations

BAA – Black Ash Assessment
BHA – Butternut Health Assessment
BHE – Butternut Health Expert Report
CRZ – Critical root zone
DFO – Department of Fisheries and Oceans (Fisheries and Oceans Canada)
ECCC – Environment and Climate Change Canada
EIS – Environmental Impact Study
ELC – Ecological Land Classification
ESC – Erosion and sediment control
ESA – *Endangered Species Act*
EWPW – Eastern Whip-poor-will
FWCA – *Fish and Wildlife Conservation Act*
HDFA – Headwater Drainage Features Assessment
HDF – Headwater Drainage Feature
KAL – Kilgour & Associates Ltd.
MBCA – *Migratory Birds Convention Act*
MECP – Ministry of Environment, Conservation and Parks
MNRF – Ministry of Natural Resources and Forestry
NHIC – Natural Heritage Information Centre
PPS – Provincial Policy Statement
SAR – species at risk
SARA – *Species at Risk Act*
SCA – *Species Conservation Act*
SWH – Significant Wildlife Habitat
SWM – Stormwater Management



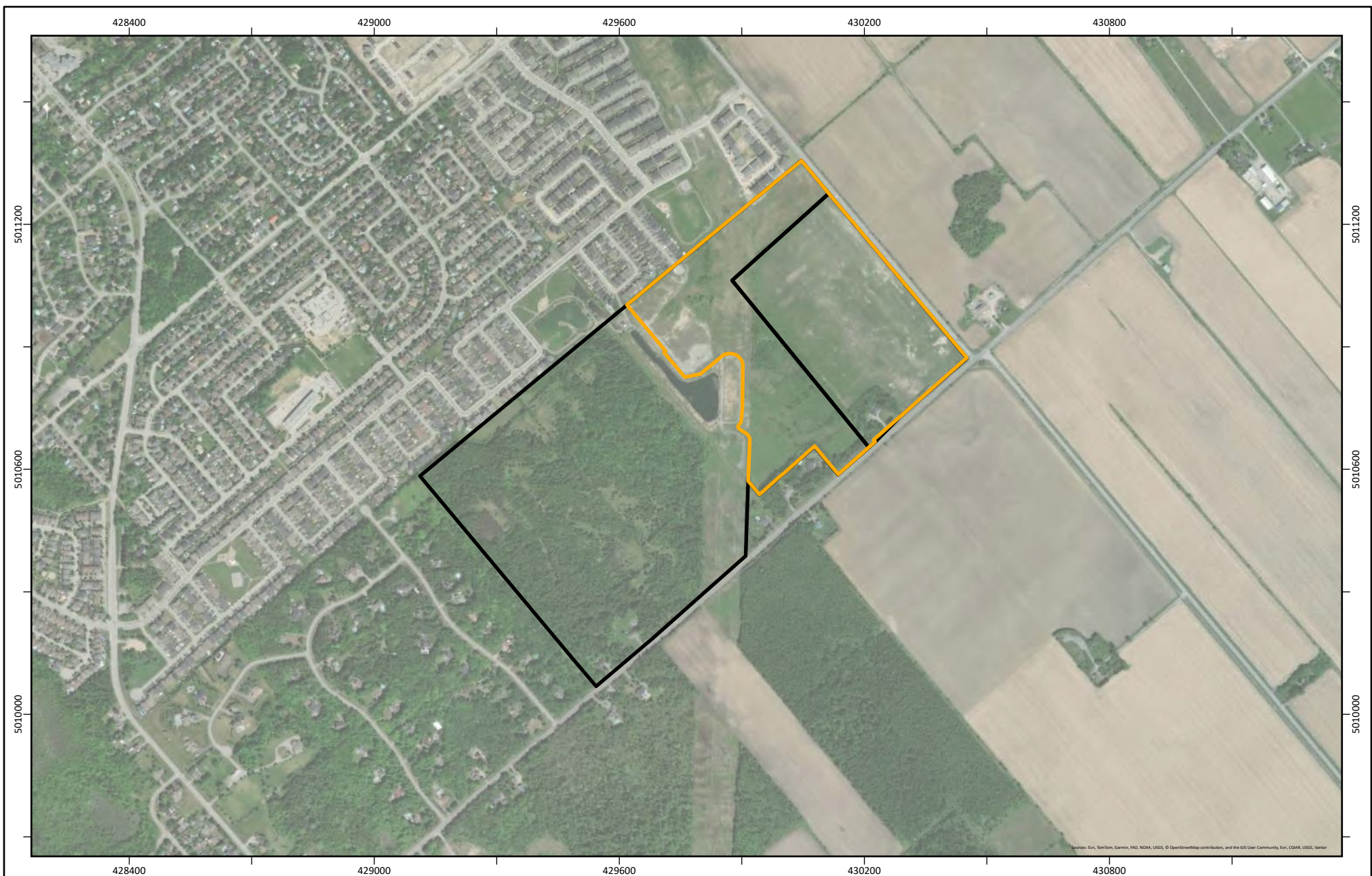
1.0 INTRODUCTION

This report is an Environmental Impact Study (EIS) prepared by Kilgour & Associates Ltd. (KAL; Appendix A) on behalf of Caivan (Stittsville) Inc. in support of a Draft Plan of Subdivision application for the proposed Magnolia residential development on the north side of Flewellyn Road west of Shea Road in Stittsville, Ontario. Analysis and review within this EIS consider the entire group of parcels associated with the “East Parcel” proposed new community (i.e. with major parcels including 5971 Flewellyn Road, 1820 Shea Road, and 1770 Shea Road), which collectively constitute “the Site” (Figure 1). The larger Magnolia development, associated with other development applications, includes 5993 and 6115 Flewellyn Road, and 6070 Fernbank Road, constituting the “Study Area”. The data contained in this EIS for the Site were collected as part of a larger field program for the Study Area.

This report builds upon the previously approved Existing Conditions Report, dated January 19, 2024, Updated EIS, dated April 23, 2025, that supported the Zoning By-law Amendment and Official Plan Amendment applications, as well as the approved EIS for the Draft Plan of Subdivision, dated November 7, 2025.

This report identifies natural heritage conditions on and adjacent to the Site, outlines the policy context associated with development plans, assesses the potential impacts of the proposed development on existing features, and recommends mitigation measures to minimize or eliminate identified impacts. The content of this EIS was completed per both the *5993 and 6115 Flewellyn Road and 6070 Fernbank Road Environmental Impact Study Terms of Reference* (KAL, 2022), which were developed in consultation with the City staff in 2021/2022 and approved in January 2024, and the *Environmental Impact Study Guidelines* (City of Ottawa, 2025a).

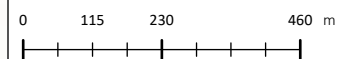




- Legend**
- Study Area
 - Site Boundary (East Parcel)



Figure 1. Site Context



Spatial Reference:
PCS: WGS 1984 UTM Zone 18N
Map Units: Meter

Project: CAIV 1300
Map File Name: CAIV 1300 ArcGIS
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2.0 ENVIRONMENTAL POLICY CONTEXT

2.1.1 Planning Act

The Ontario *Planning Act* (Government of Ontario, 1990b) establishes the legislative framework for land use planning and development in Ontario and governs how development applications are reviewed and approved by municipalities. Under the Act, all planning decisions must have regard for matters of provincial interest and be consistent with the Provincial Policy/Planning Statement, which is issued under Section 3 of the Act and provides province-wide direction on growth, infrastructure, housing, and the protection of natural heritage resources. The *Planning Act* authorizes municipalities to regulate development through Official Plans, zoning by-laws, plans of subdivision, consents, minor variances, and site plan control, and requires that development applications conform to these instruments. It also sets out procedural requirements for public notice, consultation, decision-making, and appeals, ensuring that development proposals are reviewed in a transparent, coordinated, and policy-led manner that balances local decision-making with provincial oversight.

2.2 The Provincial Planning Statement, 2024

The Provincial *Policy Statement* (PPS) was issued under Section 3 of the Planning Act (Government of Ontario, 1990b). The PPS in effect at the start of this project came into force on May 1, 2020 (Government of Ontario, 2020). Natural features were afforded protections under Section 2 of the PPS. Protections may include 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. 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; MNR, 2010).

Importantly, while the 2020 PPS was the version in effect at the start of this study, it must be noted that the Province subsequently approved the updated Provincial *Planning Statement* 2024 (i.e. as of August 20, 2024); it came into effect on October 20, 2024. The revised document (also “PPS”) is intended to simplify and integrate existing policies to achieve housing objectives while providing tools for municipalities to deliver on housing objectives. The 2024 edition is formally the planning document in effect for this current project. However,, other than renumbering the relevant policies (i.e. now under Section 4), there are no meaningful differences related to Natural Heritage considerations between the two PPS versions.

2.3 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, 2023a) - 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, 2022c) - 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, 2022b) – which identifies best management practices to be employed through construction to reduce the direct impacts of development on wildlife.

The Upper Poole Creek Rehabilitation Project (Mississippi Valley Conservation Authority, 2019) addresses the nearby Poole Creek Corridor but does not include the Site. The Jock River Reach 2 Subwatershed Study is currently listed as incomplete (City of Ottawa, 2023b) but extends to include the Site. The Jock River Reach 2 Subwatershed Study Existing Conditions Report (Marshall Macklin Monaghan Limited, 2009) identifies measures (e.g. watercourse setbacks) that are either consistent with or directly reiterate measures as provided within the City’s Official Plan in place at that time. This EIS thus seeks accordance with the OP.



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.

2.5 Species Conservation Act, 2025

The provincial *Species Conservation Act* (SCA; Government of Ontario, 2025) is administered by the Ministry of Environment, Conservation, and Parks (MECP) and provides protection for species at risk (SAR) and their habitat. It replaces the previous *Endangered Species Act* (ESA; Government of Ontario, 2007). As such, existing policies and guidance documents that remain in force and refer to the ESA for the management and/or protection of SAR may generally be interpreted as applicable to the SCA.

Under the SCA, it is illegal to kill, harm, possess, transport, buy, or sell Extirpated, Endangered, or Threatened species, whether living or dead. It is also illegal to harm the habitat of a species listed as Extirpated, Endangered, or Threatened. Under the SCA, habitat is defined as areas on which any member of the species directly depends in order to carry on its life processes. For animals, this includes areas essential for breeding, rearing, staging, wintering or hibernating; for vascular plant species, habitat is defined as the critical root zone surrounding the species.

The SCA includes provisions that may authorize development activities to proceed where the impacts of such development on protected species and/or their habitat would otherwise be prohibited. The SCA focuses on a “registration-first” approach. While some activities will still require a formal permitting process with the MECP, the registration-first approach effectively authorizes most land development projects upon the submission of a project-specific Conservation Plan. The Conservation Plan, which must be written by a qualified professional, must:

- Detail all potential impacts, required mitigation measures, and conservation measures to (such as creating new, suitable habitat).
- Include record-keeping provisions for tracking the implementation of indicated mitigations.
- Define monitoring programs to review the effectiveness of mitigation and compensation measures.
- Identify mechanisms to update the registration where necessary.
- Detail all potential impacts, required mitigation measures, and conservation measures to (such as creating new, suitable habitat).



2.6 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. As such, while the replacement of the ESA by SCA removed provincial-level protections for many such species (i.e. birds and fish), federal-level protections under SARA are still fully in force. Moreover, while SARA protections for other species do not normally extend to privately owned land, 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.

2.7 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.

2.8 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).

2.9 Fish and Wildlife Conservation Act, 1997

The provincial *Fish and Wildlife Conservation Act* (FWCA; Government of Ontario, 1997) governs the hunting and trapping of a variety of wildlife including mammals, birds, reptiles, amphibians, and fish in Ontario, thereby facilitating the protection of wildlife and their habitat. The FWCA outlines the prohibition of hunting or trapping specially protected species and the requirement for provincially issued licenses for the hunting or trapping of “furbearing” or “game” animals. Examples of specifically protected animals include, for example, Southern Flying Squirrel (*Glaucomys volans*), Northern Harrier (*Circus cyaneus*), American Kestrel (*Falco sparverius*), Blue Jay (*Cyanocitta cristata*), Midland Painted Turtle (*Chrysemys picta marginata*), Northern Watersnake (*Nerodia sipedon*), and Gray Treefrog (*Hyla versicolor*). In particular, raptors that are not protected under the MBCA (including Peregrine Falcon) are protected under the FWCA.



3.0 PROPERTY IDENTIFICATION

The Site consists of major parcels including 5971 Flewellyn Road, 1820 Shea Road, and 1770 Shea Road. The Hydro Ottawa corridor diagonally crosses the southern end of the Study Area, 6070 Fernbank Road. The adjacent stormwater pond (SWM) area is located at 59 Aridus Cres., includes a sanitary pump station at its north end but is otherwise comprised almost entirely of the open pond, though the banks are sparsely vegetated. A recreational pathway extends around the east side of the SWM pond and through a portion of the hydro corridor.

Much of 1770 Shea Road and the Site was cleared of vegetation in ~2016 (City of Ottawa, 2025b) in association with the construction of the Davidson SWM Pond. The remaining forested area in the southeast corner of the Site was cleared of tree cover throughout 2018. The hydro corridor and Davidson SWM pond are zoned Open Space Facility (FAC3). The north and west portions of 1770 Shea Road (i.e., lands within the urban boundary) are zoned Development Reserve (DR), while the southeast portion of 1770 Shea Road and 5971 Flewellyn Road (i.e., lands outside of the urban boundary, formerly the “Eder Lands”) are zoned Rural Countryside (RU).

The Site is bordered by:

- A community of R1 to R3 density residential (single homes) to the north, together with parks, ponds, etc.;
- Cleared DR lands to the west, forming part of the Study Area and larger Magnolia development;
- Shea Road and agricultural lands to the east; and
- Flewellyn Road and agricultural lands (with some forest blocks) to the south.

4.0 METHODOLOGY

4.1 Desktop and Background Data Review

4.1.1 General Records Review

Background information was obtained from online databases and geographic information system mapping applications to review relevant information. Aerial imagery from Google Earth (Google LLC, 2026), the Rideau Valley Conservation Authority (RVCA) Geoportal (RVCA, 2025) and the City’s geoOttawa (City of Ottawa, 2025b) systems were used to identify existing features and confirm information found in the background review.

4.1.2 Species at Risk Screening

The review of existing information included a preliminary SAR screening, which was completed following the draft *Client’s Guide to Preliminary Screening for Species at Risk* (MECP, 2019). The screening was initially completed in 2022 and included species listed under the federal SARA and provincial ESA with some record of occurrence within the broader vicinity of the Site (Kilgour & Associates Ltd., 2023, 2025b, 2025a).



The SAR screening was subsequently updated in May 2026 to reflect changes in listed species and their associated status under the SCA, which replaced the above-mentioned ESA in March 2026.

4.1.3 Agency Consultation

The Site is located within the jurisdictions of the City of Ottawa and the RVCA.

Ongoing consultation with City of Ottawa staff has been undertaken throughout the various phases of the project. The W4 Natural Systems Working Group has met on a regular basis throughout 2023, 2024, and 2025, and includes members of City staff, Caivan, and KAL.

4.2 Field Surveys

4.2.1 Site Work Summary

KAL undertook a field program to document existing ecological conditions within the Study Area and to confirm the results of the background review.

KAL Biologists completed an initial field review of the Study Area in the late summer of 2022, then completed an extensive suite of field studies through the spring and summer of 2023. Black Ash surveys were completed in summer 2024, and an investigation of 5971 Flewellyn Road, a previous holdout property, was conducted on May 6, 2026.

Table 1 provides a summary of all field visits. Specific details of each program are further described under each study type in the relevant sub-sections in the remainder of Section 4.2. Specific survey stations are shown in Figure 2.

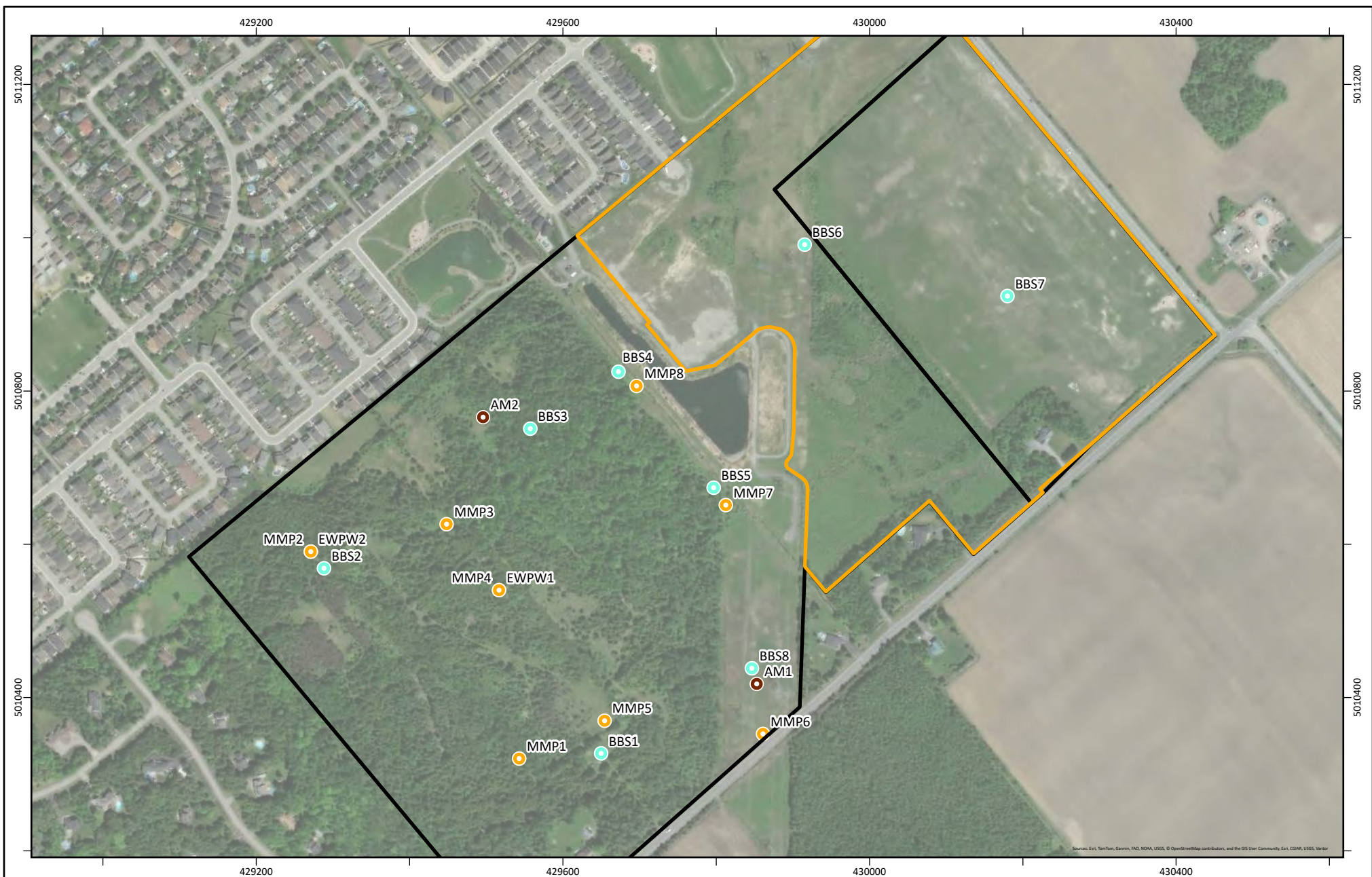
Table 1: Field Study Dates

Date	Purpose	Conditions	Personnel
November 23, 2021	- Identify general site conditions - Map Butternuts along drill rig routes	3°C - Cloudy, no precipitation - Light breeze	Anthony Francis
September 8, 2022	- Review general site conditions - Conduct initial ELC	24°C - Sunny with some clouds 12km/h wind SW	- Anthony Francis - Kesia Miyashita
September 28, 2022	Confirm ELC designations	14°C - Overcast - No precipitation	Sarantia Katsaras
April 4, 2023	Site reconnaissance	8°C - Sunny 13km/h winds N	- Nick Moore - Rob Hallett
April 17, 2023	HDFA #1	8°C - Light rain - Cloudy	- Nick Moore - Rob Hallett
April 20, 2023	Frogs #1	8°C 30% cloud cover - Very light wind	- Rob Hallett - Kurtis Westbury
May 19, 2023	HDFA #2	21°C - Sunny with some clouds - Strong breeze	- Kurtis Westbury - Nicholas Schulz
May 23, 2023	Frogs #2	18°C	Nick Moore



Date	Purpose	Conditions	Personnel
		0% cloud cover - No wind	Kurtis Westbury
May 29, 2023	EWPW #1	18°C - No cloud cover 75% of moon visible	- Kurtis Westbury - Maren Nielsen
June 1, 2023	EWPW #2	29°C 50% cloud cover 90% of moon visible	- Kurtis Westbury - Jenni Velichka
June 2, 2023	- Breeding Bird Survey #1 - Acoustic Bat Monitor Deployment - ELC	29°C - Sunny with clouds	- Rob Hallett - Maren Nielsen
June 5, 2023	Butternut Health Assessment	22°C - Cloudy - Slight breeze	- Maren Nielsen - Rob Hallett
June 13, 2023	- Breeding Bird Survey #2 - Acoustic Bat Monitor Deployment (2nd location)	22°C - Slightly cloudy - Slight breeze	Rob Hallett
June 30, 2023	- Frogs #3 - EWPW #3	22°C - Clear and smoky sky 100% of moon visible	- Jenni Velichka - Maren Nielsen
July 5, 2023	- Breeding Bird Survey #2 - HDFA #3	24°C - Slight breeze 0% cloud cover	Nicholas Schulz
June 27, 2024	Black Ash Assessment	19°C - Sunny with some clouds - Strong winds	- Maren Nielsen - Kesia Miyashita
June 28, 2024	Black Ash Assessment	24°C - Sun and cloud - Slight breeze	- Maren Nielsen - Kesia Miyashita
May 6, 2026	- Site reconnaissance - ELC (East Parcel)	11°C - Overcast - No precipitation - Light breeze	- Kesia Miyashita - Lilly Jordan



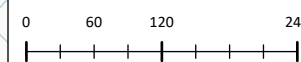


Legend

- Study Area
- Site Boundary (East Parcel)
- Anuran Stations
- Bat Stations
- Bird Stations
- EWPW Stations



Figure 2. Study Locations



Spatial Reference:
PCS: WGS 1984 UTM Zone 18N
Map Units: Meter

Project: CAIV 1300
Map File Name: CAIV 1300 ArcGIS
Date Exported: 2026-05-08 12:39



4.2.2 Surface Water Characterization

Aerial imagery and public databases were reviewed to determine wetland areas and watercourses (MNRF, 2025; Rideau Valley Conservation Authority, 2023a). Wetlands within the Study Area were delineated and characterized in the field as part of the Ecological Land Classification (ELC) exercise (see Section 4.2.3 below). A Headwater Drainage Feature Assessment (HDFA) was conducted for the Study Area following the methods per the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (Toronto and Region Conservation Authority & Credit Valley Conservation, 2014). The Faulkner Drain was not assessed using the HDFA protocol, but was described based on existing data for the feature. Previous holdout parcels (i.e., 5971 Flewellyn Road) were not assessed as part of the field program, but features were specifically searched for during the Site reconnaissance on May 6, 2026.

The HDFA protocol requires up to three surveys of HDFs on a site. The first is conducted near the spring freshet to identify channel and wetted dimensions at peak water levels. Fish communities and habitats are assessed later in the spring for those HDFs hydrologically capable of supporting fish. Water levels of features not found to be dry during the second visit are checked once more in mid to late summer to assess their status as permanent watercourses.

4.2.3 Ecological Land Classification

Vegetation communities within the broader Study Area were initially identified and mapped in the field on September 8 and September 28, 2022, and updated on June 2, 2023. An updated ELC focusing on the Site (i.e., East Parcel) was completed on May 6, 2026. The ELC surveys use standard Ecological Land Classification (ELC) methods for Ontario (Lee, 2008; Lee et al., 1998). This method provides a consistent approach to identify, describe, and map vegetation communities or physiographic features on the landscape based on dominant plant species and soil composition. This method results in a standardized description of each vegetation community to capture the natural diversity and variability of communities within a site and to provide insight into available habitat and the type of species that may be present. More specifically, the classifications from ELC provide a basis for determining whether potential habitat for a given SAR or other ecological value may be present.

A desktop review of available aerial imagery and preliminary field visits informed how the Study Area and the Site generally divide into vegetation communities based on variation in land cover, topography, and vegetation structure. The dominant plant species were recorded within each proposed ecosite in the field to further divide ecosites into vegetation types (the finest resolution in ELC), where possible. Soil samples were taken using a 120 centimeter (cm) long soil auger to characterize community substrates. Representative photos of each ELC unit on the Site were taken and are included with the community descriptions in this report.

4.2.4 Butternut Health Assessment

Butternut (*Juglans cinerea*) trees within the broader Study Area were initially mapped on November 23, 2021, along proposed routes for drilling rigs that would be used in subsequent geotechnical surveys. The intention of that work was to adjust routes as required to avoid impacts to Butternuts. A subsequent, more detailed site review on September 8, 2022, noted that many of the previously observed Butternuts had blown down, presumably during the derecho event on May 21, 2022. A formal Butternut Health Assessment (BHA) was



conducted by KAL Biologists Rob Hallett and Maren Nielsen on June 5, 2023, to map and assess the remaining Butternuts within the Study Area. The BHA was completed following the provincial Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the purposes of the *Endangered Species Act, 2007* (MECP, 2021).

4.2.5 Black Ash Assessment

A formal Black Ash (*Fraxinus nigra*) Assessment (BAA) was conducted by KAL Biologists Maren Nielsen and Kesia Miyashita on June 27 and 28, 2024, to map and assess the Black Ash within the Study Area. The BAA was completed following the provincial Black Ash Assessment Guidelines: Assessment of Black Ash (*Fraxinus nigra*) for the purposes of the *Endangered Species Act, 2007* (MECP, 2024). The BAA inventoried every Black Ash stem over 8 cm at 1.37 m and recorded the number of Black Ash with a stem less than 1.37 m in height or a DBH less than 8 cm. Based on field observations, an ultimate health determination was assigned for each stem. ESA clause 9 (1) (a), prohibits the killing, harm, harassment, possession, transportation, trade and/or removal of a living, healthy Black Ash tree.

4.2.6 Breeding Birds

Morning breeding bird surveys were performed using point counts following the Ontario Breeding Bird Atlas Guide for Participants (Ontario Breeding Bird Atlas, 2001). Breeding bird surveys are to be completed from survey stations that, combined, provide suitable viewing of all habitats on a site on calm weather days with light wind (less than 3 on the Beaufort Scale) and no precipitation. As per the Ontario Breeding Bird Atlas, two rounds of surveys must take place between sunrise and five hours after sunrise between May 24 and July 10. Surveys took place during the mornings of June 2 and July 5, 2023.

A total of eight breeding bird survey stations (BBS) were established in representative habitats across the Study Area (Figure 2). Two stations were established on the Site, BBS 6 and BBS7 (Figure 2). All incidental observations were recorded while moving between survey points as well as during other surveys. Birds were identified by song and/or direct visual observation.

Bird species were classed as regionally rare based on an analysis of data from the Atlas of Breeding Birds of Ontario (2009) based on Hill's Site Regions, now Ecoregions. The federal and provincial significance of bird species were classed based on species' listings under Schedule 1 of SARA and the ESA, and species tracked by NHIC (MNRF, 2023c; for non-SAR species considered provincially significant).

4.2.7 Nightjars

Night-time bird surveys to confirm the presence/absence of at-risk nightjars, specifically Eastern Whip-poor-will (*Antrostomus vociferus*), and their potential breeding territories were conducted following the Survey Protocol for Eastern Whip-poor-will in Ontario (MNRF, 2014; Ontario Breeding Bird Atlas, 2021). This protocol calls for three separate nighttime surveys between May 18 and June 30 that are timed based on moon conditions. Eastern Whip-poor-wills 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 (Kaufman, 2019; The Cornell Lab of Ornithology, 2023). As such, this species is more detectable during a full moon period.



As per the draft protocol, surveys were completed within a week of the 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. Surveys were conducted under field conditions with no precipitation, little or no wind, clear skies, a temperature of 10°C or above, and good visibility (low cloud cover). The timing of Eastern Whip-poor-will surveys is also optimal for observing Common Nighthawk (*Chordeiles minor*), as that species is generally best heard calling in the late evening. MNRF (2014) recommends a minimum of three surveys to 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). Nightjar surveys took place on the evenings of May 29th, June 1st, and June 30th, 2023.

Survey points are to be established at 500 m intervals along the survey route (the aim is to have one survey point for every 30 ha of typical habitat). Two survey stations were used for nightjar surveys (EWPW1 and EWPW2; Figure 2), and these stations covered habitats that were considered most likely to support nightjars (i.e., they were close to edge habitats along wooded areas that would provide feeding opportunity near potential nesting areas). As per MNRF (2014), each point count station had a fixed radius of 300 m so that the absolute number of birds could be counted within a reasonable hearing range (note that calling Eastern Whip-poor-will can be heard up to 1 km away under ideal conditions). Surveyors were careful not to walk directly through suitable nightjar habitat in between survey stations to avoid stepping on any potential Eastern Whip-poor-will eggs, which are cryptically coloured and laid on the forest floor.

4.2.8 Anurans

Anuran (frog and toad) surveys were performed following the Marsh Monitoring Program (Birds Canada et al., 2008). This protocol calls for multiple survey stations across a site to capture spatial and habitat variability. The Marsh Monitoring Program advises that each station be visited three times at night, no less than 15 days apart, during the spring and early summer. Following this protocol, the timing of the three anuran 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.

Anuran surveys are to begin one half hour after sunset and end before midnight on evenings with appropriate temperatures and light winds (≤ 3 on the Beaufort Scale¹). Anuran surveys took place on the evenings of April 20th, May 23rd, and June 30th, 2023. Additional observations of amphibians were made throughout the spring and summer during other field visits. A total eight stations distributed across the Study Area to capture spatial and habitat variability. No stations were located directly on the Site due to lack of habitat. Stations MMP7 and MMP8 were located adjacent to the western Site boundary (Figure 2).

4.2.9 Bats and Other Mammals

Bat monitoring was completed 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 (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-coloured Bat (*Perimyotis subflavus*), where it is determined that potentially suitable habitat for the



establishment of maternity roosts is present. Wooded areas on the Site were deemed potentially suitable habitat for the establishment of maternity roosts during KAL's preliminary desktop review and initial field visits. Trees with characteristics suitable for bat roosting were observed in the area.

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 sonogram 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. KAL installed two acoustic monitors on the Site (Figure 2): one at the edge of the forested area on the north edge of the Site, and one at the edge of the forested area near the southeast corner of the Site. The acoustic monitors were placed in these locations to capture the best potential bat habitat on the Site (potential roosting habitat in wooded areas and potential foraging habitat over adjacent open areas) and to increase the likelihood of detecting bats based on their echolocating behaviour. Bats use echolocation more frequently in cluttered environments (Falk et al., 2014), so installing monitors along the edges of wooded areas rather than in the middle of open foraging areas likely increases bat detectability. The monitors were placed just outside of the cluttered environment (forested area) as the distinguishability of calls among species diminishes within such locations (National Park Service, 2020). Both monitors were installed on June 2, 2023, moved to a second location on June 13, 2023, and removed on July 4, 2023.

As part of a *Species Conservation Act* Registration and Conservation Plan commitments, an additional evening bat survey was conducted on April 5, 2026, to document whether any bats were present on or adjacent to the Study Area prior to clearing activities. The bat survey was completed in the evening using visual observation and acoustic monitoring, with systematic coverage of the remaining forested portions of the Study Area to detect potential bat activity. Acoustic monitoring was conducted using a handheld Wildlife Acoustics Echo Meter Touch 2 bat detector. Surveys took place starting approximately one hour after sunset. Two surveyors walked the perimeter of the proposed clearing area, stopping every 10 m to visually observe, record, and identify potential bats. Monitoring stops lasted approximately one minute, with longer monitoring periods of approximately three minutes within the forest unit and at the forest edge, where bats could potentially roost or forage.

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

5.0 RESULTS

5.1 General Natural Heritage Context

The nearest lands zoned EP-Environmental Protection surrounding the Site are approximately 850 m northwest of the northwest corner of the site. These EP lands are associated with the Fernbank Wetland (not a Provincially Significant Wetland [PSW]) located to the west of Stittsville Main Street. The closest PSW is the Goulbourn Wetland complex, located 1.8 km to the northwest of the Site. Wetland estimates from within the geoOttawa system (City of Ottawa, 2025b) purport the potential presence of wetland along the east edge of the site. Those mappings, however, are estimates from 2011 and this area has been subject to active agricultural usage since 2018. The currently existing extent of wetland cover is assessed in Sections 5.3 and 5.4 below.



There are no Areas of Natural and Scientific Interest in this portion of Stittsville (Muncaster, 2019). No environmental constraints were indicated on the Site in Schedule K of the City's previous Official Plan (Muncaster, 2019).

5.2 Landforms, Soils, and Geology

The topography of the broader area is generally flat with loamy, fine sand soils over clay or fluvial materials (Schut & Wilson, 1987). The eastern edge of the Site is indicated in regional soil maps as part Osgoode Association, with fine loamy sand with poor drainage. The remainder of the Site is indicated as part of the Reevecraig Association, also with (alkaline) loamy fine sand but typically over clay causing poor drainage. Soil cores taken across the Site during the ELC investigation confirmed the upper soil layers as consisting of ~80 cm of fine loamy sand, but generally hit fluvial-type material with sufficient gravel texture to preclude deeper coring.

5.3 Ecological Land Classification

A total of five distinct landcovers or ELC units were delineated on the Site (Figure 3). For each ELC unit identified, the dominant species observed are discussed in the following sections.

5.3.1 Dry – Moist Old Field Meadow Type (CUM1-1)

A Dry – Moist Old Field Meadow (CUM1-1) encompasses the majority of the Site, covering the easternmost portion of the Site from Flewellyn Road north to the Site boundary (Figure 3). The meadow is dominated by Queen Anne's Lace (*Daucus carota*), Canada Goldenrod (*Solidago canadensis*), and species of asters and grasses (Figure 4). The area was previously an agricultural area, supporting annual row crops, but it has been left as meadow in recent years. Soils within the meadow are characterized by moist, stiff clay to depths of approximately 20 cm, overlying rock.

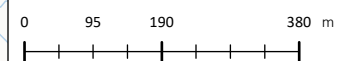




Legend

- | | | |
|-----------------------------|-----------|--------------------|
| Study Area | CUT1 | HDFA |
| Site Boundary (East Parcel) | FODM8-1 | Rear Yard Drainage |
| Faulkner Drain Enhancement | FOMM10-2 | Road Side Ditch |
| Notable Tree | Disturbed | To be Removed |
| ELC | CVR_4 | |
| CUM1-1 | | |

Figure 3. Existing Conditions



Spatial Reference:
PCS: WGS 1984 UTM Zone 18N
Map Units: Meter

Project: CAIV 1300
Map File Name: CAIV 1300 ArcGIS
Date Exported: 2026-05-08 1:59 PM





Figure 4 Dry – Fresh Old Field Meadow Type, looking west (CUM1-1)

5.3.2 Cultural Thicket Ecosite (CUT1)

A Cultural Thicket Ecosite (CUT1; Figure 5) is located in the northwest portion of the Site, between the hydro corridor and the properties situated at 5971, 6015, and 6025 Flewellyn Road (Figure 3). It is dominated by dense (but still young) Alder Buckthorn (*Rhamnus frangula*), Pussy Willow (*Salix disolor*), Red-osier Dogwood (*Cornus sericea*), and Balsam Poplar (*Populus balsamifera*) saplings (Figure 5). Groundcover is predominantly grass-dominated, with Field Horsetail (*Equisetum arvense*), Common Dandelion (*Taraxacum officinale*), and Canada Goldenrod. Soils within the thicket are characterized by moist clay overlying moist sand.





Figure 5. Cultural Thicket Ecosite (CUT1)

5.3.3 Fresh – Moist Poplar Deciduous Forest Type (FODM8-1)

A Fresh – Moist Poplar Deciduous Forest (FODM8-1) is situated surrounding the property at 5971 Flewellyn Road (Figure 3). It is characterized by a relatively open upper canopy of predominantly Trembling Aspen (*Populus tremuloides*), with occasional Silver Maple (*Acer saccharinum*), Northern Red Oak (*Quercus rubra*), and Bur Oak (*Quercus macrocarpa*; Figure 6). Average DBH measurements of Trembling Aspen ranged from 15 cm to 20 cm, with occasional trees around 35 cm. Two notable trees were documented in the southwest corner of the unit. Both were healthy, multi-stemmed Silver Maple trees measuring 91 cm and 77 cm. The subcanopy is characterized by abundant Manitoba Maple (*Acer negundo*) and scattered Eastern White Cedar (*Thuja occidentalis*). Dominant shrubs include Common Buckthorn (*Rhamnus cathartica*), Bush Honeysuckle (*Diervilla lonicera*), American Cranberry Bush (*Viburnum trilobum*), and American Black Currant (*Ribes americanum*). Dominant groundcover includes species of sedge (*Carex* sp.), Field Horsetail, Wild Strawberry (*Fragaria virginiana*), Calico Aster (*Symphyotrichum lateriflorum*), and Canada Goldenrod. Soils within the FODM8-1 unit are characterized by sandy clay loams overlying moist sand.





Figure 6 Fresh – Moist Poplar Deciduous Forest (FODM8-1)

5.3.4 Fresh – Moist White Spruce – Hardwood Mixed Forest Type (FOMM10-2)

A Fresh – Moist White Spruce – Hardwood Mixed Forest (FOMM10-2) is situated adjacent to Flewellyn Road (Figure 3). It is characterized by a dense stand of White Spruce (*Picea glauca*), with scattered White Birch, Trembling Aspen, and Silver Maple (Figure 7). The subcanopy is characterized by Manitoba Maple and Eastern White Pine (*Pinus strobus*). Dominant shrubs include Common Buckthorn and Bush Honeysuckle. Dominant groundcover includes Field Horsetail, Hedge Bedstraw (*Galium mollugo*), and species of sedge. Soils within the FOMM10-2 unit are characterized by stiff clay.





Figure 7 Fresh – Moist White Spruce – Hardwood Mixed Forest (FOMM10-2)

5.3.5 Rural Residential Property (CVR_4)

A Rural Residential Property (CVR_4) encompasses the central portion of the property at 5971 Flewellyn Road (Figure 3). It is characterized by a single-family residence, garage and driveway, surrounded by areas of lawn and planted garden beds (Figure 8).



Figure 8 Rural residential property (CVR_4) at 5971 Flewellyn Road



5.4 Surface Water, Groundwater and Fish Habitat

The Site is located within the Rideau River watershed and the Jock River subwatershed (Ministry of Natural Resources and Forestry – Government of Ontario, 2023; Rideau Valley Conservation Authority, 2023b). A channelized watercourse originating near Hickstead Way flows south, becoming the legal Faulkner Municipal Drain where it crosses the Study Area and hydro corridor to the south, turning east and becoming a roadside ditch along Flewellyn Road, towards Shea Road, associated with the southern boundary of the Site. The drain continues south down Shea Road, eventually joining the Flowing Creek Phase 1 Drain, just south of Brownlee Road (Figure 1). The channelized watercourse north of the legal Faulkner Municipal Drain, associated with the Study Area is hereby referred to as the “Upper Faulkner Watercourse”.

The HDFA identified six (6) HDFs/Tributaries located on and adjacent to the Study Area, one of which is associated with the Site.

5.4.1 Faulkner Drain

The Site contains a portion of the Faulkner Drain, which, per geoOttawa mapping, appears to be primarily a tributary of Flowing Creek. The Faulkner Drain and the Site are mapped within both the Flowing Creek catchment and the Monahan Drain catchment within RVCA catchment reports, suggesting that the Faulkner Drain is not a significant hydrological contributor to the overall subwatershed and catchment area. The Faulkner Drain is addressed, minimally, within the *Jock River Reach 2 & Mud Creek Subwatershed Study Existing Conditions Report* (Marshall Macklin Monaghan Limited, 2009). Descriptions in that subwatershed study are generally limited to noting that: the drain is a tributary to the Monahan Drain; it includes very few tributaries of its own; and is in generally poor condition. The subwatershed study does not set any specific setback requirements for watercourses other than to indicate that are to be set in accordance with the City’s Official Plan. An existing 18 m easement is registered in favour of the City over the length of the Study Area; the 18 m corridor extends northward into the adjacent community directly abutting existing development.

Under the current Official Plan, setbacks to water courses are determined in accordance with Section 4.9.3:

2) Where a Council-approved watershed, subwatershed or environmental management plan does not exist, or provides incomplete recommendations, the minimum setback from surface water features shall be the greater of the following:

a) Development limits as established by the conservation authority’s hazard limit, which includes the regulatory flood line, geotechnical hazard limit and meander belt;

b) Development limits as established by the geotechnical hazard limit in keeping with Council approved Slope Stability Guidelines for Development Applications;

c) 30 metres from the top of bank, or the maximum point to which water can rise within the channel before spilling across the adjacent land; and

d) 15 metres from the existing stable top of slope, where there is a defined valley slope or ravine.

However, per Policy 10):



10) In addition to the provisions for setbacks described in this section, development proposals next to municipal drains or other works under the Drainage Act shall also maintain clear access to the legal working space adjacent to the drain. This working space is defined in the engineer's report adopted through a By-law approved by Council under the Drainage Act for the construction and future maintenance of drainage works.

In the consideration of setback requirements for the drain, different from the standard values provided in OP Section 4.9.3 2), the ecological services that are, or would be provided by the setbacks must be considered. The Faulker Drain Tributary currently receives input from a stormwater management pond treating the runoff from the recent urban residential development immediately to the north of the Study Area, with 3:1 side slopes the channel cross-section is over 12 m wide from top-of-slope to top-of-slope. The typical trapezoid shape of the constructed channel, straight alignment, grass swale and minimal canopy cover greatly impact the aquatic habitat attributes of the channel. Existing residential land uses adjacent to the Upper Faulkner Watercourse just north of the Site provide minimal setback with the adjacent rear yard fencing < 10 m from the channel bank.

Where the Faulkner Drain originates in and crosses the hydro corridor, a setback is not directly specified here or considered relevant as the adjacent space there will continue to function, and be maintained, as hydro corridor regardless.

For the remainder of the Faulkner Drain directly associated with the Site, south of the hydro corridor area to its confluence with Flowing Creek (a distance of ~5 km), the feature currently exists solely as a roadside ditch located directly adjacent to the roadway with no natural setback or buffer; no natural riparian land exists for the entire length of the feature. The potential for functionality as habitat (beyond the existing forest) or as a wildlife corridor is considered negligible. A setback of 15 m from the existing stable top of slope will be maintained where the Faulkner Drain is directly adjacent to the Site, providing filtration of overland runoff to the drain, shading, and allochthonous inputs. Watercourse setbacks associated with the Faulkner Drain, applicable to the Site are discussed further in Section 7.2.

5.4.2 HDFA

The HDFA identified six (6) HDFs located on and adjacent to the Study Area. Three HDFs (Tributaries A, B and E) were previously present (Kilgour & Associates Ltd., 2023, 2024, 2025), and were removed during land clearing activities in winter 2026. Tributaries C and D, associated with the Study Area, have been retained as part of the broader Magnolia development. As Tributaries A-E are removed from the Site, these HDFs are not considered further in this report.

Tributary F is directly adjacent to the Site, and is a roadside ditch feature located along Shea Road at the northeastern Site boundary. It is located adjacent to the CUM1-1 vegetation community and connects downstream to the Faulkner Drain at the intersection with Flewellyn Road. It primarily functions as a drainage feature supporting spring run-off and after heavy rainfall. Breeding amphibians were not observed within this reach. Significant groundworks have and continue to occur in the southern portion of this tributary, and a large portion of this tributary has been altered and/or removed. This chain of classification descriptors leads to a management directive of Protection for this reach.



Standard HDFA management directives of “Protection” indicate that the feature may be maintained and/or enhanced, but typically should not be relocated. The general directive is for the feature to be protected and its riparian zone enhanced where feasible.

One minor HDF (Tributary G; Figure 3) was observed on the Site during the Site reconnaissance on May 6, 2026. This feature was observed at 5971 Flewellyn Road, a previous holdout parcel, and was thus not captured during the formal HDFA exercise in 2023 due to property access restrictions. The feature is characterized as an east/west ditch along the back (north) side of the property at 5971 Flewellyn Road, extending southward along the west edge of the property to the roadside ditch on the north side of Flewellyn Road. It is a narrow feature, approximately 50 cm in width. It is characterized as a poorly defined ditch along the north side of the property, and a more naturalized channel with sloping banks on the west side of the property. At the time of survey, water depths measured approximately 5-10 cm and flows were minimal. It is not anticipated that the feature supports fish or fish habitat.



Figure 9 HDF G at 5971 Flewellyn Road, looking south



5.4.3 Wetlands

No wetlands were observed on or adjacent to the Site.

5.4.4 Fish Habitat

The Faulkner Drain was subject to an extensive clean-out program by the City in 2022 between the Davidson SWM pond and its confluence with Flowing Creek ~5 km to the south. As is typical of municipal drain clean outs, the entire length of the feature was dredged with excavators to restore the trapezoidal form with no remaining organic substrate, woody structure or in-water vegetation. KAL conducted a fish relocation program along the entire length of the drain to support this work between August 8 and September 28, 2022. Fish species captured are indicated in Table 2 below.

Table 2. Fish species in the upper and lower reaches of the Faulkner Drain

Common Name	Species
* Blacknose Dace	<i>Rhinichthys atratulus</i>
Bluegill	<i>Lepomis macrochirus</i>
* Bluntnose minnow	<i>Pimephales notatus</i>
* Brook Stickleback	<i>Culaea inconstans</i>
* Central Mudminnow	<i>Umbra limi</i>
Central Stoneroller	<i>Campostoma anomalum</i>
* Common Shiner	<i>Luxilus cornutus</i>
* Creek Chub	<i>Semotilus atromaculatus</i>
* Fathead Minnow	<i>Pimephales promelas</i>
* Finescale Dace	<i>Chrosomus neogaeus</i>
Golden Shiner	<i>Notemigonus crysoleucas</i>
* Johnny Darter	<i>Etheostoma nigrum</i>
Long Nose Dace	<i>Rhinichthys cataractae</i>
Northern Pike	<i>Esox lucius</i>
* Northern Redbelly Dace	<i>Chrosomus eos</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
* Rock Bass	<i>Ambloplites rupestris</i>
* White Sucker	<i>Catostomus commersonii</i>

* Species caught in upper reaches of the Drain in proximity to the Site. Other fish species were only present in the lower reaches.

5.5 Wildlife Surveys

5.5.1 Breeding Birds

Morning breeding bird surveys were conducted on the dates outlined in Table 3.



Table 3 Summary of dates and weather conditions of morning breeding bird surveys, 2023

Date	Cloud Cover (%)	Air Temperature (°C)	Wind (Beaufort)
June 2, 2023	30	18	2
July 13, 2023	100	15	2
July 5, 2023	0	24	1

A total of 44 bird species were observed within the Study Area via morning breeding bird surveys and incidental observations. A list of all bird species observed and their respective observation dates and stations, and highest breeding evidence is included in Appendix B. BBS6 and BBS7 correspond to the Site (Figure 2). The most commonly observed species during breeding bird surveys on the Site were Alder Flycatcher (*Empidonax alnorum*), American Crow (*Corvus brachyrhynchos*), American Robin (*Turdus migratorius*), Common Yellowthroat (*Geothlypis trichas*), Ring-billed Gull (*Larus delawarensis*), Song Sparrow (*Melospiza melodia*), and Yellow Warbler (*Setophaga petechia*).

5.5.2 Nightjars

KAL surveyors completed nightjar surveys on May 29th and June 1st and 29 2023 (Table 5), two during the first moon cycle and one in the next moon cycle, per MNRF (2014) protocols.

Table 4 Summary of dates and weather conditions of nightjar surveys, 2021

Date	Cloud Cover (%)	Air Temperature (°C)	Wind (Beaufort)	Moon Illumination (%)	Moon Visibility (%)
2023-05-29	0-25	18	0	75	100
2023-06-01	50-75	29	1	90	90
2023-06-29	0	22	0	70	100

No Eastern Whip-poor-will were heard calling at either station during any of the three surveys. No Common Nighthawks were observed on the Site or within the Study Area.

5.5.3 Anurans

Anuran surveys were performed on April 20th, May 23rd, and June 30th, 2023, at eight stations distributed across the Study Area to capture spatial and habitat variability. A total of five frog species were observed within the Study Area via evening Frog surveys and incidental observations. No anurans were observed on the Site. A summary of the weather conditions during the anuran survey is provided in Table 5. Frog species and their respective stations and calling codes are summarized in Table 7. Station locations are shown in Figure 2.



Table 5 Dates and weather conditions of anuran surveys

Date/Time	Wind (Beaufort Scale)	Air Temperature (°C)	Cloud Cover (%)	Precipitation
2023-04-20	1	8	30	None
2023-05-23	0	20	0	None
2023-06-30	0	22	0	None

Table 6 Summary of anurans detected during anuran surveys

Common Name	Scientific Name	Station(s) Observed	Survey Date(s) Observed	Highest Calling Code ¹
American Toad	<i>Anaxyrus americanus</i>	MMP1, MMP3, MMP4, MMP5, MMP6, MMP7	2023-05-23, 2023-06-29	1
Green Frog	<i>Rana clamitans</i>	MMP6, MMP7	2023-06-29	2
Spring Peeper	<i>Pseudacris crucifer</i>	MMP4, MMP5, MMP6, MMP8	2023-04-20, 2023-05-23	3
Western Chorus Frog	<i>Pseudacris triseriata</i>	MMP5	2023-04-20	3
Wood Frog	<i>Lithobates sylvaticus</i>	MMP1, MMP5, MMP6	2023-04-20	3

Table Notes: ¹Calling codes are defined as follows (Birds Canada et al., 2008): **1** – Calls not simultaneous, individuals can be accurately counted; **2** – Some calling simultaneous, individuals reliably estimated; **3** – Full chorus, continuous and overlapping, individuals not reliably estimated.

5.5.4 Bats and Other Mammals

Two acoustic bat monitors were installed for 14 nights and placed facing an open meadow community, where the greatest likelihood for bat activity would occur within the Study Area. Conditions were ideal with mainly clear or cloudy nights and warm temperatures ($\geq 15^{\circ}\text{C}$). The most commonly observed bat species include the Big Brown Bat (*Eptesicus fuscus*), Hoary bat (*Lasiurus cinereus*), and Silver-haired Bat (*Lasionycteris noctivagans*). The southern bat monitor was placed on June 2nd, 2023, within the hydro corridor. The northern bat monitor was installed on June 2nd, 2023, in a formerly forested community and moved to a second location on June 13, 2023, to cover a wider area of the former northern forest. Bat monitor locations are shown in Figure 2.

Table 7. Summary of bat recordings from acoustic monitoring

Survey Station	Survey Dates	Habitat Description	Big Brown Bat	Eastern Red Bat	Hoary Bat	Little Brown Bat	Silver-haired Bat	Tri-Colored Bat	Mean Number of Calls per Night
AM-1 (North)	2023-05-25 to 2023-06-02	Mixed forest opening to a small meadow	85	0	2	0	37	1	9



Survey Station	Survey Dates	Habitat Description	Big Brown Bat	Eastern Red Bat	Hoary Bat	Little Brown Bat	Silver-haired Bat	Tri-Colored Bat	Mean Number of Calls per Night
AM-2 (South)	2023-05-25 to 2023-06-02	Open hydro corridor with sparse shrubs and trees	2108	12	1761	1	4229	5	585

5.6 Species at Risk

Species listed provincially as Extirpated, Endangered and Threatened are afforded species and habitat protection under the SCA. Protections under SARA are in force for federally listed species of fish and migratory birds. For species of other groups, SARA typically only applies on federal lands or on projects having some level of participation with or oversight by the federal government. However, SARA-based protections can be imposed by ministerial order on a case-by-case basis when provincial-level protections are deemed inadequate to protect a species. Such additional SARA protections are not expected to apply to the Site.

The Preliminary SAR screening identified a total of 36 SAR with some potential to occur within the broader vicinity of the Site (Appendix C). The initial SAR assessment in Appendix C considered whether:

- The existing site conditions could provide suitable habitat;
- The presence of individuals was likely or feasible, given conditions in the broader area; and
- Individuals or habitat could interact with the project, considering the intrinsic project approach and/or timing (but not considering mitigations that may still need to be prescribed).

Of the 36 species screened for review in this EIS, 21 were initially assessed to have some potential to occur on the Site, have protected habitat on the Site, and/or to interact with the proposed project (Table 9; Appendix C).

Table 8 SAR initially assessed for further consideration on the Site

Common Name	Taxonomic Name	SCA Status (O. Reg. 60/26)	SARA Status (Schedule 1)	Observed on Site	Assessed Potential to Interact with Project
Birds					
Barn Swallow	<i>Hirundo rustica</i>	Threatened	Threatened	Not observed in the Study Area or onsite during targeted breeding bird surveys	Negligible potential for negative interactions if tree clearing occurs outside of the active season
Bobolink	<i>Dolichonyx oryzivorus</i>	Not Listed	Threatened	Not observed in the Study Area or onsite during targeted breeding bird surveys	Negligible potential for negative interactions if tree clearing occurs outside of the active season
Common Nighthawk	<i>Chordeiles minor</i>	Not Listed	Special Concern	Not observed in the Study Area or	Negligible potential for



Common Name	Taxonomic Name	SCA Status (O. Reg. 60/26)	SARA Status (Schedule 1)	Observed on Site	Assessed Potential to Interact with Project
				onsite during targeted breeding bird surveys	negative interactions if tree clearing occurs outside of the active season
Eastern Meadowlark	<i>Sturnella magna</i>	Not Listed	Threatened	Not observed in the Study Area or onsite during targeted breeding bird surveys	Negligible potential for negative interactions if tree clearing occurs outside of the active season
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Not Listed	Threatened	Not observed in the Study Area or onsite during targeted breeding bird surveys	Negligible potential for negative interactions if tree clearing occurs outside of the active season
Eastern Wood-Pewee	<i>Contopus virens</i>	Not Listed	Special Concern	Observed in the Study Area during targeted breeding bird surveys, but no direct observations onsite	Low potential for negative interactions if tree clearing occurs outside of the active season
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	Not Listed	Special Concern	Not observed in the Study Area or onsite during targeted breeding bird surveys	Negligible potential for negative interactions if tree clearing occurs outside of the active season
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Not Listed	Special Concern	Not observed in the Study Area or onsite during targeted breeding bird surveys	Negligible potential for negative interactions if tree clearing occurs outside of the active season
Rusty Blackbird	<i>Euphagus carolinus</i>	Not listed	Special Concern	Not observed in the Study Area or onsite during targeted breeding bird surveys	Negligible potential for negative interactions if tree clearing occurs outside of the active season
Mammals					
Eastern Red Bat	<i>Lasiurus borealis</i>	Endangered	Not Listed	Detected in the Study Area; no survey stations encompassing the Site	Low potential for negative interactions if tree clearing occurs outside of the active season
Eastern Small-footed Myotis	<i>Myotis leibii</i>	Endangered	Not Listed	Not detected on the Study Area	Negligible
Hoary Bat	<i>Lasiurus cinereus</i>	Endangered	Not Listed	Detected in the Study Area; no survey stations encompassing the Site	Low potential for negative interactions if tree clearing occurs outside of the active season
Little Brown Myotis	<i>Myotis lucifugus</i>	Endangered	Endangered	Detected in the Study Area; no survey stations	Low potential for negative interactions if tree



Common Name	Taxonomic Name	SCA Status (O. Reg. 60/26)	SARA Status (Schedule 1)	Observed on Site	Assessed Potential to Interact with Project
				encompassing the Site	clearing occurs outside of the active season
Northern Myotis	<i>Myotis septentrionalis</i>	Endangered	Endangered	Not detected in the Study Area	Negligible
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Endangered	Not Listed	Detected in the Study Area; no survey stations encompassing the Site	Low potential for negative interactions if tree clearing occurs outside of the active season
Tri-colored Bat	<i>Perimyotis subflavus</i>	Endangered	Endangered	Detected in the Study Area; no survey stations encompassing the Site	Low potential for negative interactions if tree clearing occurs outside of the active season
Amphibians					
Western Chorus Frog	<i>Pseudacris triseriata</i>	Not Listed	Threatened (Great Lakes/ St. Lawrence – Canadian Shield Population)	Detected in the Study Area during targeted evening anuran surveys. Observed at a single station (MMP#5) in a forested area >300 m away from the current Site. This species was not observed at stations nearer to the Site or at stations in similar thicket habitats.	Low
Arthropods					
Monarch	<i>Danaus plexippus</i>	Not Listed	Endangered	Not detected on the Site; targeted surveys not undertaken. Milkweed plants observed throughout the Study Area.	Moderate
Yellow-banded Bumble Bee	<i>Bombus terricola</i>	Not Listed	Special Concern	Not detected on the Site; targeted surveys not undertaken	Moderate
Vascular Plants					
Butternut	<i>Juglans cinerea</i>	Endangered	Endangered	Detected in the Study Area but not onsite	None
Black Ash	<i>Fraxinus nigra</i>	Endangered	No Status	Detected in the Study Area but not onsite	None

SAR presented in Table 9 that are not listed under the SCA and listed as Special Concern under SARA are not considered further as SAR in this report because they do not receive individual or habitat protection (whereas Threatened and Endangered species do under both legislations). However, individuals of those species are protected under other regulations addressing wildlife conservation generally, such as the FWCA, MBCA, and the PPS. In addition, species listed as Special Concern may receive habitat protection if they are observed in



habitats that meet the criteria for designation as Significant Wildlife Habitat (SWH) for Special Concern Species (MNRF, 2015).

Of the protected SAR studied, six (Eastern Red Bat, Hoary Bat, Little Brown Myotis, Silver-haired Bat, Tri-colored Bat, and Monarch) were considered to have some potential to interact with the proposed project. These species are discussed further below.

5.6.1 SAR Bats

Eastern Red Bat, Hoary Bat, Little Brown Myotis, Silver-haired Bat, and Tri-colored Bat were detected through acoustic monitoring in the Study Area. These species likely forage and/or roost in proximity to the Site.

Roosting habitat for SAR bats includes buildings, rock crevices, exfoliating tree bark, foliage, and cavities and crevices in trees (Humphrey & Fotherby, 2019). These species generally forage over clearings adjacent to forests, and over water. The meadow and thicket areas may provide foraging habitats for SAR bats, and the forest stands may provide some roosting potential. The forest stands on the Site mainly support small to medium-sized trees, with some large-diameter trees scattered throughout the Site. The large-diameter trees were generally observed to be in good to fair condition. No snags, significant exfoliating bark, large cavities, or trees with high potential for bat roosting were observed on the Site; therefore, the Site is unlikely to provide opportunity for bat maternity colonies but may provide non-maternal roosting and foraging habitat.

Bat hibernacula generally include subterranean openings, including caves, abandoned mines, wells, and tunnels (Environment Canada, 2015; MNRF, 2017). Potential underground structures for bat hibernation were not observed on the Site.

5.6.2 Monarch

The Monarch Butterfly is listed as Endangered under SARA. Monarchs almost exclusively require Milkweed (*Asclepias* sp.) plant species for breeding and feeding. Adult Monarchs also use other wildflowers for nectar, especially when milkweeds are not in bloom; alternate species include goldenrods (*Solidago* spp.), asters (*Doellingeria* spp., *Eurybia* spp., *Oclemea* spp., *Symphytrichum* spp., *Virgulus* spp.), Purple Loosestrife (*Lythrum salicaria*), and clovers (*Trifolium* spp. and *Melilotus* spp.). Common Milkweed is noted to occur in the Study Area. Canada Goldenrod, and species of aster and clover were observed in the meadow community and have potential to be used by Monarchs.

In southern Canada, it is recommended that land management activities (e.g., mowing) be conducted when Monarch are absent from the region (generally October 5 to May 15) to avoid potential impacts to Monarchs at any life stage (Canadian Wildlife Federation, 2022).

5.7 Significant Woodlands and Canopy Cover

The City of Ottawa's (2022c) Significant Woodland Policy, defines Significant Woodlands within the urban boundary as any area 0.8 hectares in size or larger, supporting woodland 60 years of age and older at the time of evaluation. Significant Woodland on the Site was investigated by delineating the boundaries of wooded areas on and adjacent to the property based on aerial imagery from 1963¹ (Appendix D). Portions of

¹ National Air Photo Library Roll A18057, Photo 0049, Dated 1963-05-24



the demarcated areas that were noted as subsequently deforested in historical aerial imagery between 1976 and 2026 within the geoOttawa system were removed. Remaining areas greater than 0.8 ha in size were deemed to constitute Significant Woodland. No portion of the Site constitutes Significant Woodland.

An iTree Canopy assessment of the Site compares the canopy services across the Site generally (City of Ottawa, 2022c). Assessments were each based on distributions of 100 random sample points across the entire Site.

Table 9 Assessment of Site Canopy Benefits

Land Cover Distribution			
Land Cover Type	General Site		
	Area (ha)	Area (%)	
Tree	1.99 ± 0.81	6.00 ± 2.45	
Non-Tree	31.24 ± 0.79	94.00 ± 2.37	
Total	33.23	100%	
Tree Benefit Estimates: Carbon			
	General Site		
	Carbon (t) ± SE	CO ₂ Equiv. (t) ± SE	Value (CAD) ± SE
Sequestered annually in trees	6.10 ± 2.49	22.38 ± 9.14	\$3,976 ± \$1,623
Total stored in trees	153.26 ± 62.57	561.96 ± 229.42	\$99,847 ± \$40,762
Tree Benefit Estimates: Air Pollution			
Pollutant Removed Annually	General Site		
	Amount (kg) ± SE	Value (CAD) ± SE	
CO - Carbon Monoxide	2.02 ± 0.82	\$1 ± 0	
NO ₂ - Nitrogen Dioxide	10.10 ± 4.12	\$0 ± 0	
O ₃ - Ozone	107.38 ± 43.84	\$19 ± 8	
SO ₂ – Sulfur Dioxide	10.09 ± 4.12	\$0 ± 0	
PM2.5 - Particulate Matter <2.5 µm	5.31 ± 2.17	\$39 ± 16	
PM10 - Particulate Matter 2.5 – 10 µm	38.16 ± 15.58	\$113 ± 46	
Tree Benefit Estimates: Hydrological			
Benefit	General Site		
	Amount (l) ±SE	Value (CAD)	
Avoided Runoff	16.75 ± 6.84	\$54 ± 22	
Evaporation	1,382.01 ± 564.20	N/A	
Interception	1,388.90 ± 567.02	N/A	
Transpiration	2,141.53 ± 874.28	N/A	
Potential Evaporation	10,507.91 ± 4,289.84	N/A	
Potential Evapotranspiration	10,507.91 ± 4,289.84	N/A	



The Site provides 6% canopy cover in its existing condition. The iTree tree review then provides a metric of the services currently provided by the site trees.

Residential areas should target a minimum of 20% canopy cover at maturity and streetscapes should target at least 30% canopy cover at maturity. Open lands associated with SWM facilities should target at least 15% canopy cover at maturity and park spaces that are not otherwise specifically programmed as sports fields should target at least 50% canopy cover at maturity to generate (semi-) wooded features that would be distributed across the future community.

5.8 Significant Wildlife Habitat

The Significant Wildlife Habitat (SWH) Criteria Schedule for Ecoregion 6E (MNRF, 2015) identifies four main types of significant wildlife habitat: seasonal concentration areas, rare vegetation communities, specialized habitat for wildlife and habitats of Species of Conservation Concern.

5.8.1 Seasonal Concentration Areas

Seasonal concentration areas include stopover and staging areas for waterfowl, shorebirds, landbirds and butterflies, wintering areas for raptors, bat hibernacula, bat maternity colonies, wintering areas for turtles, reptile hibernacula, breeding habitats for colonially-nesting birds, and deer yarding and congregation areas.

A linear rock pile is situated at the west edge of the cultural meadow (CUM1-1) and is characterized by large rocks with crevices and fissures (Figure 10). This feature meets the criteria for Candidate SWH for Reptile Hibernacula. No snakes were observed incidentally near the feature. No other seasonal concentration areas were observed on the Site.



Figure 10 Rock pile at edge of cultural meadow area

5.8.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare Vegetation Communities

Rare vegetation communities typically include those that have developed on cliff and talus slopes, sand barrens, shallow soils over limestone bedrock (alvar), old growth forests, savannahs, and tallgrass prairies. No rare vegetation communities were observed on the Site.

Specialized Wildlife Habitat

Specialized Wildlife Habitat includes waterfowl nesting areas, Bald Eagle and Osprey nesting, foraging and perching habitat, woodland raptor nesting habitat, turtle nesting areas, seeps and springs, woodland amphibian breeding habitat, wetland breeding habitat, and woodland area-sensitive bird breeding habitat.

Woodland amphibian breeding habitat is present on the Site. KAL's amphibian surveys recorded the presence of Spring Peeper (*Pseudacris crucifer*), Western Chorus Frog (*Pseudacris triseriata*), and Wood Frog (*Lithobates sylvaticus*) within the MMP5 and MMP6 stations, all of which are listed as qualifying significant wildlife species in the SWH criteria. As two or more of these species with a Call Level Code of 3 were recorded, the habitat of the breeding area plus a 230 m radius of woodland area qualifies as SWH. Only the areas near MMP5 and MMP6 stations, therefore, qualified as SWH; no qualifying SWH is present on the Site.

No other Specialized Wildlife Habitats were identified or observed on the Site.

Habitats of Species of Conservation Concern

Habitats of Species of Conservation Concern include marsh bird breeding habitat, open country bird habitat, shrub/early successional bird breeding habitat, terrestrial crayfish and special concern and rare wildlife species. Habitats of Species of Conservation Concern do not include habitats of Endangered or Threatened species as identified by the ESA. Our background review did not identify the presence of any of the Habitats of Species of Conservation Concern for marsh bird breeding habitat, open country bird habitat, shrub/early successional bird breeding habitat, or terrestrial crayfish. No species of conservation concern were observed on the Site.

5.9 Other Natural Heritage Features

No Provincially Significant Wetlands (PSW) and/or Areas of Natural and Scientific Interest (ANSI) are located on or adjacent to the Site. The Site does not contain significant valleylands or greenspace linkages. No other significant natural heritage features are located within 120 m of the Site.

Two notable trees were documented in the southwest corner of the property at 5971 Flewellyn Road. The trees are situated in the Fresh – Moist Poplar Deciduous Forest (FODM8-1) unit that extends around the periphery of the property. Both trees are healthy, multi-stemmed Silver Maples measuring 91 cm and 77 cm.

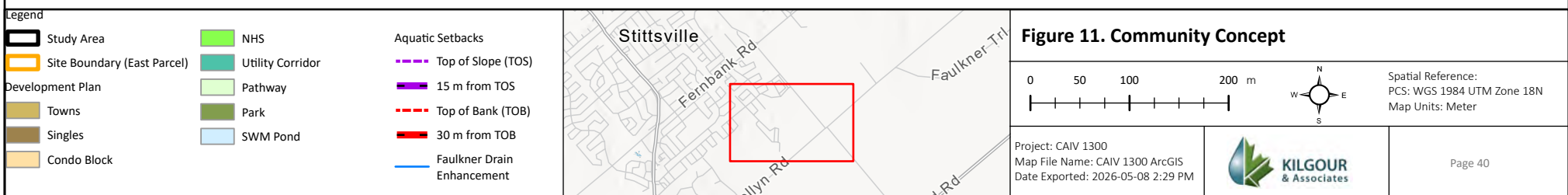
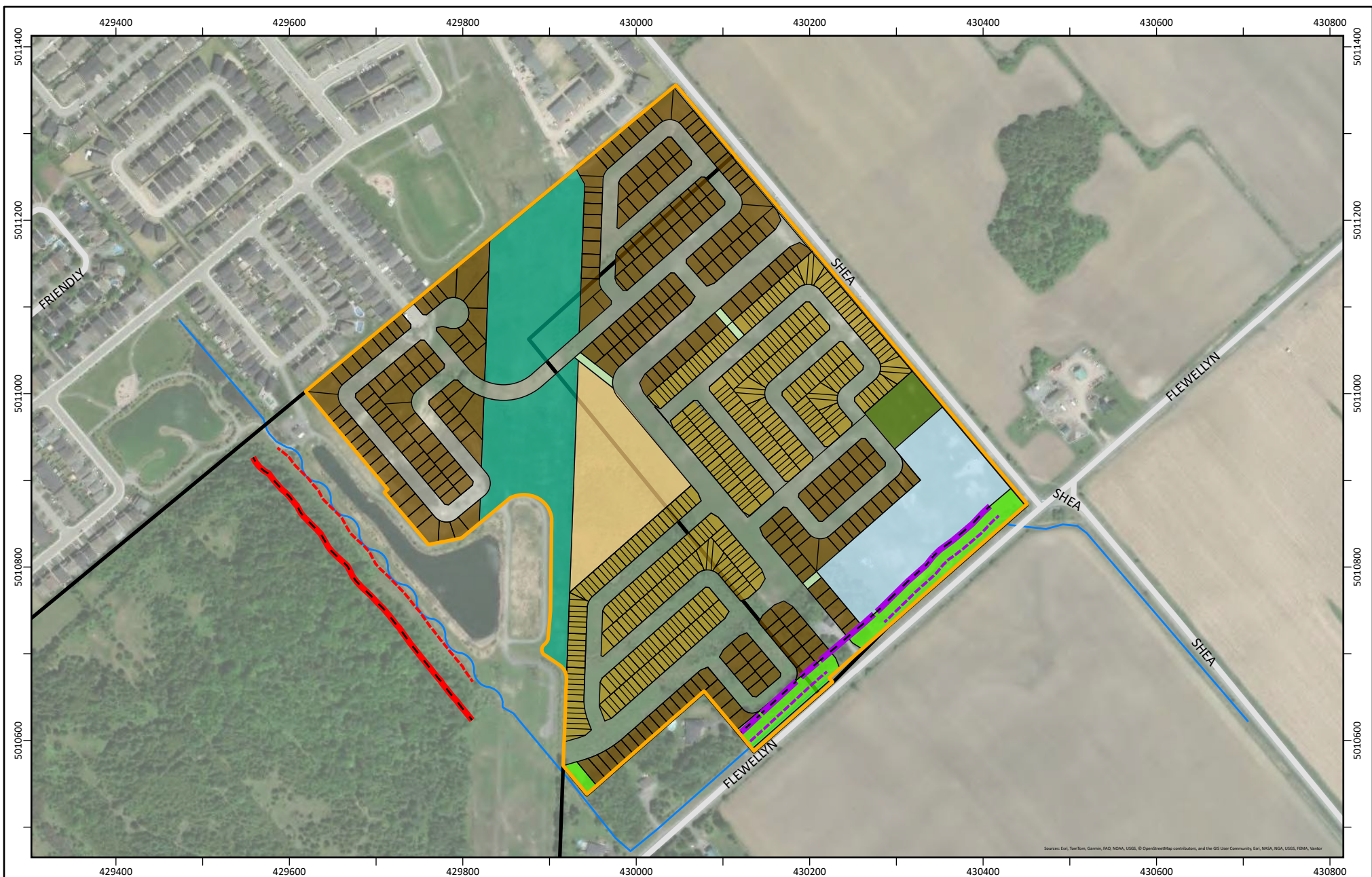


6.0 DESCRIPTION OF THE PROPOSED PROJECT

The proposed Draft Plan of Subdivision (Figure 11) includes a mix of single detached, standard townhouse, and stacked condominium residential areas. One park is proposed along the eastern Siteboundary, north of the southeast SWM pond. The existing utility corridor will be maintained as an open space area. No development is proposed within the utility corridor other than the street 12/13 and street 21 crossings and proposed enhancements to the Upper Faulkner Watercourse. Street widening areas are proposed to accommodate the future widening of Shea Road (Block 58) and Flewellyn Road (Block 59).

For stormwater considerations, one SWM pond is proposed to be located in the southeast corner of the Site, based on the existing site topography and technical and cost constraints per the Master Servicing Study (MSS) dated July 2024, prepared by DSEL. The SWM pond is located at a relatively lower elevation than the remainder of the Site to effectively receive site runoff, but it cannot be at a lower elevation than the downstream receivers to which it drains. The required elevations for the pond relative to both the Site and the surrounding areas require that most of the Site be regraded (DSEL, 2024). The pond block has been sized and located such that outflow systems will be limited to pipe connections to the immediately adjacent Faulkner Drain. As such, the area within the SWM block is dedicated almost entirely to SWM functionality, though the outer perimeter of the circumferential access road/berm may still include limited tree planting to augment tree planting within the 15 m TOS setback from the Faulkner Drain along Flewellyn Road.





An existing naturalized corridor including at least 30 m from the top of its channel bank of natural riparian vegetation and Significant Woodland along the west side of the Upper Faulkner Watercourse (adjacent to the Site, within the Study Area; Figure 11) will be retained as natural heritage lands, thus providing a 30 m setback. Existing forest cover on the western half of the Study Area has been fully removed to accommodate development, except for the 30 m forested setback from the Upper Faulkner Watercourse. The Faulkner Drain, where it is not directly adjacent to the utility corridor or other properties not part of the proposed development, would be retained as natural heritage lands within the East Parcel and include a 15 m setback from the top of slope on the Site (Figure 11). The setback is proposed to be planted with medium-sized trees to provide some shading and allochthonous inputs to the channel. The south bank of the Faulkner Drain would remain adjacent to Flewellyn Road to maintain its current functionality as a roadside ditch.

Other than the Faulkner drain and Tributary G along the southern edge of the parcel (discussed and detailed below), no preexisting natural features are located directly within the East Parcel. As such, there are no specific grading restrictions or limitations (outside of the Faulkner drain corridor) required to protect such features.

The Site currently has an extremely limited number of trees. Thus, development will lead to increased urban canopy cover with streetscape tree planting, parks, and SWM ponds within the eastern half of the Site. Overall canopy cover on the Site would likely be increased from 6% to 32% (NAK Design Strategies, 2025), not considering park blocks. While tree cover is not generally feasible within the hydro corridor, the site landscape plan is recommended to naturalize that area as further public greenspace for the community. Employing low-height canopy enhancements through the planting of thickets can be expected to further increase the Site canopy cover. Canopy coverage is based on average expected mature diameter of ~12.5m, area of 138m² (combination of medium and large sized trees). Calculation accounts for canopy overlap between trees and excludes canopy overlap to non-residential lands (NAK Design Strategies, 2025).

7.0 IMPACT ASSESSMENT

The development of the Site is not anticipated to have significant impacts on its ecological function. Impact assessment consideration for this portion of the Site is limited to Tributaries F and G, the Faulkner Drain, and associated setbacks along Flewellyn Road. The assessment of impacts is based on the proposed development compared to existing Site conditions observed in 2023, 2024, and 2026.

7.1 Impacts to Vegetation and Canopy Cover

The initial estimate of likely overall mature canopy coverage for the future Site is 32% (NAK Design Strategies, 2025). The assessment of existing conditions (Section 5.7) considered tree functions across the Site. The iTree Canopy assessment of the Site post-development (Table 12) employs the same 100 sample points used for the initial “whole-site” assessment. Future tree presence for each point was weighted based on a projected estimate of 32% (NAK Design Strategies, 2025).



Table 10 Post-Development Assessment of Canopy Benefits

Land Cover Distribution			
Land Cover Type	General Site (post-development)		
	Area (ha)	Area (%)	
Treed (i.e. with canopy)	10.64 ± 1.55	32.00 ± 4.66	
Not Treed	22.60 ± 1.55	68.00 ± 4.66	
Total	33.24	100%	
Tree Benefit Estimates: Carbon			
	General Site (post-development)		
	Carbon (t) ± SE	CO2 Equiv. (t) ± SE	Value (CAD) ± SE
Sequestered annually in trees	32.55 ± 4.74	119.34 ± 17.40	\$21,204 ± 3,091
Total stored in trees	817.40 ± 119.16	2,997.12 ± 436.90	\$532,519 ± 77,627
Tree Benefit Estimates: Air Pollution			
Pollutant Removed Annually	General Site (post-development)		
	Amount (kg) ± SE	Value (CAD) ± SE	
CO - Carbon Monoxide	10.77 ± 1.57	\$6 ± 1	
NO ₂ - Nitrogen Dioxide	53.86 ± 7.85	\$2 ± 0	
O ₃ - Ozone	572.69 ± 83.48	\$100 ± 15	
SO ₂ – Sulfur Dioxide	53.80 ± 7.84	\$0 ± 0	
PM2.5 - Particulate Matter <2.5 µm	28.30 ± 4.13	\$209 ± 31	
PM10 - Particulate Matter 2.5 – 10 µm	203.50 ± 29.67	\$600 ± 87	
Tree Benefit Estimates: Hydrological			
Benefit	General Site (post-development)		
	Amount (l) ±SE	Value (CAD) ± SE	
Avoided Runoff	89.33 ± 13.02	\$288 ± 42	
Evaporation	7,370.70 ± 1,074.46	N/A	
Interception	7,407.49 ± 1,079.82	N/A	
Transpiration	11,421.51 ± 1,664.96	N/A	
Potential Evaporation	56,042.18 ± 8,169.48	N/A	
Potential Evapotranspiration	56,042.18 ± 8,169.48	N/A	

The overall impact to vegetation and canopy cover as a result of the proposed development would be the removal of all trees, small forested areas, and vegetation on the Site to accommodate development (Figure 11). A total of 1.74 ha of forest will be removed to accommodate development.



Trees along the southern portion of the Faulkner Drain adjacent to the hydro corridor (Block 60) and along Flewellyn Road will be retained within holdout parcels, and the 15 m setback from the northern existing stable top of slope will be planted to achieve a minimum of 80% canopy cover at maturity.

Tree planting will be undertaken across the Site associated with SWM ponds, park blocks, setback lands, and streetscaping. Tree planting to be completed across the entire Site is anticipated to provide 32% canopy cover at maturity (NAK Design Strategies, 2025). The Preliminary Streetscape Plan (NAK Design Strategies, 2025) provides single and multiple tree soil volumes (m³) and demonstrates sufficient soil volume to support medium and large sized trees in street cross sections, and right of ways. Tree planting will be undertaken to the extent possible to meet the estimate of 32% overall mature canopy coverage.

While Site landscaping plans will require new trees generally within SWM blocks, planting along the sides of the SWM block will augment urban forest with a focus on establishing areas of denser tree coverage, maximized in width to the highest extent possible while allowing operational space. Pathways associated with these concentrated areas of tree planting are intended to provide recreational walkways under a nearly full canopy at maturity near the pond feature within the blocks. Similarly, areas of tree planting with a higher density in park blocks would establish further urban forest canopy. The existing, non-publicly accessible hydro corridor will also result in 9.4 ha of publicly accessible open space with enhanced opportunities for recreational pathways and increased social value. Including the consideration of other open space areas, 88% of the community within the Study Area is located within 250 m of public greenspace. Overall changes in forest function and canopy cover are indicated in Table 13.

Table 11 Summary of Changes in Canopy and Forest Function

Ecosystem Service	Change	
Social Value	Existing - Private land, no public access Proposed - New community with 32% urban canopy cover	
Public Greenspace (Natural Areas, Parks, Open Space)	Existing - Private land, no public access Proposed (Total Magnolia Community) -1.8 ha of retained mature forest with recreational access for the East Parcel, 23.4 acres of open space, with proposed recreational pathways in hydro corridor Proposed (East Parcel) – had no mature forest initially present (i.e there is no mature forest to be retained). The Site will include 7.48 ha of open space (22.5%)	
Percent of the community within 250 m of public greenspace	Existing - Private land, no public access Proposed – 100%, of the East Parcel portion of the Magnolia Community will be situated within 250 m of public greenspace	
	Existing Site Total	Proposed Site Total
Canopy Cover (Total for site)	6%	32% (higher if low-height tree coverage is maintained within the hydro corridor)
	Change Relative to Total Site	
Carbon Storage (t/yr)	+26.45	
CO removal (kg/yr)	+8.75	
NO2 removal (kg/yr)	+43.76	
Ozone removal (kg/yr)	+465.31	



SO2 removal (kg/yr)	+43.71
PM 2.5 removal (kg/yr)	+22.98
Avoided Runoff (l/yr)	+72.58

7.2 Impacts to Surface Water Features

Direct fish habitat occurs on the Site in the Faulkner Drain, Tributary C within the roadside ditch. Fish were otherwise absent from all other headwater channels.

Tributaries C, D, and F will be maintained. Tributary G will be removed. Habitat enhancements along the Upper Faulkner Watercourse (Figure 11) and the Faulkner Drain through extensive planting efforts providing shading, allochthonous inputs, fish habitat elements, and improved filtration can be implemented to replicate the function of the removed tributary.

Road crossings of the Faulkner channel(s) would require the use of a box culvert sufficiently wide to accommodate the maximum wetted width of the channel. Regardless, any such crossings would need to be supported by an RFR to DFO and an RVCA Permit. Compliance with the requirements issued accordingly from those agencies for the final design and construction approach for the crossings would ensure that potential impacts of the crossing to adjacent aquatic habitat would be suitably mitigated.

The Faulkner Drain along the south side of the Site currently serves primarily as a roadside ditch to Flewellyn Road along its south bank and has active farmland immediately adjacent to its north bank. The treed 15 m setback from the top of slope on the Site would provide shading and allochthonous inputs to the channel and is considered to be sufficient to both protect and enhance the functionality of the drain corridor.

Tributary G is a minor ephemeral feature that is anticipated to be limited to the collection of overland flow during large storm events, transporting water downstream to the Faulkner Drain. It is not anticipated to support fish or fish habitat. Due to its minor form and function, the removal of Tributary G is not anticipated to negatively impact the ecological function of the Site. Flows received by this feature will be captured effectively by the stormwater system and discharged into the Faulkner Drain at the southeast corner of the Site, providing no change to the outlet receiver.

The 15 m setback is contemplated from the top of slope in its existing position, as the City has no current plans to alter the road location (i.e. nor the banks of the Faulkner Drain). If a future widening of Flewellyn Road were to be required, high-density residential development directly adjacent to the current road corridor along the western half of the Site (i.e. west of the Faulkner Drain) would likely force the road corridor to expand southward (i.e. leaving the Faulkner Drain alignment unchanged).



7.3 Impacts to Species at Risk

A total of 21 species subject to protections as SAR under the SCA and/or SARA were initially considered to have a moderate to high potential to occur on the Site and/or interact with the project (Table 9). No SAR were observed on the Site or assessed as having a high potential to interact with future development on the Site. Five species of SAR bats were, however, detected in the Study Area, and there is potential for the cultural meadow on the Site to support Monarch. The implementation of suitable mitigation measures (Sections 8.3 and 8.4) would minimize the risk of adverse impacts to SAR.

7.4 Impacts to Wildlife

A total of five frog species were observed within the Study Area via evening frog surveys and incidental observations, predominantly associated with the existing Davidson SWM pond adjacent to the Site. This SWM pond is being retained, and therefore no impact to species utilizing this feature is anticipated. Wood Frogs, Chorus Frog, and Spring Peeper were observed in association with former Tributaries A, C and E. Tributary C is being retained, and therefore no impact to species utilizing this feature is anticipated. No anurans were detected on the Site.

Migratory birds have potential to occur and nest on the Site, and areas of thicket nesting opportunity on the Site will be removed. The implementation of suitable mitigation measures (per Section 8.4) would minimize risk, resulting in reduced impacts to migratory birds.

Urban wildlife species common to the Ottawa area were incidentally observed on the Site during the field surveys (White Tailed Deer, Coyote, Fox, etc.). These species may continue to use or cross the Site within the Faulkner Drain and stormwater corridor, which will remain in place during and after Site development. The implementation of mitigation measures per Section 9.4 will minimize risk, resulting in reduced impacts to wildlife.

7.5 Impacts to Significant Wildlife Habitat

The rock pile situated on the west side of the cultural meadow meets the criteria for candidate SWH for reptile hibernacula for snakes, based on the description of the feature (i.e., rock piles, areas of broken or fissured rock; MNRF, 2015). The rocks do not appear to be embedded into the ground, but appear to be situated on the surface. It is therefore unlikely that the cracks and spaces between rocks provide access to subterranean openings that may be suitable hibernaculum sites. Similarly, the shallow bedrock encountered in the meadow suggests limited potential for subterranean hibernacula in the vicinity of the Site. It is unlikely that the rock pile feature would meet the criteria of confirmed SWH.



8.0 MITIGATION APPROACHES

The following sections provides recommended mitigative measures that would be imposed to limit potential impacts to natural heritage features on the Site under future residential development.

8.1 Mitigation for Vegetation

The following mitigation measures are recommended to minimize impacts on individual trees being retained on the Site:

- Erect a fence beyond the critical root zone (CRZ; i.e., 10 x the trunk diameter) of retained trees. The fence is recommended to be highly visible (e.g., orange construction fence) and paired with erosion control fencing. Pruning of branches is recommended in areas of potential conflict with construction equipment;
- Signage attached to the CRZ fence every 6.0 m indicating:
 - a) the fencing is to protect the tree's CRZ; and
 - b) that the fence must not be moved.
- Do not place any material or equipment within the CRZ of the tree;
- Do not attach any signs, notices, or posters to any tree;
- Do not raise or lower the existing grade within the CRZ without approval;
- Tunnel or bore when digging within the CRZ of a tree;
- Do not damage the root system, trunk or branches of any tree; and
- Ensure that exhaust fumes from all equipment are NOT directed toward any tree's canopy.

Tree planting plans will be created as part of the landscape plan for the development. The tree planting plan for the retained forest areas, riparian areas, and residential areas of the Site are to include directives that will contribute to the City's 40% canopy cover target at maturity. Trees and other plants identified in landscape plans are recommended to be non-invasive and locally appropriate native species.

The following general protection measures are recommended during Site preparation and construction to limit impacts to vegetation:

- Limit tree removal onsite to the highest extent possible and only remove trees necessary to accommodate construction and development; and
- Ensure equipment is clean prior to vegetation removal to avoid introducing invasive species to the Site, and clean equipment prior to leaving Site to avoid spreading the aforementioned invasive species elsewhere.



After community buildout, it is recommended that residents/landowners are provided with an environmental awareness package detailing common invasive plant species to avoid planting in yards to reduce risk of invasive species spread into the retained woodland, as well as avoiding dumping yard waste.

8.2 Mitigation for Surface Water Features

The following mitigation measures are recommended to be implemented to minimize or eliminate impacts to surface water features:

- The landscape plan for the setback space directly along Flewellyn Road must include tree planting on the northern side of the drain. City maintenance access to the channel will be from the southern side along Flewellyn Road. Medium-sized trees are recommended to be planted near the top of the north side bank to maximize effectiveness for shading, soil stability, and allochthonous inputs. The 15 m setback width will provide sufficient soil volume to accommodate a variety of tree planting, along with grass and forb ground cover.

To eliminate harmful alteration, disruption, or destruction (HADD) of fish and fish habitat (Faulkner Drain, Upper Faulkner Watercourse) under the Fisheries Act (Government of Canada, 1985), the following mitigation measures are recommended to be implemented:

- Time work to avoid the restricted activity timing windows to reduce the risk of harm to fish and fish habitat. Restricted timing windows in Ontario are March 15 - July 15, and October 1 – May 31;
- Utilize methods to prevent soil compaction near fish habitat, such as swamp mats or pads;
- Install a temporary cofferdam or other isolation method to isolate the construction zone for any in-water works prior to beginning work;
- Perform a fish removal of the isolated area, conducted by a qualified professional biologist;
- Minimize duration of in-water work;
- Wherever possible, operate machinery on land above the high water mark in a manner that minimizes disturbance to the banks and bed of retained waterbodies;
- Do not place fill or (re)grade any channels or watercourses without required authorization and/or permits from RVCA, DFO, and MNRF, and consult a qualified professional biologist on additional measures that may be required to protect fish habitat;
- Maintain fish passage by avoiding obstructing or interfering with the movement and migration of fish by changing flows or water levels of watercourses and/or channels; and
- Prevent entry of deleterious substances to watercourses and channels.

It is recommended that the project follow applicable DFO standards and codes of practice including:

- Interim standard: In-water Site Isolation;



- Interim code of practice: End-of-pipe fish protection screens for small water intakes in freshwater; and
- Interim code of practice: Municipal and agricultural drain maintenance.

The potential for construction-related impacts to surface water features can be managed with the implementation of appropriate mitigation measures, such as:

- Implementation of natural channel design principles in the design process;
- Ensure equipment is clean prior to construction works to avoid introducing invasive species to the Site, and clean equipment prior to leaving Site to avoid spreading the aforementioned invasive species elsewhere;
- Design and implement erosion and sediment controls to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment;
- An Erosion and Sediment Control Plan outlining mitigation measures to limit the potential for sediment and erosion to enter these watercourses. The ESC Plan must be developed to the satisfaction of RVCA. The ESC Plan should include:
 - A multi-faceted approach to provide ESC;
 - Regularly inspecting and maintaining the ESC measures during all phases of the project;
 - Retention of existing vegetation and stabilization of exposed soils with native vegetation where possible;
 - Keeping the ESC measures in place until all disturbed ground has been permanently stabilized;
 - Using biodegradable ESC materials where possible and removing all exposed non-biodegradable ESC materials once the Site is stabilized;
 - Limiting the duration of soil exposure and phasing project works;
 - Limiting the size of disturbed areas by minimizing nonessential clearing and grading;
 - Minimizing the total slope length and the gradient of disturbed areas;
 - Refueling of machinery should occur >30 m from surface water features and all machinery will remain on the project-side of silt and construction fence;
 - Maintaining overland sheet flow and avoiding concentrated flows;
 - Storing/stockpiling materials >30 m away from the Faulkner Drain, SWM pond, and other surface water features;



- Fencing or tarping all stockpiled material (<150-millimeter gravel) during the turtle nesting period (late May to early July) (MECP, 2021b) to prevent turtles from nesting in stockpiles. If the stockpile is within a properly fenced area (i.e., the project footprint) additional fencing is not necessary for turtle management, but is recommended for ESC if piles will be left unused for extended periods;
- Regularly inspecting the Site for signs of sedimentation during all phases of work and taking corrective action if required;
- Developing a response plan to be implemented immediately in the event of a spill of a deleterious substance;
- Keeping an emergency spill kit on the Site;
- Stopping work and containing deleterious substances to prevent dispersal; and
- Reporting any spills of sewage, oil, fuel, or other deleterious material whether near or directly into a surface water feature.

As a general surface water protection measure post-development, residents should be made aware of the importance of minimizing or avoiding the use of fertilizers, herbicides, and pesticides and should consider using surface materials that allow for rainwater infiltration, Upper Faulkner Watercourse erosion risks and reduction, as well as interpretive signage for enhanced habitats and biodiversity protection.

8.3 Mitigation for Species at Risk

Impacts to other SAR can be managed with the implementation of appropriate mitigation measures, such as:

- All on-site staff are recommended undergo environmental awareness training to be able to identify the potential SAR that may be encountered;
- Removal of vegetation suitable as nesting habitat should occur outside of the breeding bird season, the bat roosting season, and the Monarch active season (i.e. April 1 to November 30 inclusive; MNRF, 2017, MECP, 2026). This will ensure no impact to SAR birds and bats and Monarch that may be transiently present on the Site; and
- Perform daily pre-work searches of the construction area to ensure no wildlife has entered the work area overnight.

8.4 Mitigation for Wildlife

The following mitigation measures are recommended to be implemented during future construction to generally protect wildlife:

- Areas are not recommended to be altered or cleared during sensitive times of year for wildlife unless mitigation measures are implemented and/or the habitat has been inspected by a qualified Biologist;



- Clearing of trees and/or vegetation should not take place April 1 to November 30 inclusive unless a qualified Biologist has determined that no birds are nesting or suitable bat roosting trees are present. The bird nest sweep would be valid for five days:
 - The MBCA protects the nests and young of migratory breeding birds in Canada. The timing of nesting for birds in the area spans April 1 to August 31 (Government of Canada, 1994);
- Ensure that a qualified biologist develops a wildlife management plan for the construction process and delivers environmental compliance and biodiversity training to all site workers to implement the plan. The plan is recommended include (but not be limited to) requirements to:
 - Utilize silt fence paired with sturdy construction fence along the project perimeter and around soil stockpiles to serve as a wildlife exclusion measure to prevent smaller animals from accessing/utilizing temporary habitats on the Site;
 - Check the entire work site for wildlife prior to beginning work each day;
 - It is recommended that construction and vegetation removal occurs in phases, limiting vegetation removal to the highest extent possible to facilitate wildlife movement towards safety;
 - Do not harm, feed, or unnecessarily harass wildlife;
 - Manage waste to prevent attracting wildlife to the work site. Effective mitigation measures include litter prevention and keeping all trash secured in wildlife-proof containers and promptly removing it from the work site, especially during warm weather;
 - A recommended a speed limit of 20 km/h during the active season (April 1 to September 30) to reduce wildlife mortality; and
 - Manage stockpiles and equipment at the work 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 workday to prevent access by wildlife.

Once construction is complete and the residences are occupied, KAL recommends that new residents are encouraged through signage and public education to keep pets on leash during the bird breeding season (April 1 to August 31). It is recommended that landowners be provided with educational resources about keeping cats on a leash or indoors, as cats are one of the largest threats to bird populations (Blancher, 2013).



9.0 REVIEW AND CONCLUSIONS

The intent of this report is to consider potential impacts to natural heritage system features associated with the Draft Plan of Subdivision for the Site. This report identifies likely mitigation measures that would be employed under future development and/or imposed on future development.

Reviewing natural heritage system elements addressed within the PPS and the City's OP (and in consideration of relevant federal and/or provincial legislation per Section 2.0 above):

- a) Significant Wetlands
 - No significant wetlands are present on the Site.
- b) Habitat for SAR (and SAR directly)
 - For all SAR identified on the Site, the SCA provides mechanisms that permit the removal of those SAR species and/or their habitat from the Site. Future site development can be permitted in full compliance with that legislation.
- c) Significant Woodlands
 - No significant woodland is present on the Site.
- d) Significant Valleylands
 - There are no significant valleylands associated with the Site.
- e) Significant Wildlife Habitat
 - No candidate or confirmed SWH is present on the Site.
- f) Areas of Natural and Scientific Interest
 - There are no ANSIs associated with the Site.
- g) Urban Natural Features
 - There are no UNFs associated with the Site.
- h) Natural Environment Areas
 - There are no significant Natural Environment Areas associated with the Site.
- i) Natural linkage features and corridors
 - The Site abuts developed areas and as such, does not provide Natural linkage features and corridors.



j) Groundwater features

- There are no significant groundwater features associated with the Site.

k) Surface water features, including fish habitat

- One small headwater channel would be removed from the Site (Tributary G). The functionality of these features, however, can be replicated through the SWM system.

l) Landform features

- There are no significant landform features associated with the Site.

It is the opinion of the undersigned that residential development could be sufficiently mitigated to limit net negative impacts to significant natural features or ecological functions of the Site.



10.0 CLOSURE

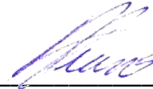
This report was prepared for exclusive use by Caivan Communities and may be distributed only by Caivan Communities. Questions relating to the data and interpretation can be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.



Maren Nielsen, B.E.S., EMA
Senior Biologist and Project Manager
E-mail: mnielsen@kilgourassociates.com
16-2285 St. Laurent Blvd, Ottawa, ON, K1G 4Z6
Office: 613-260-5555
Cell: 613-367-5562



Anthony Francis, PhD
Director of Land Development
E-mail: afrancis@kilgourassociates.com
16-2285 St. Laurent Blvd, Ottawa, ON, K1G 4Z6
Office: 613-260-5555
Cell: 613-367-5556



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Appendix A Qualifications of Report Authors



Maren Nielsen, BES, EMA

Maren is a Senior Biologist and Project Manager with professional experience and expertise in terrestrial and aquatic ecology, natural heritage policy, and impact assessment. She has worked extensively in the environmental sector with government agencies and private industry, guiding land development, ecological restoration, Species at Risk, and fisheries permitting and approvals processes, delivering adaptive solutions and ensuring compliance with key environmental regulations. 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, Species at Risk, and wildlife surveys, and construction monitoring. Since joining Kilgour & Associates Ltd. in 2023, Maren has supported the delivery of high-quality assessments, including environmental impact studies, federal and municipal environmental assessments, Species at Risk assessments, headwater drainage feature assessments, community design plans and environmental constraints analyses. Maren is a certified wetland evaluator under the Ontario Wetland Evaluation System (OWES).

Anthony Francis, PhD

Dr. Francis, as Director of Land Development for Kilgour & Associates (KAL), is a Senior Ecologist with 26 years of experience consulting to both government agencies and private industry. He has worked on numerous projects relating to species at risk, invasive species, and habitat issues for terrestrial and aquatic species as they relate to land development, completing projects addressing specific site concerns and broader policy initiatives. He has extensive experience in preparing Environmental Impact Statements, Integrated Environmental Reviews and Tree Conservation Reports in support of changing site usage and physical site development. He has carried out literature reviews for government agencies, performed complex geospatial analyses of plant and animal distributions, and completed numerous field programs supporting environmental impact reviews and assessments. As the Director of Land Development, Dr. Francis oversees all land development projects KAL addressing contracting, staff and resource allocation, quality assurance, and invoicing. He also leads staff development and training related to terrestrial projects and programs.



Appendix B Breeding Bird Survey Data



Appendix B - Breeding Bird Survey Data

Common Name	Scientific Name	Date(s) Observed	Highest Breeding Evidence	Station(s) Observed
Alder Flycatcher	<i>Empidonax alnorum</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	7,8
American Crow	<i>Corvus brachyrhynchos</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,4,5,6,7,8
American Goldfinch	<i>Spinus tristis</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,3,4,5,8
American Kestrel	<i>Falco sparverius</i>	2023-06-13	PO	8
American Redstart	<i>Setophaga ruticilla</i>	2023-06-02, 2023-06-13	PO	2,4,5
American Robin	<i>Turdus migratorius</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,4,5,6,7
American Tree Sparrow	<i>Spizelloides arborea</i>	2023-06-02	PO	4,5,6
Black-capped Chickadee	<i>Poecile atricapillus</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,8
Blue Jay	<i>Cyanocitta cristata</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,4,8
Brown Thrasher	<i>Toxostoma rufum</i>	2023-06-02, 2023-06-13	PO	2,4
Canada Goose	<i>Branta canadensis</i>	2023-06-14	PO	5
Chimney Swift	<i>Chaetura pelagica</i>	2023-06-13	PO	1
Common Grackle	<i>Quiscalus quiscula</i>	2023-06-02	PO	5
Common Yellowthroat	<i>Geothlypis trichas</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,4,5,6,7,8
Eastern Wood-Pewee	<i>Contopus virens</i>	2023-06-02, 2023-06-13	PO	2,3
European Starling	<i>Sturnus vulgaris</i>	2023-06-02	PO	2,5,6
Field Sparrow	<i>Spizella pusilla</i>	2023-06-02, 2023-06-13	PO	1,6,7,8
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	2
Green Heron	<i>Butorides virescens</i>	2023-06-02	PO	5
Hermit Thrush	<i>Catharus guttatus</i>	2023-06-02	PO	3,4
House Wren	<i>Troglodytes aedon</i>	2023-06-02, 2023-06-13	PO	1,2,3
Killdeer	<i>Charadrius vociferus</i>	2023-06-02, 2023-07-04	PO	1,7
Mallard	<i>Anas platyrhynchos</i>	2023-06-02, 2023-06-13	PO	5,6,8
Mourning Dove	<i>Zenaida macroura</i>	2023-06-02, 2023-06-13	PO	2,6
Northern Cardinal	<i>Cardinalis cardinalis</i>	2023-06-02, 2023-06-13	PO	1,2,3,4,6
Ovenbird	<i>Seiurus aurocapilla</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,8
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	2023-06-02, 2023-06-13	PO	1,2,4,5
Ring-billed Gull	<i>Larus delawarensis</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,5,6,8
Red-breasted Nuthatch	<i>Sitta canadensis</i>	2023-06-02	PO	2
Red-eyed Vireo	<i>Vireo olivaceus</i>	2023-06-02, 2023-06-13	PO	1,2,3,5
Ruffed Grouse	<i>Bonasa umbellus</i>	2023-06-13	PO	2
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	4,5
Savannah Sparrow	<i>Passerculus sandwichensis</i>	2023-06-02, 2023-06-13	PO	7,8
Song Sparrow	<i>Melospiza melodia</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,2,3,4,5,6,7,8
Swamp Sparrow	<i>Melospiza georgiana</i>	2023-06-02, 2023-06-13	PO	8
Tree Swallow	<i>Tachycineta bicolor</i>	2023-06-02	PO	6
Veery	<i>Catharus fuscescens</i>	2023-06-02	PO	2
Warbling Vireo	<i>Vireo gilvus</i>	2023-06-13	PO	2
Wild Turkey	<i>Meleagris gallopavo</i>	2023-06-02, 2023-06-13	PO	1,2,4,7
Winter Wren	<i>Troglodytes hiemalis</i>	2023-06-02	PO	4
Wood Thrush	<i>Hylocichla mustelina</i>	2023-07-04	PO	1
White-throated Sparrow	<i>Zonotrichia albicollis</i>	2023-06-02, 2023-06-13	PO	1,2,4,8
Yellow Warbler	<i>Setophaga petechia</i>	2023-06-02, 2023-06-13, 2023-07-04	PO	1,5,6,8

Appendix C Updated Species at Risk Screening



Species Name	Taxonomic Name	COSSARO Status	SCA Status (O.Reg. 60/26)	COSEWIC Status	Status under SARA	Observation Record Sources (within 10 km of the Site)	General Habitat Requirements	Site Suitability	Potential to Interact with Development of the Site
Birds									
Bank Swallow	<i>Riparia riparia</i>	Threatened	Not Listed	Threatened	Threatened	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Colonial nester; burrows in eroding silt or sand banks, sand pit walls, and human-made sand piles. Often found on banks of rivers and lakes.	The open meadows of the eastern portion of the site provide some potential as feeding habitat, but no banks suitable for nesting are evident on or adjacent to the Site.	Negligible
Barn Swallow	<i>Hirundo rustica</i>	Special Concern	Not Listed	Special Concern	Not Listed	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)	Nests on barns and other structures. Forages in open areas for flying insects. Lives in close association with humans and prefers to nest on structures such as open barns, under bridges, and in culverts.	The open meadows of the eastern portion of the site provide some potential as feeding habitat. While houses to the north, south and east of the Site likely provide limited nesting potential, suitable barns are present in the vicinity of the Site.	Moderate
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Not Listed	Special Concern	Threatened	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	Cultural meadow areas on the eastern portion of the Site may offer suitable breeding habitat.	Moderate
Canada Warbler	<i>Cardellina canadensis</i>	Special Concern	Not Listed	Special Concern	Threatened	MNRF (2022a)	Prefers moist forests with dense shrub layers. Nests located on or near the ground on mossy logs or roots, along stream banks or on hummocks. Area-sensitive species that usually require a minimum of 30 ha of continuous forest for breeding habitat (OMNR, 2000).	Moist forested areas on the Site have dense shrub layers but do not meet the size criteria to provide suitable habitat.	Low
Chimney Swift	<i>Chaetura pelagica</i>	Threatened	Not Listed	Threatened	Threatened	Cornell Lab of Ornithology (2022)	Nests in traditional-style open brick chimneys (and rarely in hollow trees). Tends to stay close to water.	Houses on or adjacent to the Site appear to have modern chimneys that would not provide suitable nesting or roosting habitat.	Low
Common Nighthawk	<i>Chordeiles minor</i>	Special Concern	Not Listed	Special Concern	Special Concern	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Nests in a wide variety of open sites, including beaches, fields, and gravel rooftops with little to no ground vegetation. They also nest in cultivated fields, orchards, urban parks, mine tailings and along gravel roads/railways but tend to occupy more natural sites.	Open areas on the Site provide marginal nesting conditions.	Moderate



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Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	Not Listed	Threatened	Threatened	Birds Canada et al. (2009); MNRF (2022a); MNRF (2022b); Cornell Lab of Ornithology (2022)	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	Cultural meadow areas on the eastern portion of the Site may offer suitable breeding habitat.	Moderate
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Special Concern	Not Listed	Special Concern	Threatened	Birds Canada et al. (2009); MNRF (2022a)	Suitable breeding habitats generally include open and half treed areas and often exhibit a scattered distribution of treed and open space. Lays eggs directly on the forest floor. Roosts are typically located in forest habitat on a low branch or directly on the ground. Home range size varies from 20 to 500 ha (mean 136 ha) (ECCC, 2018).	The Site does not appear to contain suitable habitat.	Low
Eastern Wood-Pewee	<i>Contopus virens</i>	Special Concern	Not Listed	Special Concern	Special Concern	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Woodland species often found in the mid-canopy layer near clearings and edges of intermediate age and mature deciduous and mixed forests with little understory.	Forested areas on the Site may provide suitable habitat.	Moderate.
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	Special Concern	Not Listed	Special Concern	Special Concern	Birds Canada et al. (2009); Cornell Lab of Ornithology (2022)	Nests in trees or large shrubs. Prefers mature coniferous forests (fir and/or spruce dominated), but will also use deciduous forests, parklands, and orchards. Its abundance is strongly linked to the cycle of Spruce Budworm.	Forested areas on the Site may provide suitable habitat.	Moderate
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Special Concern	Not Listed	Special Concern	Not Listed	Birds Canada et al. (2009)	Lives in open grassland areas with well-drained sandy soil. Will also nest in hayfields and pastures, as well as alvars, prairies, and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated, and its nests are well hidden in the field, woven from grasses in a small cup-like shape.	Cultural meadow areas on the eastern portion of the Site may offer suitable breeding habitat.	Moderate
Hudsonian Godwit	<i>Limosa haemastica</i>	Threatened	Threatened	Threatened	Not Listed	Cornell Lab of Ornithology (2022)	They use a wide variety of habitats during migration, such as freshwater marshes, saline lakes, flooded fields, shallow ponds, coastal wetlands, and mudflats. Migrant only; breeds in the far north.	There is no suitable habitat near the Site and the species is not known to nest in the vicinity.	Negligible
Least Bittern	<i>Ixobrychus exilis</i>	Special Concern	Not Listed	Special Concern	Threatened	MNRF (2022a)	Found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels. They prefer larger marshes >5 ha in size and are intolerant of loss of habitat and human disturbance (OMNR, 2000).	There is no suitable habitat near the Site.	Negligible



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Lesser Yellowlegs	<i>Tringa flavipes</i>	Threatened	Threatened	Threatened	Not Listed	Cornell Lab of Ornithology (2022)	Breeds in boreal wetlands. Nests on dry ground or forest openings near peatlands, marshes, and ponds in the boreal forest and taiga. Migrant only; nests in far north (Government of Canada, 2021).	There is no suitable habitat near the Site and the species is not known to nest in the vicinity.	Negligible
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Special Concern	Not Listed	Special Concern	Special Concern	Cornell Lab of Ornithology (2022)	Found along coniferous or mixed forest edges and openings. Will use forests that have been logged or burned if there are ample tall snags and trees to use for foraging perches.	Forested areas on the Site may provide suitable habitat.	Moderate
Rusty Blackbird	<i>Euphagus carolinus</i>)	Special Concern	Not Listed	Special Concern	Special Concern	Cornell Lab of Ornithology (2022)	Prefers wet wooded or shrubby areas. Nests at edges of boreal wetlands and coniferous forests. These areas include bogs, marshes, and beaver ponds.	Forested areas on the Site may provide suitable habitat.	Moderate
Wood Thrush	<i>Hylocichla mustelina</i>	Special Concern	Not Listed	Threatened	Not Listed	Birds Canada et al. (2009); MNRF (2022a); Cornell Lab of Ornithology (2022)	Lives in mature deciduous and mixed forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing and perching. Prefers nesting in large forest mosaics, but will also use fragmented forests. Usually build nests in Sugar Maple or American Beech.	Forested areas on the Site may provide suitable habitat.	Moderate
Mammals									
Eastern Small-footed Myotis	<i>Myotis leibii</i>	Endangered	Endangered	Not Listed	Not Listed	Humphrey (2017)	In the spring and summer, Eastern Small-footed Myotis will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. Overwinters in caves and abandoned mines.	Forested areas on site may provide suitable roosting habitat, while open areas provide foraging habitat.	Moderate
Eastern Red Bat	<i>Lasiurus borealis</i>	Endangered	Endangered	Endangered	Not Listed	COSEWIC (2023)	Roosts in both deciduous and coniferous forests of any age, among canopy foliage with open flight space below. Maternity roosts are often in large diameter, tall trees. Foraging occurs in forested and non-forested areas, above and below forest canopies.	Forested areas on site may provide suitable roosting habitat, while open areas provide foraging habitat.	Moderate
Hoary Bat	<i>Lasiurus cinereus</i>	Endangered	Endangered	Endangered	Not Listed	COSEWIC (2023)	Roosts in both deciduous and coniferous forests of any age, among canopy foliage with open flight space below. Maternity roosts are often in large diameter, tall trees. Foraging occurs in open areas, wetlands, grasslands and open fields, with sparse trees.	Forested areas on site may provide suitable roosting habitat, while open areas provide foraging habitat.	Moderate
Little Brown Myotis	<i>Myotis lucifugus</i>	Endangered	Endangered	Endangered	Endangered	Humphrey and Fotherby (2019)	During the day they roost in trees and buildings. They often select attics, abandoned buildings, and barns for summer colonies where they can raise their young. They can squeeze through very tiny spaces (as small as six millimetres across) allowing them access to many different roosting areas.	Forested areas on site may provide suitable roosting habitat, while open areas provide foraging habitat.	Moderate



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Northern Myotis / Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Endangered	Endangered	Endangered	Endangered	Humphrey and Fotherby (2019)	Associated with deciduous and mixed forests, choosing to roost under loose bark and in the cavities of trees. They forage along and within forests as well as in hayfields and pastures adjacent to mixed forests.	Forested areas on site may provide suitable roosting habitat, while open areas provide foraging habitat.	Moderate
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Endangered	Endangered	Endangered	Not Listed	COSEWIC (2023)	Roosts under bark and in large decaying deciduous and coniferous tree cavities. Foraging occurs in young and mature forest openings and along forest edges.	Forested areas on site may provide suitable roosting habitat, while open areas provide foraging habitat.	Moderate
Tri-colored Bat / Eastern Pipistrelle	<i>Perimyotis subflavus</i>	Endangered	Endangered	Endangered	Endangered	Humphrey and Fotherby (2019)	Roosts mainly in trees during summer; overwinters in caves and mines along with other species, but often uses deeper parts of the hibernaculum. Foraging occurs in forested riparian areas, over water, and within gaps in forest canopies.	Forested areas on site may provide suitable roosting habitat, while open areas provide foraging habitat.	Moderate
Amphibians									
Western Chorus Frog (Great Lakes / St. Lawrence-Canadian Shield Population)	<i>Pseudacris triseriata</i>	Not Listed	Not Listed	Threatened	Threatened	Ontario Nature (2019); MNRF (2022a)	Inhabits forest openings around woodland ponds but can also be found in or near damp meadows, marshes, bottomland swamps, and temporary ponds in open country, or even urban areas.	Drainage ditch/stream, pond and wetland areas on the Site may provide suitable habitat.	Moderate
Reptiles									
Blanding's Turtle	<i>Emydoidea blandingii</i>	Threatened	Threatened	Endangered	Endangered	Ontario Nature (2019); MNRF (2022a); MNRF (2022b); California Academy of Sciences and National Geographic Society (2022)	Quiet lakes, streams, and wetlands with abundant emergent vegetation. Also frequently occurs in adjacent upland forests.	The Faulkner Drain was subject to cleanout by the City in the fall of 2022 and is unlikely to provide suitable wetland space for the species. Other than the Davidson SWM pond, which similarly has low suitability, no suitable wetland features occur within >500 m of the Site.	Low
Eastern Milksnake	<i>Lampropeltis triangulum</i>	Not Listed	Not Listed	Special Concern	Special Concern	Ontario Nature (2019); MNRF (2022a); MNRF (2022b); California Academy of Sciences and National Geographic Society (2022)	Found in variety of open, scrubby or edge habitats, including pastures.	As a habitat generalist, much of the Site may be considered suitable for the species.	Moderate



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Midland Painted Turtle	<i>Chrysemys picta marginata</i>	Not Listed	Not Listed	Special Concern	Special Concern	Ontario Nature (2019); MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)	Inhabits waterbodies, such as ponds, marshes, lakes and slow-moving creeks that have a soft bottom and provide abundant basking sites and aquatic vegetation. Often bask on shorelines or on logs and rocks that protrude from the water.	The Site does not appear to contain suitable habitat.	Low
Northern Map Turtle	<i>Graptemys geographica</i>	Special Concern	Not Listed	Special Concern	Special Concern	MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)	Lives in rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, they hibernate on the bottom of deep, slow-moving sections of river.	Water features on or near the Site are generally too small to support the species.	Negligible
Snapping Turtle	<i>Chelydra serpentina</i>	Special Concern	Not Listed	Special Concern	Special Concern	Ontario Nature (2019); MNRF (2022a); MNRF (2022b); California Academy of Sciences and National Geographic Society (2022)	Spend most of their lives in the water. Prefer shallow waters so they can hide under the soft mud and leaf litter with only their noses exposed to the surface to breathe.	The Site does not appear to contain suitable habitat.	Low
Arthropods									
Monarch	<i>Danaus plexippus</i>	Special Concern	Not Listed	Endangered	Endangered	California Academy of Sciences and National Geographic Society (2022); Toronto Entomologists' Association (2022)	Milkweeds are the sole food plant for Monarch caterpillars. These plants predominantly grow in open and periodically disturbed habitats such as roadsides, fields, wetlands, prairies, and open forests.	Cultural meadows in the eastern portion of the Site support Milkweed and are considered suitable habitat.	Moderate
Yellow-banded Bumble Bee	<i>Bombus terricola</i>	Special Concern	Not Listed	Special Concern	Special Concern	MNRF (2022a)	This species is a forage habitat generalist, able to use a variety of nectaring plants and environmental conditions. Can be found in mixed woodlands, particularly for nesting and overwintering, as well as a variety of open habitat such as native grasslands, farmlands, and urban areas.	As a habitat generalist, much of the Site may be considered suitable.	Moderate
Fish									
American Eel	<i>Anguilla rostrata</i>	Endangered	Endangered	Threatened	Not Listed	MNRF (2022a)	Primarily nocturnal, hiding in soft substrate or submerged vegetation during the day.	The Site does not contain suitable habitat.	Negligible
Vascular Plants									
Black Ash	<i>Fraxinus nigra</i>	Endangered	Endangered	Threatened	Not Listed	MNRF (2022a); California Academy of Sciences and National Geographic Society (2022)	Predominantly a wetland species found in swamps, floodplains, and fens.	Moist forest on the Site may provide suitable habitat	Moderate



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Butternut	<i>Juglans cinerea</i>	Endangered	Endangered	Endangered	Endangered	MNRF (2022a)	Commonly found in riparian habitats but is also found on rich, moist, well-drained loams and well-drained gravels, especially those of limestone origin.	Forested areas on the Site may provide suitable habitat.	Moderate
Lichens									
Flooded Jellyskin	<i>Leptogium rivulare</i>	Not Listed	Not Listed	Special Concern	Special Concern	MNRF (2022a); MNRF (2022b)	Grows in seasonally flooded habitats, typically on the bark of deciduous trees, on rocks along the margins of seasonal ponds, and on rocks along shorelines and stream/riverbeds.	The Site does not appear to contain suitable habitat.	Negligible



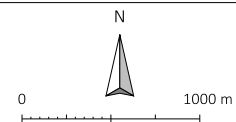
Appendix D 1963 Air Photo





Appendix H
Significant Woodlands – 1963
Air Photo

-  Site
-  Significant Woodland
-  Portions on Site
-  Roads



Project: CAIV 1300
Map File: CAIV 1300 2309a
Universal Transverse Mercator - Zone 18 (N)
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