Environmental Impact Study for
4175 Strandherd Drive
Ottawa, Ontario

2026-01-29

Final Report

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Project Number: CHOICE 1940.1

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List of Acronyms and Abbreviations

cm – centimeter
CRZ – critical root zone
DBH – Diameter at breast height
DFO – Department of Fisheries and Oceans (Fisheries and Oceans Canada)
ECCC – Environment and Climate Change Canada
e.g. – *exempli gratia*
EIS – Environmental Impact Study
ELC – Ecological Land Classification
ESC – erosion and sediment control
ESA – *Endangered Species Act*

FWCA – *Fish and Wildlife Conservation Act*
ha – hectare
i.e. – id est
KAL – Kilgour & Associates Ltd.
km – kilometre
m – metre
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*
SWH – Significant Wildlife Habitat
SWM – stormwater management
TCR – Tree Conservation Report

1.0 INTRODUCTION

This report is an Environmental Impact Study (EIS) prepared by Kilgour & Associates Ltd. (KAL; Appendix A) on behalf CHP Management LP as Agent for Strandherd Limited Partnership in support of a proposed Site Plan Application for a property located at 4175 Strandherd Drive, Ottawa, Ontario (the "Site"; Figure 1). This EIS includes the results from the required field studies and provides recommendations and mitigation measures to minimize impacts of future development on the natural heritage features located on and adjacent to the Site.

In the City of Ottawa, an EIS is required when development or site alteration is proposed in or adjacent to natural heritage features, as outlined in Section 4.8 of the Official Plan (City of Ottawa, 2022). The purposes of an EIS are to:

- Identify natural heritage features on or adjacent to the Site;
- Assess potential impacts of the proposed development to existing features; and
- Recommend mitigation measures to minimize or eliminate identified impacts.

Figure 1 Site context

2.0 ENVIRONMENTAL POLICY CONTEXT

Natural heritage policies and legislation relevant to this EIS are outlined below.

2.1 The Provincial Planning Statement, 2024

The Provincial *Policy* Statement, previously issued under Section 3 of the *Planning Act* (MMAH, 2020), was updated to become the Provincial *Planning* Statement (PPS) on August 20, 2024. The PPS came into effect on October 20, 2024 (MMAH, 2024). Under the PPS, natural features are afforded protection under Section 4. The included protections address the maintenance, restoration, and improved function of diversity, connectivity, ecological function, and biodiversity of natural heritage systems. These protections restrict development and site alteration in significant natural areas (e.g., woodlands, wetlands, wildlife habitat) except where 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). This manual recommends the approach and technical criteria for protecting natural heritage features and areas in Ontario.

2.2 City of Ottawa Official Plan, 2021

The City of Ottawa Official Plan (2022) provides direction for future growth in the City and is a policy framework to guide physical development to 2031 in accordance with the PPS. The Official Plan includes a Natural Heritage Features map (Schedule C11-A), providing additional information on wetlands, watercourses, and wooded areas within the City boundaries (City of Ottawa, 2022).

2.3 *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 for Endangered or Threatened species, and to manage other species to prevent them from becoming Endangered or Threatened.

All species listed on Schedule 1 of SARA are afforded protection on federal lands. Aquatic species and species of migratory birds protected by the *Migratory Birds Convention Act* (MBCA; (Government of Canada, 1994) and listed as Endangered, Threatened, or Extirpated under Schedule 1 of SARA are protected wherever they occur in Canada, regardless of land ownership. SARA protections do not typically apply for other species groups on non-federal properties. However, the Federal Minister of ECCC can impose SARA protections on private projects where habitat is deemed "…necessary for the survival or recovery of the species…" in the area of concern.

2.4 *Endangered Species Act*, 2007

The provincial *Endangered Species Act* (ESA; Government of Ontario, 2007) is administered by the Ministry of Environment, Conservation, and Parks (MECP) and provides protection for species at risk (SAR) and their habitat. The ESA states that it is illegal to harm the habitat of species listed as Extirpated, Endangered, and

Threatened. It is also illegal to kill, harm, harass, possess, transport, buy, or sell Extirpated, Endangered, and Threatened species, whether it is living or dead. Species listed as Endangered, Threatened, or Extirpated and their habitats (e.g., areas essential for breeding, rearing, feeding, hibernation, and migration) are automatically afforded legal protection under the ESA. The ESA include 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 associated permitting processes typically work to limit the potential for harm to the subject species through mitigation measures and to achieve an overall net benefit for the species through offsetting measures.

Significantly, Ontario's Bill 5: *Protect Ontario by Unleashing our Economy Act, 2025*, was enacted on June 5, 2025. This Act introduces numerous changes to the ESA, including altering the definition of "habitat" for various species groups. At the time of writing for this EIS, however, most standing policies managing the implementation of the ESA have not yet been updated. As such, recommendations within this ECR related to the ESA consider existing ESA-related policies but also recognize upcoming changes to the extent feasible. Such changes include the replacement of the ESA with the *Species Conservation Act,* likely in early 2026. The *Species Conservation Act* was enacted as part of Bill 5, but is not yet in force as of the date of this EIS. However, it must be recognized that, if permitting processes were to be required/employed to ensure a net benefit for SAR under future site works, they may ultimately be managed under the *Species Conservation Act* rather than the ESA.

2.5 *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: 1) protection for all fish and fish habitat; 2) prohibition against the "harmful alteration, disruption or destruction of fish habitat"; and 3) prohibition against causing "the death of fish by means other than fishing".

Projects with scopes that do not fall within DFO's defined standards and/or codes of practice require submission of a request for review to DFO.

2.6 *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 or the wounding or killing of bird species protected under the MBCA and/or associated regulations (e.g., SARA). The "incidental take" of migratory birds and the disturbance, destruction, or taking of the nest of a migratory bird is prohibited. "Incidental take" is the killing or harming of migratory birds due to actions that are not primarily focused on taking migratory birds (e.g., economic development) and no permits exist for the incidental take of migratory birds or their nest/eggs as a result of activities that are not focused on taking migratory birds. These prohibitions apply throughout the year. The Government of Canada has compiled nesting calendars that apply across Canada that can be used to greatly reduce the risk of harming/destroying active nests by ensuring works that may impact nests are performing outside of the nesting period.

2.7 *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 (*Chrysemus picta marginata*), Northern Watersnake (*Nerodia sipedon*), and Gray Treefrog (*Hyla versicolor*). In particular, raptors that are not protected under the MBCA (including Peregrine Falcon (*Falco peregrinus*)) are protected under the FWCA.

2.8 *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* (Government of Ontario, 1990). 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 Mississippi Valley Conservation Authority (MVCA).

The *More Homes Built Faster Act*, which was passed on November 28, 2022, and received Royal Assent the same day, introduced a series of legislative and proposed regulatory changes affecting conservation authorities. 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.

3.0 PROPERTY IDENTIFICATION

The Site is approximately 5.27 ha in size and is located at 4175 Strandherd Drive, Ottawa, Ontario (Lat: 45.266868°N and Long: -75.780736°W; Figure 1). It is located west of Strandherd Drive and south of Systemhouse Street in Barrhaven, Ottawa. The site is zoned as IP[xxxx]H(18) and comprises an undeveloped field. The O'Keefe Drain and a multi-use path are situated adjacent to the west property boundary.

The Site is bordered by:

- Systemhouse Street and commercial properties to the north;
- Strandherd Drive and residential properties to the east;
- existing commercial properties and Dealership Drive to the south; and,
- The O'Keefe Drain, a multi-use path, vacant lands, and undeveloped forested lands to the west.

4.0 METHODOLOGY

4.1 Desktop and Background Data Review

4.1.1 Agency Oversight and Consultation

The Site is located within the jurisdictions of the City Ottawa and Rideau Valley Conservation Authority (RVCA). The Client engaged the City of Ottawa in a pre-consultation meeting on December 18, 2023, to determine the scope of the EIS. Pre-consultation comments identified that the need for this EIS was triggered by the proximity to the O'Keefe Drain and the potential for species at risk and/or their habitat to occur on the Site.

4.1.2 Site Overview

Aerial imagery from Google Earth and the City of Ottawa's geoOttawa system was used to develop preliminary mapping of existing site features and landcover and to inform how the Site may be divided into vegetation communities.

4.1.3 Preliminary SAR Review

The review of existing information included a preliminary SAR screening for species listed under the federal SARA and provincial ESA. The screening functions to identify SAR having some potential to be in the broader vicinity of the Site. The screening was completed following the *Draft Client's Guide to Preliminary Screening for Species at Risk* (MECP, 2019a; species identified through the screening process are reviewed in Appendix B). The MECP previously conducted reviews of Preliminary Screenings, but no longer offers this service. The Preliminary Screening considered data sources including:

- Species at Risk in Ontario (SARO; Ministry of Environment, Conservation, and Parks (MECP, 2023));
- Species at Risk Public Registry (Government of Canada, 2026);
- Natural Heritage Information Centre (NHIC; Ministry of Natural Resources, and Forestry (MNRF, 2025b);
- Land Information Ontario (MNRF, 2025a);
- Aquatic Species at Risk Map (DFO, 2023);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019);
- Ontario Breeding Birds Atlas (Birds Canada et al., 2009);
- Ontario Butterfly Atlas (Toronto Entomologists' Association, 2025);
- eBird (The Cornell Lab of Ornithology, 2025);
- iNaturalist (California Academy of Sciences and National Geographic Society, 2025);

- Bumble Bee Watch (Wildlife Preservation Canada et al., 2025);
- Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Ontario (Humphrey & Fotherby, 2019);
- Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario (Humphrey, 2017);
- Fish ON-Line (MNRF, 2024);
- Ontario Geotechnical Boreholes (Ontario Ministry of Mines, 2012);
- O'Keefe Drain Environmental and Stormwater Management Plan (CH2MHill, 2013).

4.2 Field Surveys

KAL undertook a field program in May 2024 comprising two Ecological Land Classification surveys approximately one week apart during suitable spring and leaf-on conditions (ELC; Table 1). The 2024 field surveys are detailed in the sections below.

Table 1 Summary of Field Studies

Date	Purpose	Conditions	Personnel
May 8, 2024	• ELC #1	• 11°C • Rain • Wind 25 km/h NE	• Kesia Miyashita
May 16, 2024	• ELC #2	• 21°C • Mostly sunny • Wind 6 km/h N	• Kesia Miyashita

4.2.1 Landforms and Soils

Existing data on soils in the vicinity of the Site were obtained from the Ontario Ministry of Agriculture, Food and Rural Affairs' AgMaps (Ontario Agriculture, Food and Agribusiness, 2025) and the Ontario Geotechnical Boreholes Data collected in 2001 (Ontario Ministry of Mines, 2012). These data were supplemented by soil cores taken in the field using a 120 cm soil auger at select locations within the Site.

4.2.2 Surface Water, Groundwater and Fish Habitat

Technical reports describing the O'Keefe Drain, including the O'Keefe Drain Environmental Management Plan (EMP), situated to the west of the Site, were reviewed to provide additional site context. Publicly available databases were reviewed for indications of other watercourses or wetlands on the Site. These data were supplemented by soil cores taken in the field to detect the presence of any wetland soils on the Site.

4.2.3 Vegetation

4.2.3.1 Ecological Land Classification

Vegetation communities on the Site were based on standard ELC methods for Ontario (Lee et al., 1998). The ELC methodology 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.

The desktop review of available aerial imagery and preliminary field visits informed how the Site was divided into vegetation communities based on variation in land cover, topography, and vegetation structure. During the ELC survey on May 8, 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. A subsequent ELC survey was conducted on May 16, 2024 to refine vegetation type boundaries and record additional widespread or dominant plant species. Representative photos of each ELC unit on the Site were taken and are included with the community descriptions in this report.

5.0 RESULTS

5.1 Landforms, Soils and Geology

The Site is located within the Dalhousie soil association (Schut & Wilson, 1987). Soils in this association are characterized as predominantly fine-textured and noncalcareous, comprising silty clay or clay textures. Surface soils generally have lower clay content and are characterized as silty clay loam or clay loam (Schut & Wilson, 1987). In the vicinity of the Site, soils are characterized as predominantly poorly drained and the landscapes are generally level, with slopes from 0% to 2% (Schut & Wilson, 1987). Existing borehole data in the vicinity of the Site characterized soils as silt, sand, and clay to depths of 3-4 m, overlaying firm sand and stiff clay over limestone bedrock (Ontario Ministry of Mines, 2012).

Soil cores taken as part of the ELC soils on the Site were found to be generally consistent with the regional soil data. Soil cores taken on-site comprised very stiff silty clay extending to depths of at least 60 cm.

5.2 Surface Water, Groundwater and Fish Habitat

The Site does not contain any surface water features, including Provincially Significant Wetlands, unevaluated wetlands, or watercourses. The O'Keefe Drain is situated adjacent to the west property boundary, approximately 20 m from the property line. The western property boundary of the Site represents the extent of the O'Keefe Drain corridor. Historical imagery indicates that the O'Keefe Drain previously extended through the northwest corner of the Site; however, in approximately 2015, it was realigned to its present course. The northwest corner of the Site supports a remnant of the feature (Figure 2). This remnant was confirmed in the field to be fully isolated from other surface water features and, as such is not considered a headwater feature. It did include areas of standing water approximately 20 cm deep in May 2024.

Figure 2 Isolated drain remnant on-site, looking south (photo taken May 8, 2024)

The O'Keefe Drain Environmental Management Plan (EMP; prepared by CH2MHill, 2013) describes the applicable setbacks relevant to the O'Keefe Drain as guided by the City of Ottawa's Official Plan and Jock River Reach One Subwatershed Study.

Per the City's current OP Policy 4.9.3:

1) *The minimum setback from surface water features shall be the development limits as established by a Council-approved watershed, subwatershed or environmental management plan.*

However,

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*

The Jock River Reach One Subwatershed Study recommends that:

- *No encroachment should be permitted within the meander belt width;*
- *Setback should be the greater of the 1:100 year flood line elevation, or meanderbelt, or aquatic setback; and,*
- *Terrestrial linkage and pathway requirements should be considered in defining setback limits.*

For this project, the Jock River Reach One Subwatershed Study, and the City's current OP are thus considered within the EMP. The 46 m corridor (including pathway) for the O'Keefe Drain recommended within the O'Keefe Drain EMP incorporates a minimum 30 m channel width from top-of-slope to top-of-slope, a 5 m setback from top-of-slope to edge of corridor (tableland), and a 6m pathway block including a 3 m pathway outside of the setback. The 46-metre corridor is captured by the western property boundary.

A stormwater management pond is located approximately 130 m southwest of the Site. The nearest Provincially Significant Wetland is the Stony Swamp Wetland Complex, located approximately 2 km north of the Site. The Jock River is approximately 1.8 km south of the Site.

5.3 Vegetation

5.3.1 Ecological Land Classification

A single landcover or ELC unit was delineated on the Site (Figure 5). The majority of the Site is characterized as a disturbed field, comprising relatively level terrain and dominated by exotic forb species. The north and east edges of the Site slope downward from Systemhouse Street and Strandherd Drive, respectively. The northwest corner of the unit supported the disconnected drain remnant, with grass-dominated banks and wetland-associated species within the feature. The disturbed field ELC unit is described in greater detail below. Dominant species are indicated in the descriptions below, while other widespread and notable species are listed in Appendix C.

5.3.1.1 Mineral Cultural Meadow (CUM1)

The Site is characterized as a highly disturbed Mineral Cultural Meadow (CUM1) vegetation community (Figure 3). The Site is regularly tended and as such has minimal groundcover. Dominant species within this community included Common Dandelion (*Taraxacum officina*le), Wild Parsnip (*Pastinaca sativa*), and Reed Canary Grass (*Phalaris arundinacea*). The Site supported evidence of grass cover from past seasons in the form of litter; however, forbs were the dominant species among new growth over much of the Site during the spring field surveys. Grasses, particularly Reed Canary Grass, were relatively more abundant along the edges of the Site at Strandherd Drive and Systemhouse Street.

Figure 3 CUM1 community on-site, looking northwest (photo taken May 8, 2024)

The northwest corner of the Site, situated within the CUM1 ELC unit, contains an inclusion from the isolated portion of the former alignment of the O'Keefe Drain. It became isolated following the realignment of the O'Keefe Drain in approximately 2015. It is characterized by steep banks dominated by Reed Canary Grass, Common Dandelion, and Wild Red Raspberry (*Rubus idaeus*). Occasional small (DBH <10 cm) Manitoba Maple (*Acer negundo*) saplings were also observed on the banks. Within the channel itself were areas of standing water less than 20 cm deep. Common Cattail (*Typha latifolia*) was observed corresponding to the areas of standing water.

Figure 4 Remnant drain fragment in the northwest corner of the Site, looking north (photo taken May 8, 2024)

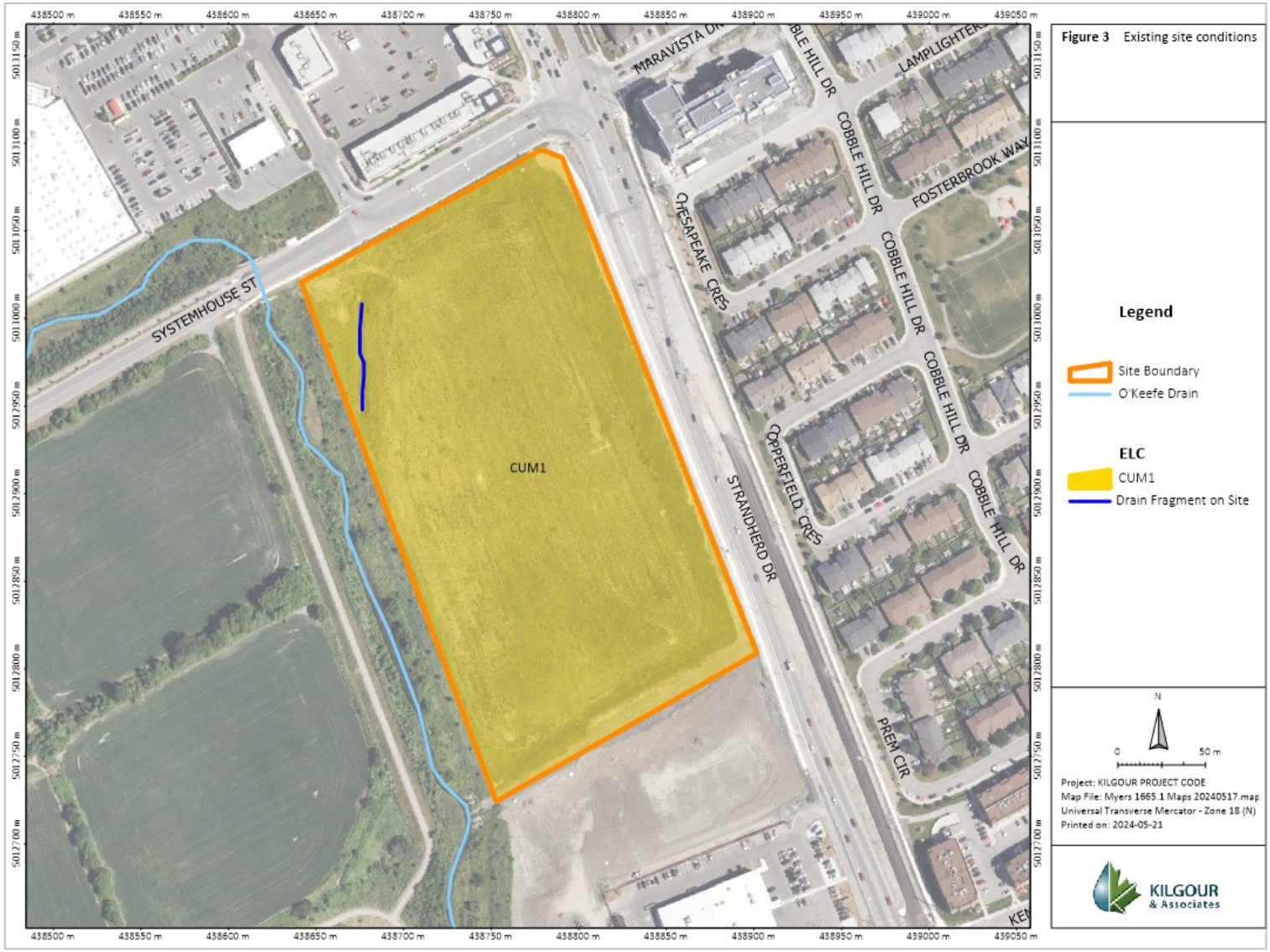

Figure 5 Existing site conditions

5.4 Incidental Wildlife Observations

No formal wildlife surveys were completed for this Site. Incidental observations during the site visits included the following species: Red-winged Blackbird (*Agelaius phoeniceus*), Song Sparrow (*Melospiza melodia*), Yellow Warbler (*Setophaga petechia*), American Goldfinch (*Spinus tristis*), American Crow (*Corvus brachyrhynchos*), Savannah Sparrow (*Passerculus sandwichensis*), Ring-billed Gull (*Larus delawarensis*), and a species of Bumble Bee (*Bombus* sp.).No species observed during field studies are not regionally significant or listed as Species at Risk under the ESA or SARA.

5.5 Species at Risk

The background review of existing observation records for species listed as Endangered, Threatened, or Special Concern under SARA and/or ESA identified 37 species that had an element occurrence record within 10 km (Appendix B). The list of identified species was assessed to estimate the likelihood of their occurrence on the Site and/or their potential to be negatively impacted by future works on-site. The SAR assessment considered:

- Species habitat requirements;
- The habitat potential provided by the Site generally and the proximity of such possible habitats to future work areas; and
- The likely proximity of individuals to project areas (considering existing observational records and Site conditions).

Of the 37 species initially considered, six were identified as having some potential to interact with the future development of the Site (Table 2). They are further described below.

Table 2 Listed Species with Potential to be Impacted by Future Site Works

Common Name	Taxonomic Name	ESA Status	SARA Status	Potential to Interact with Future Development of the Site
Birds				
Common Nighthawk	*Chordeiles minor*	Special Concern	Special Concern	Moderate
Amphibians				
Western Chorus Frog	*Pseudacris triseriata*	Not Listed	Threatened (Great Lakes-St. Lawrence population)	Moderate
Reptiles				
Eastern Milksnake	*Lampropeltis triangulum*	Not Listed	Special Concern	Moderate
Midland Painted Turtle	*Chrysemys picta marginata*	Not Listed	Special Concern	Moderate
Arthropods				
American Bumble Bee	*Bombus pensylvanicus*	Special Concern	Special Concern	Moderate
Yellow-banded Bumble Bee	*Bombus terricola*	Special Concern	Special Concern	Moderate

All of the species listed in Table 2 are listed provincially as Special Concern or Not Listed (at the provincial level); therefore, they are not directly afforded protections under the ESA. As such, they are not considered "SAR" within this report but instead are addressed through other wildlife considerations.

5.6 Significant Natural Heritage Features

The Site does not contain significant woodlands, significant valleylands, or greenspace linkages as defined by the City of Ottawa (City of Ottawa, 2023). The Site does not contain significant wetlands, significant coastal wetlands, ANSIs (life/earth science), or fish habitat. The Site does not include any areas designated as Urban Natural Areas by the City of Ottawa (Muncaster Environmental Planning Inc. & Brunton Consulting Services, 2005). The nearest UNAs are #50 and #53, located approximately 350 m west and 590 m north, respectively. The Site is not connected to either UNA.

5.7 Significant Wildlife Habitat

The Significant Wildlife Habitat (SWH) Criteria Schedule for Ecoregion 6E (CITE) identifies four main types of SWH: seasonal concentration area, rare vegetation communities, specialized habitat for wildlife, and habitats of species of conservation concern.

5.7.1 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.

No obvious signs or evidence of use as a seasonal concentration area were observed during field surveys, and none are likely to occur on the Site.

5.7.2 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 forest, 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, seeds and springs, woodland or wetland amphibian breeding habitat, and woodland area-sensitive bird breeding habitat. No candidate specialized wildlife habitats were identified or observed on the Site.

Habitats of Species of Conservation Concern

Habitats of species of conservation concern include marsh breeding bird 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 marsh bird breeding habitat, open country bird habitat, shrub/early successional bird breeding habitat or terrestrial crayfish.

MNRF (2015) defines candidate SWH for special concern and rare wildlife species as when an element occurrence is identified within a 1 or 10 km grid and suitable candidate habitat is found onsite based on ELC. As such, the Site meets the definition of Candidate SWH for special concern and rare wildlife species for one bird species (Common Nighthawk). Common Nighthawk (nearest record from approximately 850 m from the Site). could potentially use the CUM1 community as nesting or foraging habitat.

6.0 DESCRIPTION OF THE PROPOSED PROJECT

The detailed Site Plan includes 10 retail buildings with associated parking and landscaped buffers around the property (Figure 6). Given the minimal ecological value of the undeveloped historic farm field, the change in land use that would be supported under the proposed development would not impact the ecological functions of the site with the inclusion of the indicated setbacks described below.

The 46 m O'Keefe Drain corridor has already been retained as per the O'Keefe Court EMP and is captured by the western Site boundary (CH2M Hill, 2013). Future works within the corridor include consideration of planting native and non-invasive species. As this work is on City land and off the proponent's property, this work will be assumed by the City. A soft landscaped edge along the western edge of the Site is included in future Landscape Plans to improve the O'Keefe Drain as per the O'Keefe Drain EMP.

As a former agricultural site with limited tree canopy, the current Landscape Plan (CSW Landscape Architectures, 2026) will increase tree cover on the property with ~100 deciduous and coniferous trees proposed to be planted. This contributes to the City of Ottawa's broader goal of working towards an urban tree canopy cover target of 40%.

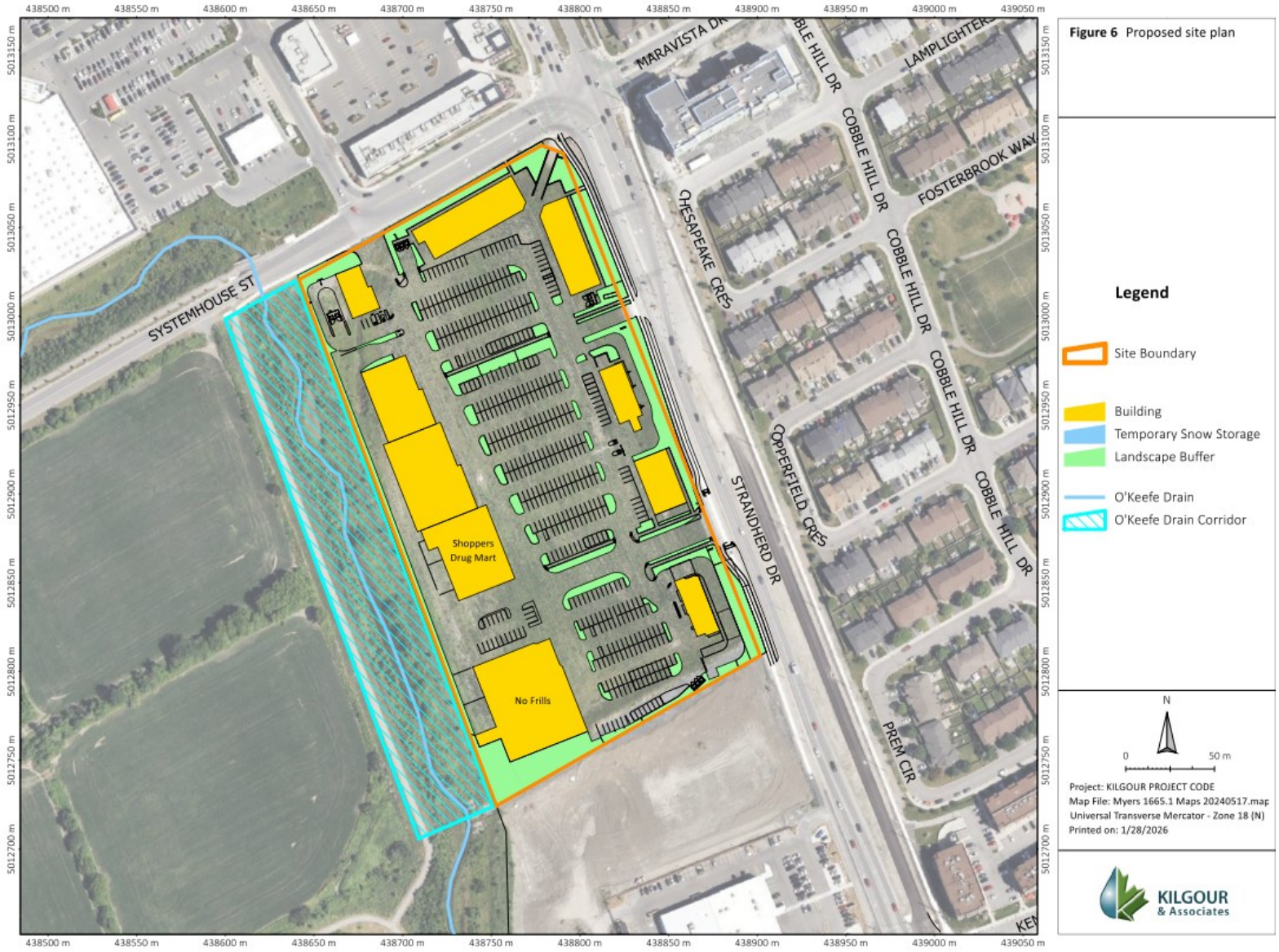

Figure 6 Proposed Site Plan

7.0 IMPACT ASSESSMENT AND MITIGATION

Future development occupies the majority of the Site while respecting the required setback from the O'Keefe Drain. With the exception of the nearby O'Keefe Drain corridor, the Site is located within a highly developed setting and is surrounded by existing roadways and commercial and residential developments. As a result, while the proposed development will alter existing on-site conditions, it is not anticipated to result in adverse impacts to natural heritage features in the surrounding area.

7.1 Surface Water

The setback requirement from the O'Keefe Drain, as per the O'Keefe Drain EMP, of a 46 m corridor, is respected in the Site Plan. The drain fragment onsite is not defined as a watercourse and does not provide connectivity with other water bodies up- or downstream of the Site. As such, setbacks from this fragment are not required.

Snow storage areas on the site must be located and/or managed (e.g. through site grading and/or other associated infrastructure elements) to ensure that meltwater is fully directed to the site's SWM system. Meltwater cannot be allowed direct access to the O'Keefe Drain.

To protect the broader catchment area of the O'Keefe Drain during future development of the Site, an erosion and sediment control (ESC) plan will be required. The ESC plan should include:

- A multi-faceted approach to provide ESC;
- Silt fencing paired with sturdy construction fence along the project perimeter to protect adjacent habitats, including the O'Keefe Drain. This fencing can also act as a wildlife exclusion measure for smaller and less mobile animals that may occupy or traverse through the Site, such as turtles, snakes, and amphibians;
- 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 wetland 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, 2021a) 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.

With the above mitigations in place, no impact to the O'Keefe Drain is anticipated.

7.2 Vegetation

It is anticipated that extensive vegetation clearing will be required to accommodate future development; however, existing tree cover on the Site is minimal and confined to the west side of the site. A soft landscaped edge along the western Site boundary is respected in both the Site Plan and Landscape Plan to improve O'Keefe Drain corridor function as per the EMP. The following general protection measures are recommended during site preparation and construction to limit impacts to trees:

- Tree removal on the Site should be limited to the greatest extent possible and only remove trees necessary to accommodate construction and development;
- To minimize impacts to retained trees during development:
    - Erect a fence beyond the critical root zone (CRZ; i.e., 10x the diameter at breast height) of trees to be retained. The fence should be highly visible (orange construction fence) and paired with erosion control fencing. Pruning of branches is recommended in areas of potential conflict with construction equipment;
    - Do not place any material or equipment within the CRZ of trees;

  - Do not attach any signs, notices, or posters to any trees;
  - Do not raise or lower the existing grade within the CRZ of trees without approval;
  - Tunnel or bore when digging within the CRZ of a tree;
  - Do not damage the root system, trunk, or branches of any remaining trees; and
  - Ensure that exhaust fumes from all equipment are not directed toward any tree's canopy.

- 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; and

- Incorporate native plants into Site landscaping to the extent possible for the benefit of local wildlife and pollinators (e.g., milkweed for Monarch). It is recommended that plantings encompass a variety of native flowering species with different blooming periods to provide varied food sources for native pollinators. Further, the use of herbicides should be limited within and surrounding the planted habitat.

7.3 Species at Risk

No SAR listed as Threatened or Endangered under the ESA were considered to have a moderate or higher potential to interact with future development on the Site (Appendix B). As such, no negative impacts to Threatened or Endangered SAR are anticipated in future development of the Site. While we do not anticipate the Site to directly support any SAR, it is recognized that transient occurrence of listed wildlife species is a possibility, albeit very limited. The potential for transient wildlife presence (of listed species or otherwise) can be mitigated through the general wildlife mitigation measures provided in Section 7.5.

7.4 Significant Natural Heritage Features

The Site does not contain significant natural heritage features, as defined by the Province or City.

7.4.1 Significant Wildlife Habitat

The Site meets the qualifying features for candidate SWH for Special Concern and Rare Wildlife Species (i.e., Common Nighthawk). The preliminary SAR screening identified Common Nighthawk records approximately 850 m from the Site).

Common Nighthawks nest in a variety of open sites, including fields with little ground vegetation, although they tend to occupy more natural sites (COSEWIC, 2018). Microhabitat requirements include open sites on well-drained substrates with shade to offer protection for the young from predators and sun. The availability of suitable roosting sites that provide unobstructed flight paths, shade from the sun, and camouflage, may be another habitat requirements (COSEWIC, 2018). While the Site provides open areas for nesting through regular mowing, the lack of suitable microhabitats suggests that the potential for the Site to be deemed "significant" habitat is limited.

7.5 General Wildlife Mitigation

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

- Areas shall not 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 September 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);
        - The Site contains suitable foraging habitat for bats, however, due to the lack of roosting habitat on or adjacent to the Site, it is not expected that SAR bats are heavily utilizing the Site. To eliminate and mitigate any possibility of impacts to at-risk bats directly, tree clearing is recommended to take place outside of the roosting season (April 1 to September 30 inclusive; (MNRF, 2017)
- Due to the proximity to the O'Keefe Drain, temporary exclusion fence should be installed prior to the turtle active season (April through October) (MECP, 2021a) and should follow recommendations in Reptile and Amphibian Exclusion Fencing: Best Practices (MECP, 2021b). Temporary exclusion fence (e.g., silt fence) may be paired with ESC measures and should be installed along the perimeter of the project area. Temporary exclusion measures should be inspected and repaired weekly by a qualified biologist during the turtle active season;
- If a turtle is encountered, the project biologist should be contacted for advice. If a turtle is in immediate harm's way, it should be safely and humanely relocated to appropriate habitat. Encounters with Threatened and Endangered species should be reported to the MECP within 24 hrs.
- Develop an ESC plan. Install sediment control fence and inspect/ maintain it periodically and after large (>15mm) rain events to ensure its integrity and continued function;
- 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 should 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 (e.g., prevent turtles from nesting in stockpiles on the Site);
    - Check the entire work site for wildlife prior to beginning work each day;

- 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;
- Enforce 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.

8.0 CONCLUSION

This report provides a set of mitigation measures for implementation in the design and construction of the proposed development. The assessment of the potential for impacts to the natural heritage system is based on the implementation of these mitigation measures. It is our professional opinion that the proposed development is not anticipated to have negative impacts to existing natural features or ecological functions if the recommended mitigation measures provided in this report are implemented.

9.0 CLOSURE

This report was prepared for exclusive use by CHP Management LP as Agent for Strandherd Limited Partnership and may be distributed only by CHP Management LP as Agent for Strandherd Limited Partnership. Questions relating to the data and interpretation can be addressed to the undersigned.

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10.0 LITERATURE CITED

Birds Canada, Canadian Wildlife Service (Environment and Climate Change Canada), Ministry of Natural Resources and Forestry – Government of Ontario, Ontario Field Ornithologists (OFO), & Ontario Nature. (2009). *Ontario Breeding Birds Atlas*. https://www.birdsontario.org/jsp/datasummaries.jsp

California Academy of Sciences and National Geographic Society. (2025). *iNaturalist*. iNaturalist. https://www.inaturalist.org/

CH2M Hill. (2013). *O'Keefe Drain Environmental and Stormwater Management Plan*.

City of Ottawa. (2022). *City of Ottawa Official Plan*. https://ottawa.ca/en/planning-development-and-construction/official-plan-and-master-plans/official-plan#

City of Ottawa. (2023). *Greenspace Master Plan*. https://ottawa.ca/en/planning-development-and-construction/official-plan-and-master-plans/greenspace-master-plan

COSEWIC. (2018). *COSEWIC assessment and status report on the Common Nighthawk* Chordeiles minor *in Canada* (p. xi + 50 pp). Committee on the Status of Endangered Wildlife in Canada. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/common-nighthawk-2018.html

CSW Landscape Architectures. (2026). *Landscape Plan* [Map].

DFO. (2023). *Aquatic Species at Risk Map*. Fisheries and Oceans Canada (Previously Department of Fisheries and Oceans, "DFO"). https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

Government of Canada. (1985). Fisheries Act*, 1985 (R.S.C., 1985, c. F-14)*. https://laws-lois.justice.gc.ca/eng/acts/f-14/

Government of Canada. (1994). Migratory Birds Convention Act*, 1994 (S.C. 1994, c. 22)*. https://laws-lois.justice.gc.ca/eng/acts/m-7.01/

Government of Canada. (2002). Species at Risk Act*. 2002. S.C. 2002, c. 29*. https://laws.justice.gc.ca/eng/acts/S-15.3/

Government of Canada. (2026). *Species at Risk Public Registry*. https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10

Government of Ontario. (1990). Conservation Authorities Act*, R.S.O. 1990, c. C.27*. https://www.ontario.ca/laws/statute/90c27

Government of Ontario. (1997). Fish and Wildlife Conservation Act*, 1997, S.O. 1997, c. 41*. https://www.ontario.ca/laws/statute/97f41

Government of Ontario. (2007). Endangered Species Act*. 2007. S.O. 2007, c.6*. https://www.ontario.ca/laws/statute/07e06

Humphrey, C. (2017). *Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario* (Ontario Recovery Strategy Series, p. vii + 76). Prepared for the Ontario Ministry of Natural Resources and Forestry. https://files.ontario.ca/mnrf_sar_rs_esfm_final_accessible.pdf

Humphrey, C., & Fotherby, H. (2019). *Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Ontario.*

*Adoption of the Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) in Canada (Environment and Climate Change Canada 2018).* (Ontario Recovery Strategy Series, p. vii + 35). Prepared by the Ministry of the Environment, Conservation and Parks. https://files.ontario.ca/mecp-rs-bats-2019-12-05.pdf

Lee, H. R., Bakowsky, W., Riley, J., Bowles, J., Puddister, M., Uhlig, P., & Mcmurray, S. (1998). *Ecological Land Classification for Southern Ontario: First Approximation and its Application*. Ontario Ministry of Natural Resources. https://www.researchgate.net/profile/Wasyl-Bakowsky/publication/248626765_Ecological_Land_Classification_for_Southern_Ontario_First_Approximation_and_Its_Application/links/560e7abd08ae48337515fd59/Ecological-Land-Classification-for-Southern-Ontario-First-Approximation-and-Its-Application.pdf

MECP. (2021a). *Blanding's Turtle General Habitat Description*. Ministry of Environment, Conservation, and Parks. Published July 2013, Updated March 2021. http://www.ontario.ca/page/blandings-turtle-general-habitat-description

MECP. (2021b). *Reptile and Amphibian Exclusion Fencing*. https://www.ontario.ca/page/reptile-and-amphibian-exclusion-fencing

MECP. (2023). *Species at Risk in Ontario*. Ministry of the Environment, Conservation, and Parks. http://www.ontario.ca/page/species-risk-ontario

MMAH. (2020). *Provincial Policy Statement, 2020—Under the Planning Act*.

MMAH. (2024, October 20). *Provincial Planning Statement, 2024*. https://www.ontario.ca/files/2024-10/mmah-provincial-planning-statement-en-2024-10-23.pdf

MNR. (2010). *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition*. Ministry of Natural Resources. https://docs.ontario.ca/documents/3270/natural-heritage-reference-manual-for-natural.pdf

MNRF. (2015). *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (OMNRF Regional Operations Division: Southern Region Resources Section, p. 39). Ministry of Natural Resources and Forestry. https://dr6j45jk9xcmk.cloudfront.net/documents/4775/schedule-6e-jan-2015-access-ver-final-s.pdf

MNRF. (2017). *Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis, and Tri-Coloured Bat* (p. 13). Ministry of Natural Resources and Forestry.

MNRF. (2024). *Fish ON-Line*. Ministry of Natural Resources and Forestry. https://www.lioapplications.lrc.gov.on.ca/fishonline/Index.html?viewer=FishONLine.FishONLine&locale=en-CA

MNRF. (2025a). *Land Information Ontario*. Ministry of Natural Resources and Forestry. http://www.ontario.ca/page/land-information-ontario

MNRF. (2025b). *Make a Map: Natural Heritage Areas*. Ministry of Natural Resources and Forestry. Make a Natural Heritage Area Map. https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA

Muncaster Environmental Planning Inc. & Brunton Consulting Services. (2005). *City of Ottawa Urban Natural Areas Environmental Evaluation Study* (Final Report).

https://app06.ottawa.ca/calendar/ottawa/citycouncil/pdc/2005/05-24/Final%20Report_UNAEES.htm

Ontario Agriculture, Food and Agribusiness. (2025). *AgMaps*. Land Information Ontario. https://www.lioapplications.lrc.gov.on.ca/AgMaps/Index.html?viewer=AgMaps.AgMaps&locale=en-CA

Ontario Ministry of Mines. (2012). *Ontario Geotechnical Boreholes* [KML]. https://data.ontario.ca/dataset/geotechnical-boreholes

Ontario Nature. (2019). *Ontario Reptile and Amphibian Atlas*. https://www.ontarioinsects.org/herp/index.html?Sort=0&area2=squaresCounties&records=all&myZoom=5&Lat=47.5&Long=-83.5

Schut, L. W., & Wilson, E. A. (1987). *The Soils of the Regional Municipality of Ottawa-Carleton (Excluding the Ottawa Urban Fringe)—Volume 1 and 2*. https://sis.agr.gc.ca/cansis/publications/surveys/on/on58/index.html

The Cornell Lab of Ornithology. (2025). *eBird: An online database of bird distribution and abundance*. https://ebird.org/home

Toronto Entomologists' Association. (2025). *Ontario Butterfly Atlas*. https://www.ontarioinsects.org/atlas/

Wildlife Preservation Canada, The Xerces Society, The University of Ottawa, BeeSpotter, The Natural History Museum, London, & the Montreal Insectarium. (2025). *Bumble Bee Watch: Bumble Sightings Map*. https://www.bumblebeewatch.org/app/#/bees/map?filters=%7B%22sightingstatus_id%22:%5B%5D,%22species_id%22:%5B%2237%22%5D,%22province_id%22:%5B%5D%7D

10.1 Personal Communication

Hann, Carolyn. Species at Risk Specialist, Kemptville District. Ministry of Environment, Conservation, and Parks (MECP). Communication with KAL (K. Black), July 30, 2021.

Appendix A Qualifications of Report Authors

Kesia Miyashita, MSc (Senior Biologist)

Ms. Miyashita has over ten years of experience in environmental consulting and more than thirteen seasons of field experience in ecosystems in Ontario, Alberta, and British Columbia. During her career in environmental consulting, Ms. Miyashita has completed environmental assessments for a variety of major infrastructure projects and urban developments. Her expertise is in vascular and non-vascular plant ecology, with experience in both terrestrial and wetland ecosystems; she has performed vegetation community inventories, rare plant surveys, and invasive weed surveys in a variety of natural environments, including native forest, urban nature preserves, grasslands, and wetlands. Ms. Miyashita joined Kilgour & Associates Ltd. in May of 2021 and has since authored Environmental Impact Studies and Tree Conservation Reports and undertaken field surveys for flora and fauna, delineation of natural heritage features, and SAR surveys. Ms. Miyashita is a Professional Biologist with the Alberta Society of Professional Biologists and a Qualified Wetland Science Practitioner in the province of Alberta.

Nick Moore, BSc (Project Manager, Biologist)

Mr. Moore is a Field Ecologist with a background in Aquatic Biology. He graduated from Sir Sandford Fleming in 2018 with two Technical Diplomas for Environmental Technician and Environmental Technologist, as well as completing his Bachelor of Science with Honors in Biology and Environmental and Resource Studies at Trent University. He has worked with Kilgour & Associates Ltd. for three years. With us, he has been involved land-development projects where he has written Environmental Impact Studies and has used his academic training to characterize the flora and fauna of natural environments. Nick is a certified wetland evaluator under Ontario's Wetland Evaluation System (OWES) process.

Appendix B Species at Risk Screening and Assessment

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Closest Species Occurrence Record to the Site	General Habitat Requirements	Site Suitability	Potential for Protected Elements[1]		Potential for Negative Interactions with Protected Elements[2]
						Habitat	Individuals	
Birds								
American White Pelican (*Pelecanus erythrorhynchos*)	**Threatened**	**Not at Risk**	Cornell Lab of Ornithology (2024) – observed ~ 2km from the Site	Nest in groups on remote, sparsely vegetated islands in lakes, reservoirs or on large rivers.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Bald Eagle (*Haliaeetus leucocephalus*)	**Special Concern**	**Not at Risk**	Cornell Lab of Ornithology (2024) – observed ~ 850 m from the Site	Nest in mature forests near open water. In large trees such as pine and poplar.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Bank Swallow (*Riparia riparia*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – observed ~ 850 m from the Site	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 Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Barn Swallow (*Hirundo rustica*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2024) – observed ~ 200 m from the Site	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 Site may provide suitable foraging habitat but does not contain suitable nesting habitat.	Low	Low	Low
Black Tern (*Chlidonias niger*)	**Special Concern**	**Not at Risk**	Cornell Lab of Ornithology (2024) – observed ~ 600 m from the Site	Build floating nests in loose colonies in shallow marshes with abundant emergent vegetation, especially in cattails.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Bobolink (*Dolichonyx oryzivorus*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – observed ~ 1 km from the Site	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	The agricultural field on-Site may provide suitable habitat, although the field is smaller than preferred and is dominated by forb cover, with little grass. This Site is regularly tended and thus will not qualify as potential Bobolink habitat.	Low	Low	Low
Canada Warbler (*Cardellina canadensis*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2024) – observed ~ 2,5 km from the Site	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).	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Closest Species Occurrence Record to the Site	General Habitat Requirements	Site Suitability	Potential for Protected Elements[1]		Potential for Negative Interactions with Protected Elements[2]
						Habitat	Individuals	
Chimney Swift (*Chaetura pelagica*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – observed ~ 2 km from the Site	Nests in traditional-style open brick chimneys (and rarely in hollow trees). Tends to stay close to water.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Common Nighthawk (*Chordeiles minor*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2024) – observed ~850 m from the Site	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 (field) on-Site may provide suitable habitat.	Moderate	Moderate	Moderate
Eastern Meadowlark (*Sturnella magna*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – observed ~ 800 m from the Site	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	The agricultural field on-Site may provide suitable habitat, although the field is smaller than preferred and is dominated by forbs with little grass cover. This Site is regularly tended and as such will not qualify as potential Eastern Meadowlark Habitat.	Low	Low	Low
Eastern Wood-Pewee (*Contopus virens*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2024) – observed 1.5 km from the Site	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.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Evening Grosbeak (*Coccothraustes vespertinus*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2024) – observed ~ 1.2 km from the Site	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.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Grasshopper Sparrow (*Ammodramus savannarum*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2024) – observed ~ 850 m from the Site	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	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Closest Species Occurrence Record to the Site	General Habitat Requirements	Site Suitability	Potential for Protected Elements[1]		Potential for Negative Interactions with Protected Elements[2]
						Habitat	Individuals	
				hidden in the field, woven from grasses in a small cup-like shape.				
Least Bittern (*Ixobrychus exilis*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – observed ~ 1 km from the Site	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).	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Lesser Yellowlegs (*Tringa flavipes*)	**Threatened**	**No Status**	Cornell Lab of Ornithology (2024) – observed ~ 850 m from the Site	Breeds in boreal wetlands. Nests on dry ground or forest openings near peatlands, marshes, and ponds in the boreal forest and taiga (Government of Canada, 2021). Migrant only; nests in far north.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Olive-sided Flycatcher (*Contopus cooperi*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2024) – observed ~ 1.2 km from the Site	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.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Peregrine Falcon (*Falco peregrinus*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2024) – observed ~ 1.5 km from the Site	Nests on tall, steep cliff ledges close to large bodies of water. Urban peregrines raise their young on ledges of tall buildings, even in busy downtown areas.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Red Knot (*Calidris canutus rufa*)	**Endangered**	**Endangered**	Cornell Lab of Ornithology (2024) – observed ~ 2 km from the Site	Prefer open beaches, mudflats, and coastal lagoons where they feast on molluscs, crustaceans, and other invertebrates. Migrant only; nests in far north.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Rusty Blackbird (*Euphagus carolinus*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2024) – observed ~ 1.5 km from the Site	Prefers wet wooded or shrubby areas. Nests at edges of boreal wetlands and coniferous forests. These areas include bogs, marshes, and beaver ponds.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Short-eared Owl (*Asio flammeus*)	**Threatened**	**Special Concern**	Cornell Lab of Ornithology (2024) – observed ~ 850 m from the Site	Prefer a mosaic of grasslands and wetlands. Lives in open areas such as grasslands, marshes, and tundra where it nests on the ground and hunts for small mammals (Environment Canada, 2016c).	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Closest Species Occurrence Record to the Site	General Habitat Requirements	Site Suitability	Potential for Protected Elements[1]		Potential for Negative Interactions with Protected Elements[2]
						Habitat	Individuals	
Wood Thrush (*Hylocichla mustelina*)	**Special Concern**	**Threatened**	MNRF (2024a) – within 5 km of the Site	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.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Mammals								
Eastern Small-footed Myotis (*Myotis leibii*)	**Endangered**	**Not Listed**	Humphrey (2017) – in region	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.	Open areas on-Site may provide suitable foraging habitat; however, the Site does not appear to contain suitable roosting habitat.	Low	Low	Low
Little Brown Myotis (*Myotis lucifugus*)	**Endangered**	**Endangered**	Humphrey and Fotherby (2019) – in region	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.	Open areas on-Site may provide suitable foraging habitat; however, the Site does not appear to contain suitable roosting habitat.	Low	Low	Low
Northern Myotis / Northern Long-eared Bat (*Myotis septentrionalis*)	**Endangered**	**Endangered**	Humphrey and Fotherby (2019) – in region	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.	Open areas on-Site may provide suitable foraging habitat; however, the Site does not appear to contain suitable roosting habitat.	Low	Low	Low
Tri-colored Bat / Eastern Pipistrelle (*Perimyotis subflavus*)	**Endangered**	**Endangered**	Humphrey and Fotherby (2019) – in region	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.	Open areas on-Site may provide suitable foraging habitat; however, the Site does not appear to contain suitable roosting habitat.	Low	Low	Low
Amphibians								

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Closest Species Occurrence Record to the Site	General Habitat Requirements	Site Suitability	Potential for Protected Elements[1]		Potential for Negative Interactions with Protected Elements[2]
						Habitat	Individuals	
Western Chorus Frog (*Pseudacris triseriata*)	**Not Listed**	Great Lakes/ St. Lawrence population: **Threatened**	MNRF (2024a) – within 5 km of the Site	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.	Damp areas around the drain remnant on-Site may provide suitable habitat.	Moderate	Moderate	Moderate
Reptiles								
Blanding's Turtle (*Emydoidea blandingii*)	**Threatened**	**Endangered**	MNRF (2024a) – within 2 km of the Site	Quiet lakes, streams, and wetlands with abundant emergent vegetation. Also frequently occurs in adjacent upland forests.	The O'Keefe Drain is regularly cleaned and thus lacks a soft organic bottom. It may provide habitat as a corridor during seasonal movements but is not considered "suitable" for defining Category 2 or 3 habitat.	Low	Low	Low
Eastern Milksnake (*Lampropeltis triangulum*)	**Not Listed**	**Special Concern**	MNRF (2024a) – within 5 km of the Site	Found in a variety of open and edge habitats, including meadows, rocky outcrops, and forest edges. They can also inhabit forests. Further, they are often associated with human-made structures such as barns (Environment Canada, 2015b).	Meadow and field edges on-Site may provide suitable habitat.	Moderate	Moderate	Moderate
Midland Painted Turtle (*Chrysemys picta marginata*)	**Not Listed**	**Special Concern**	MNRF (2024a) – within 5 km of the Site	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.	Moist edges on-Site adjacent to the O'Keefe Drain may provide suitable habitat.	Moderate	Moderate	Moderate
Northern Map Turtle (*Graptemys geographica*)	**Special Concern**	**Special Concern**	MNRF (2024a) – within 5 km of the Site	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.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Snapping Turtle (*Chelydra serpentina*)	**Special Concern**	**Special Concern**	MNRF (2024a) – within 5 km of the Site	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.	Negligible	Negligible	Negligible
Arthropods								

Species Name (*Taxonomic Name*)	Status under *Endangered Species Act* (ESA)	Status under Schedule 1 of the *Species at Risk Act* (SARA)	Closest Species Occurrence Record to the Site	General Habitat Requirements	Site Suitability	Potential for Protected Elements[1]		Potential for Negative Interactions with Protected Elements[2]
						Habitat	Individuals	
American Bumble Bee (*Bombus pensylvanicus*)	**Special Concern**	**No Status**	COSEWIC (2018) – in region	Habitat generalist. Requires a variety of habitat throughout it's life stages. Often found in or adjacent to open fields and meadows, grasslands, farmlands, and other undisturbed open habitats (Government of Canada, 2019).	The open field on-Site may provide suitable habitat.	Moderate	Moderate	Moderate
Monarch (*Danaus plexippus*)	**Special Concern**	**Special Concern**	Toronto Entomologists' Association (2024)	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.	The open field and edges/roadsides may provide suitable habitat if milkweeds are present.	Low	Low	Low
Transverse Lady Beetle (*Coccinella transversoguttata*)	**Endangered**	**Special Concern**	MNRF (2024a)	Able to live in a wide range of habitats, including agricultural areas, suburban gardens, parks, coniferous forests, deciduous forests, prairie grasslands, meadows, and riparian areas.	There have been no records of the species in Ontario since 1990 (MECP, 2020b).	None	None	None
Yellow-banded Bumble Bee (*Bombus terricola*)	**Special Concern**	**Special Concern**	ECCC (2022) – in region	This species is a forage and 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.	The open field and edges/roadsides may provide suitable habitat.	Moderate	Moderate	Moderate
Vascular Plants								
Black Ash (*Fraxinus nigra*)	**Endangered**	**No Status**	MNRF (2024a)	Predominantly a wetland species found in swamps, floodplains, and fens.	The Site does not appear to contain suitable habitat.	**Negligible**	**Negligible**	Negligible
Butternut (*Juglans cinerea*)	**Endangered**	**Endangered**	MNRF (2024a)	Commonly found in riparian habitats but is also found on rich, moist, well-drained loams and well-drained gravels, especially those of limestone origin.	The Site does not appear to contain suitable habitat.	Low	Negligible	Negligible

1 The potential for occurrence of protected habitats and individuals within the project area is estimated based on the following considerations:

	Habitat	Individuals
None	It is not possible for the habitat of the species to occur in proximity to the project site	The species is documented as no longer occurring in the ecoregion or could not occur in proximity to the project area.
Negligible	The usage of the project site as habitat is possible but would be highly unlikely/unusual.	Transient occurrence near the project area is possible but is very unlikely.
Low	The project site includes areas that could be used by the species as habitat, but such usage is considered unlikely given the quality of the feature, a lack of individuals in the broader area, or other (relative) site considerations.	Transient occurrence near the project area possible, but the species would be unlikely to use or require the area.
Moderate	The project site includes areas that could reasonably be expected to provide confirmed or defined habitat within a time frame relevant to the project.	The species occurs in the vicinity and could actively use the site, or transient occurrence should be anticipated.
High	The project site includes areas confirmed to actively provide habitat or to constitute habitat based on official habitat description guidance documents.	The species is confirmed as present on, and actively using the site.

2 The potential for negative project interaction with species and/or their habitat is estimated considering both the likelihood of presence and the general details of the project (e.g., timing, extent), and following the definitions below. If the potential differs for habitat and individuals, the higher value is reported, unless otherwise justified

	Habitat	Individuals
None	It is not possible for the species to occupy the site area due to access barriers.	The species is documented as no longer occurring in the ecoregion
Negligible	Negligible habitat potential, or low habitat potential and the project would not be anticipated to alter the habitat.	Negligible occurrence potential for presence, or absence during the entire span of the project.
Low	Low habitat potential, or medium habitat potential and the project would not be anticipated to alter the habitat.	Low occurrence potential for presence, or the project design excludes individuals in a non-harassing manner by default.
Moderate	Medium habitat potential, or high habitat potential and the project would not be anticipated to alter the habitat (as expressed by MECP).	Medium occurrence potential for presence, or the project design excludes individuals in accordance with agency guidelines/directives by default (i.e., outside of mitigation measures prescribed in this report).
High	The project area will alter identified habitat.	The project will interact with individuals.

LITERATURE CITED

Birds Canada, Canadian Wildlife Service (Environment and Climate Change Canada), Ministry of Natural Resources and Forestry – Government of Ontario, Ontario Field Ornithologists (OFO), and Ontario Nature. 2009. Atlas of the Breeding Birds of Ontario 2001-2005. Available online at: https://www.birdsontario.org/jsp/datasummaries.jsp

Burke, Peter S. 2012. Management Plan for the Black Tern (Chlidonias niger) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources (OMNR), Peterborough, Ontario. vi + 47 pp. Available online at: https://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_mtpln_blktrn_en.pdf

California Academy of Sciences and National Geographic Society. 2022. iNaturalist. Available online at: https://www.inaturalist.org/

Committee on the Status of Endangered Wildlife in Canada. 2011. COSEWIC Assessment and Status Report on the Macropis Cuckoo Bee (*Epeoloides pilosulus*) in Canada. Available online at: https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/cosewic/sr_macropis_cuckoo_bee_0911_eng.pdf

Committee on the Status of Endangered Wildlife in Canada. 2015. COSEWIC Assessment and Status Report on the Black-foam Lichen (*Anzia colpodes*) in Canada. Available online at: https://sararegistry.gc.ca/virtual_sara/files/cosewic/sr_Black-foam%20Lichen_2015_e.pdf

The Cornell Lab of Ornithology. 2022. eBird: An online database of bird distribution and abundance. Available online at: https://ebird.org/home

COSEWIC. 2018. COSEWIC assessment and status report on the American Bumble Bee *Bombus pensylvanicus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 52 pp. Available online at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/american-bumble-bee-2018.html

COSEWIC. 2019. COSEWIC assessment and status report on the Suckley's Cuckoo Bumble Bee *Bombus suckleyi* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 70 pp. Available online at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/suckley-cuckoo-bumble-bee-2019.html

Environment Canada. 2011. Management Plan for the Louisiana Waterthrush (*Seiurus motacilla*) in Canada [Proposed]. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iii + 18 pp. Available online at: https://www.sararegistry.gc.ca/virtual_sara/files/plans/mp_louisiana_waterthrush_e.pdf

Environment Canada. 2013. Management Plan for the Yellow Rail (*Coturnicops noveboracensis*) in Canada. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iii + 24 pp. Available online at: https://www.sararegistry.gc.ca/virtual_sara/files/plans/mp_yellow_rail_e_final.pdf

Environment Canada. 2014a. Recovery Strategy for the Western Chorus Frog (*Pseudacris triseriata*), Great Lakes / St. Lawrence – Canadian Shield Population, in Canada [Proposed], Species at Risk Act Recovery Strategy Series, Environment Canada, Ottawa, v + 46 pp. Available online at: https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/plans/rs_rainette-fx-grillon-ouest-w-chorus-frog-prop-0614_e.pdf

Environment Canada. 2014b. Management Plan for the Eastern Ribbonsnake (*Thamnophis sauritus*), Great Lakes population, in Canada [Proposed]. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iv + 23 pp. Available online at: https://www.sararegistry.gc.ca/virtual_sara/files/plans/mp_eastern_ribbonsnake_e_proposed.pdf

Environment Canada. 2015a. Management Plan for the Rusty Blackbird (*Euphagus carolinus*) in Canada. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iv + 26 pp. Available online at: https://www.sararegistry.gc.ca/virtual_sara/files/plans/mp_rusty_blackbird_e_final.pdf

Environment Canada. 2015b. Management Plan for the Eastern Milksnake (*Lampropeltis triangulum*) in Canada. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iii + 27 pp. Available online at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/management-plans/eastern-milksnake-2015.html#_03_3

Environment Canada. 2016a. Recovery Strategy for the Canada Warbler (*Cardellina canadensis*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vii + 56 pp. Available online at: https://www.sararegistry.gc.ca/virtual_sara/files/plans/rs_canada%20warbler_e_final.pdf

Environment Canada. 2016b. Recovery Strategy for the Common Nighthawk (*Chordeiles minor*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vii + 49 pp. Available online at: https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/plans/rs_common%20nighthawk_e_final.pdf

Environment Canada. 2016c. Management Plan for the Short-eared Owl (*Asio flammeus*) in Canada [Proposed]. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. v + 35 pp. Available online at: file:///C:/Users/skatsaras/Downloads/Management_plan_asio_falmmeus_Feb23_2016.pdf

Environment and Climate Change Canada (ECCC). 2018a. Recovery Strategy for the Eastern Whip-poor-will (*Antrostomus vociferus*) in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. vi + 107 pp. Available online at: https://files.ontario.ca/mecp-rs-easternwhip-poor-will-2019-12-05.pdf

Environment and Climate Change Canada (ECCC). 2018b. Recovery Strategy for the Blanding's Turtle (*Emydoidea blandingii*), Great Lakes / St. Lawrence population, in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. viii + 59 pp. Available online at: https://files.ontario.ca/mecp-rs-blandings-turtle-2019-12-05.pdf

Environment and Climate Change Canada (ECCC). 2022. Management Plan for the Yellow banded Bumble Bee (*Bombus terricola*) in Canada [Proposed]. Species at Risk Act Management Plan Series. Environment and Climate Change Canada, Ottawa. iv + 46 pp. Available online at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/management-plans/yellow-banded-bumble-bee-proposed-2022.html

Fisheries and Oceans Canada (previously Department of Fisheries and Oceans, "DFO"). 2022. Aquatic Species at Risk Map. Available online at: https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

Government of Canada. 2019. American Bumble Bee (*Bombus pensylvanicus*): COSEWIC assessment and status report 2018. Available online at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/american-bumble-bee-2018.html

Government of Canada. 2020. Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*): COSEWIC assessment and status report 2019. Available online at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/suckley-cuckoo-bumble-bee-2019.html

Government of Canada. 2021. Lesser Yellowlegs (*Tringa flavipes*): COSEWIC assessment and status report 2020. Available online at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/lesser-yellowlegs-2020.html

Government of Canada. 2022. Species at Risk Public Registry. Available online at: http://www.registrelep-sararegistry.gc.ca/sar/index/default_e.cfm

Humphrey, C. 2017. Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp. Available online at: https://files.ontario.ca/mnrf_sar_rs_esfm_final_accessible.pdf

Humphrey, C., and H. Fotherby. 2019. Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. vii + 35 pp. + Appendix. Adoption of the Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tri-colored Bat (*Perimyotis subflavus*) in Canada (Environment and Climate Change Canada 2018). Available online at: https://files.ontario.ca/mecp-rs-bats-2019-12-05.pdf

Kraus, T., B. Hutchinson, S. Thompson and K. Prior. 2010. Recovery Strategy for the Gray Ratsnake (*Pantherophis spiloides*) – Carolinian and Frontenac Axis populations in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 23 pp. Available online at: https://www.ontario.ca/page/gray-ratsnake-recovery-strategy

Ministry of Environment, Conservation, and Parks (MECP). 2019a. Algonquin Wolf. Available online at: https://www.ontario.ca/page/algonquin-wolf

Ministry of Environment, Conservation, and Parks (MECP). 2019b. Gypsy Cuckoo Bumble Bee. Available online at: https://www.ontario.ca/page/gypsy-cuckoo-bumble-bee

Ministry of Environment, Conservation, and Parks (MECP). 2019c. Nine-spotted Lady Beetle. Available online at: https://www.ontario.ca/page/nine-spotted-lady-beetle

Ministry of Environment, Conservation, and Parks (MECP). 2019d. Rapids Clubtail. Available online at: https://www.ontario.ca/page/rapids-clubtail

Ministry of Environment, Conservation, and Parks (MECP). 2019e. Rusty-patched Bumble Bee. https://www.ontario.ca/page/rusty-patched-bumble-bee

Ministry of Environment, Conservation, and Parks (MECP). 2019f. Pale-bellied Frost Lichen. Available online at: https://www.ontario.ca/page/pale-bellied-frost-lichen

Ministry of Environment, Conservation, and Parks (MECP). 2020a. Gray Fox. Available online at: https://www.ontario.ca/page/grey-fox

Ministry of Environment, Conservation, and Parks (MECP). 2020b. Transverse Lady Beetle. Available online at: https://www.ontario.ca/page/transverse-lady-beetle

Ministry of Environment, Conservation, and Parks (MECP). 2022. Species at Risk in Ontario. Available online at: https://www.ontario.ca/page/species-risk-ontario

Ministry of Natural Resources and Forestry (MNRF). 2022a. Natural Heritage Information Centre: Make Natural Heritage Map. Available online at: https://www.ontario.ca/page/make-natural-heritage-area-map

Ministry of Natural Resources and Forestry (MNRF). 2022b. Land Information Ontario. Available online at: https://www.ontario.ca/page/land-information-ontario

Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch. Wildlife Section. Science Development and Transfer Branch. Southcentral Sciences Section. 151 pp. Available at: https://dr6j45jk9xcmk.cloudfront.net/documents/3620/significant-wildlife-habitat-technical-guide.pdf

Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas. Available online at: https://www.ontarioinsects.org/herp/index.html?Sort=0&area2=squaresCounties&records=all&myZoom=5&Lat=47.5&Long=-83.5

Seburn, D.C. 2010. Recovery strategy for the Common Five-lined Skink (*Plestiodon fasciatus*) – Carolinian and Southern Shield populations in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 22 pp. Available online at: https://www.ontario.ca/page/common-five-lined-skink-recovery-strategy

Toronto Entomologists' Association. 2022. Ontario Butterfly Atlas. Available online at: https://www.ontarioinsects.org/atlas/

Wildlife Preservation Canada, the Xerces Society, the University of Ottawa, BeeSpotter, The Natural History Museum, London, and the Montreal Insectarium. 2022. Bumble Bee Watch: Bumble Sightings Map. Available online at: https://www.bumblebeewatch.org/app/#/bees/map?filters=%7B%22sightingstatus_id%22:%5B%5D,%22species_id%22:%5B%2237%22%5D,%22province_id%22:%5B%5D%7D

Appendix C Vascular Plant Species List

Appendix D - Vascular Plant List for the CUM1 Community		
Species Common Name	**Scientific Name**	**Notes**
Alfalfa	*Medicago sativa*	
Alsike Clover	*Trifolium hybridum*	
American Elm	*Ulmus americana*	Confimed to drain remnant banks. Only one individual. DBH <5 cm
Bird Vetch	*Vicia cracca*	
Broadleaf Plantain	*Plantago Major*	
Bull Thistle	*Cirsium vulgare*	
Canada Anemone	*Anemone canadensis*	
Canada Goldenrod	*Solidago canadensis*	
Canada Thistle	*Cirsium arvense*	
Dwarf Mallow	*Malva neglecta*	
Common Cattail	*Typha latifolia*	
Common Dandelion	*Taraxacum officinale*	
Common Mullein	*Verbascum thapsus*	
Field Horsetail	*Equisetum arvense*	
Fleabane sp.	*Erigeron sp.*	
Hawthorn sp.	*Crataegus sp.*	Confined to drain remnant banks. Only one individual
Hedge Bedstraw	*Galium mollugo*	
Lesser Burdock	*Arctium minus*	
Manitoba Maple	*Acer negundo*	Along drain remnant banks. DBH <10 cm
Perennial Sow-thistle	*Sonchus arvensis*	
Queen Anne's Lace	*Daucus carota*	
Red Clover	*Trifolium pratense*	
Reed Canary Grass	*Phalaris arundinacea*	
White Clover	*Trifolium repens*	
White Willow	*Salix alba*	Confimed to drain remnant banks. Only one individual. DBH < 10 cm
Wild Parsnip	*Pastinaca sativa*	
Wild Red Raspberry	*Rubus idaeus*	dense along drain remnant banks, sparse occurrences throughout Site
Yellow Rocket	*Barbarea vulgaris*	