Environmental Impact Study for 593 & 601 Laurier Avenue West Ottawa, Ontario

2025-02-28

Final Report

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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 of Heritage Investments Ltd. in support of a proposed Zoning Bylaw Amendment application for 593 & 601 Laurier Avenue West in Ottawa, Ontario (the "Site"; Figure 1). The Site comprises a small (0.28 ha) parcel immediately west of Bronson Avenue and north of Laurier Avenue West in central Ottawa. The Site contains three residential structures (two low-rise apartment blocks with municipal addresses of 601 and 603 Laurier Avenue and one heritage dwelling at 593 Laurier Avenue), surface parking areas, manicured lawns, and landscaped trees and shrubs. The north edge of the Site is characterized by a steeply sloping escarpment, with a retaining wall situated along Slater Street downslope of the Site. The escarpment is identified as a natural heritage feature in the City of Ottawa's Official Plan (City of Ottawa, 2021). The Site is currently zoned Residential Fourth Density (R4-UD) and Residential Fifth Density (R5-Q); a Zoning Bylaw Amendment (ZBA) is required to accommodate the building of a 28-storey apartment building with three levels of below-grade parking.

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, 2021). 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.

This EIS includes the results from the required field studies and provides recommendations and mitigation measures to minimize impacts of the proposed development on the natural heritage features located on and adjacent to the Site.

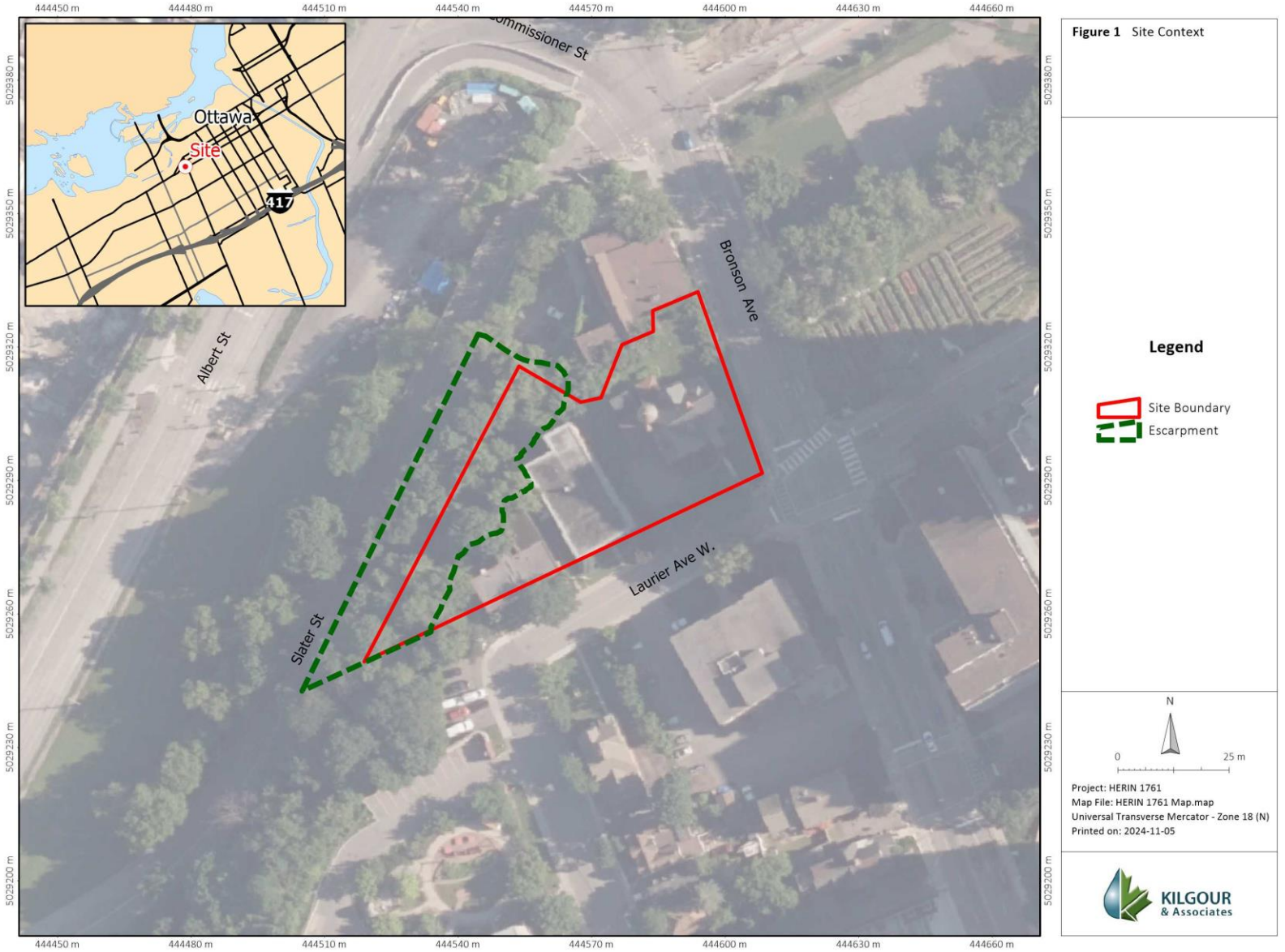

Figure 1 Site Context

2.0 ENVIRONMENTAL POLICY CONTEXT

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

2.1 The Provincial Policy/Planning Statements, 2020/2024

The Provincial *Policy* Statement (PPS) was issued under Section 3 of the *Planning Act* (Government of Ontario, 1990a). The PPS in effect when this project began came into effect on May 1, 2020 (Government of Ontario, 2020). Under that version of the PPS, natural features are afforded protections under Section 2.1. Protections included 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: Ministry of Natural Resources (MNR), 2010). This manual recommends the approach and technical criteria for protecting natural heritage features and areas in Ontario.

Importantly, while the 2020 PPS was the version in effect at the start of this project, it must be noted that the Province approved the updated Provincial *Planning* Statement 2024 (herein also the "PPS") on August 20, 2024; it came into effect on October 20, 2024. The revised PPS is intended to simplify and integrate existing policies to achieve housing objectives while providing tools for municipalities to deliver on housing objectives. While the 2024 PPS will formally be the planning document in effect going forward, other than renumbering the relevant policies, there have been no meaningful changes related to Natural Heritage considerations between the two versions. Thus, for the analysis and recommendations of this EIS, the "PPS" documents from 2020 and 2024 are effectively equivalent.

2.2 City of Ottawa Official Plan

The City of Ottawa Official Plan (OP; 2021) 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 was first approved in 2003 and is typically updated every five years. The Official Plan includes a Natural Heritage Features map (Schedule C12), providing additional information on wetlands, watercourses, and wooded areas within the City boundaries (2021). In accordance with the PPS, the OP provides the same restrictions and prohibitions as identified in Section 2.1 above.

Additionally, the OP establishes a Natural Heritage System Overlay (Schedule C11), which provides mappings of potential Natural Heritage Features (wetlands, watercourses, wooded areas, and other elements associated features to be protected in accordance with the PPS). The mappings of Natural Heritage Features provided within Schedule C11 are not fully ground-truthed. As such the presence of a "mapped" Natural Heritage Feature on a property necessitates an EIS review prior to development or site alteration on that property to confirm the nature of the feature. Conversely, the lack of such a mapping in Schedule C11 does not confirm the absence of Natural Heritage Features.

The Natural Heritage System Overlay also identifies and delineates the “Heritage System Core Area”. Within Natural Heritage System Overlay Natural Heritage System Core Areas, development and/or site alteration are required to maintain or enhance the integrity, biodiversity and ecosystem services of the area. Moreover, development and/or site alteration are not to compromise the potential for long-term enhancement and restoration of the ecological integrity, biodiversity and ecosystem services of the area, i.e. even where Natural Heritage Features are not directly present. Construction of roads within Core Areas, however, is normally supportable through an Environmental Assessment process.

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 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.

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

2.6 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 performed 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 (*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.

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, 1990a). The Act provides mechanisms to regulate works and site alterations that have potential to affect erosion, flooding, land conservation, and alterations to waterbodies within their jurisdiction. It is the obligation of all Conservation Authorities to implement Ontario Regulations 42/06 and 146/06 to 182/06 *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* under Section 28 of the *Conservation Authorities Act* for relevant works.

3.0 PROPERTY IDENTIFICATION

The Site is approximately 0.28 ha in size and is located at 593 & 601 Laurier Avenue West, Ottawa, Ontario (45.414898° N, 75.708363°W; Figure 1). The site is directly north of Laurier Avenue West and west of Bronson Avenue. The north edge of the Site is characterized as a steeply sloping escarpment, with portions of a retaining wall along Slater Street downslope of the Site. The Site is currently zoned Residential Fourth Density (R4-UD) and Residential Fifth Density (R5-Q).

The Site is bordered by:

- Escarpment (City of Ottawa natural heritage feature), Slater Street, residential and commercial properties and greenspace to the north;
- Mixed-density residential properties and park spaces to the east;
- Laurier Avenue and mixed-density residential properties to the south; and
- Naturally-vegetated escarpment areas and mixed-density residential properties 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 of Ottawa and Rideau Valley Conservation Authority (RVCA). A pre-consultation meeting was held on December 19, 2023, to determine the scope of the EIS. Pre-consultation comments identified that the need for this EIS was triggered by the potential for species at risk (SAR) or their habitat on-site and the designated natural feature (escarpment) located adjacent to the Site in OP Schedule C11-C (likely associated with the escarpment feature).

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.

Existing data on soils in the vicinity of the Site were obtained from the Ontario Ministry of Agriculture, Food and Rural Affairs' AgMaps (OMAFRA, 2023) and the Ontario Geotechnical Boreholes Data collected in 2001 (Ontario Ministry of Mines, 2012). Other supporting studies undertaken in 2024 include a geotechnical investigation for the Site (LRL Engineering Ltd., 2024) and a Tree Conservation Report (IFS Associates, 2024).

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, 2019; Appendix B). The Preliminary Screening considered data sources including:

- Species at Risk in Ontario (SARO; Ministry of Environment, Conservation, and Parks (MECP, 2024);
- Species at Risk Public Registry (Government of Canada, 2024);
- Natural Heritage Information Centre (NHIC; Ministry of Natural Resources, and Forestry (MNRF, 2024c);
- Land Information Ontario (MNRF, 2024b);
- 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, 2024);
- eBird (The Cornell Lab of Ornithology, 2024);
- iNaturalist (California Academy of Sciences and National Geographic Society, 2024);
- Bumble Bee Watch (Wildlife Preservation Canada et al., 2024);
- 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, 2024a).

4.1.4 Significant Woodland Review

The City of Ottawa's (2022) 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. Historical aerial imagery indicates that the forested escarpment along the north edge of the Site and extending downslope toward Slater Street has supported trees since at least 1959 (i.e., at least 65 years). However, the forested area measures only 0.2 ha and therefore does not meet the size criteria for Significant Woodland within the urban boundary.

4.2 Field Surveys

Field surveys conducted in autumn 2024 included a general site reconnaissance survey as well as a targeted investigation for Chimney Swift (*Chaetura pelagica*) habitat features (i.e., uncapped chimneys on the buildings on-site; Table 1). The 2024 field surveys are detailed in the sections below.

Table 1 Summary of Field Studies

Date	Purpose	Conditions	Personnel
October 16, 2024	• Site reconnaissance	• 10°C • Partly cloudy • Winds 8 km/hr • No precipitation	• Veronique Landriault
October 31, 2024	• Chimney Swift habitat investigation	• 24°C • Partly cloudy • Winds 19 km/hr • No precipitation	• Jonathan Seguin

4.2.1 Vegetation

4.2.1.1 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 informed how the Site was divided into vegetation communities based on variation in land cover, topography, and vegetation structure. Additional supporting data used to inform the ELC included a Tree Conservation Report (IFS Associates, 2024). During the site reconnaissance, the dominant plant species were noted within each proposed ecosite in the field to further classify ELC units. Due to the late season study, ELC units were identified to the finest resolution possible (ecosite or type) based on observable conditions at the time. Representative photos of each ELC unit on the Site were taken and are included with the community descriptions in this report.

4.2.2 Wildlife

4.2.2.1 Chimney Swift Investigation

Chimney Swifts nest in traditional-style open brick chimneys, typically near open water. Suitable chimneys have an opening diameter greater than 28.5 cm and a rough interior surface (COSEWIC, 2018). Research has indicated that Chimney Swifts prefer chimneys that extend 2.86 m above the roofline, have an internal area of approximately 1 m^2, and are attached to non-residential buildings (COSEWIC, 2018). Prior to European settlement, Chimney Swifts used hollow trees and tree cavities; they occasionally still utilize hollow trees and cavities.

During the site reconnaissance, buildings on and adjacent to the Site were inspected from ground-level to determine whether chimneys were capped, and therefore unsuitable for Chimney Swift use, or uncapped, with potential for use as habitat. All but one chimney (i.e., the chimney at the northwest corner of the building at 603 Laurier Avenue) appeared capped when viewed from the ground.

Subsequently, KAL undertook a drone investigation of the chimneys on all three buildings on-site. The drone provided an aerial view of the buildings' roofs. Photographs taken by the drone were reviewed and used to confirm the presence and type of chimney cap (e.g., mesh screen or full cap), if any, and to note the aperture size and structural materials of any uncapped chimneys.

5.0 RESULTS

5.1 Landforms, Soils and Geology

The Site is situated within the Ottawa Valley Clay Plains physiographic region (Ontario Ministry of Mines, 2012; Schut & Wilson, 1987). The physiography of this region is characterized by clay plains and bedrock uplands (Schut & Wilson, 1987). Soils are mapped in Report No. 58 of the Ontario Institute of Pedology, The Soils of the Regional Municipality of Ottawa-Carleton (Schut & Wilson, 1987) as Urban (ZUR). Boreholes drilled in the vicinity of the Site reported silt and sand overlying limestone bedrock (Ontario Ministry of Mines, 2012).

The geotechnical investigation for the Site indicates a layer of fill material, comprising a silty sand material mixed with gravel, at the surface in all survey locations, ranging in depth from 0.48 m to 1.02 m below the surface of the ground (LRL Engineering Ltd., 2024). Limestone bedrock occurred at depths ranging from 0.48 m to 1.02 m below the surface of the ground. Groundwater was detected at a depth of 711 m below the surface of the ground (LRL Engineering Ltd., 2024).

5.2 Surface Water and Fish Habitat

There are no surface water features present on or adjacent to the Site. As such, there is no fish habitat on or adjacent to the Site.

5.3 Vegetation

5.3.1 Ecological Land Classification

Two distinct landcovers or ELC units were delineated on the Site (Figure 2). The majority of the Site is characterized as residential lands, supporting residential properties and manicured vegetation. A smaller area along the north edge of the Site (along the escarpment feature) comprises a Sugar Maple dominated deciduous forest stand. Dominant species in each community are included in the descriptions below.

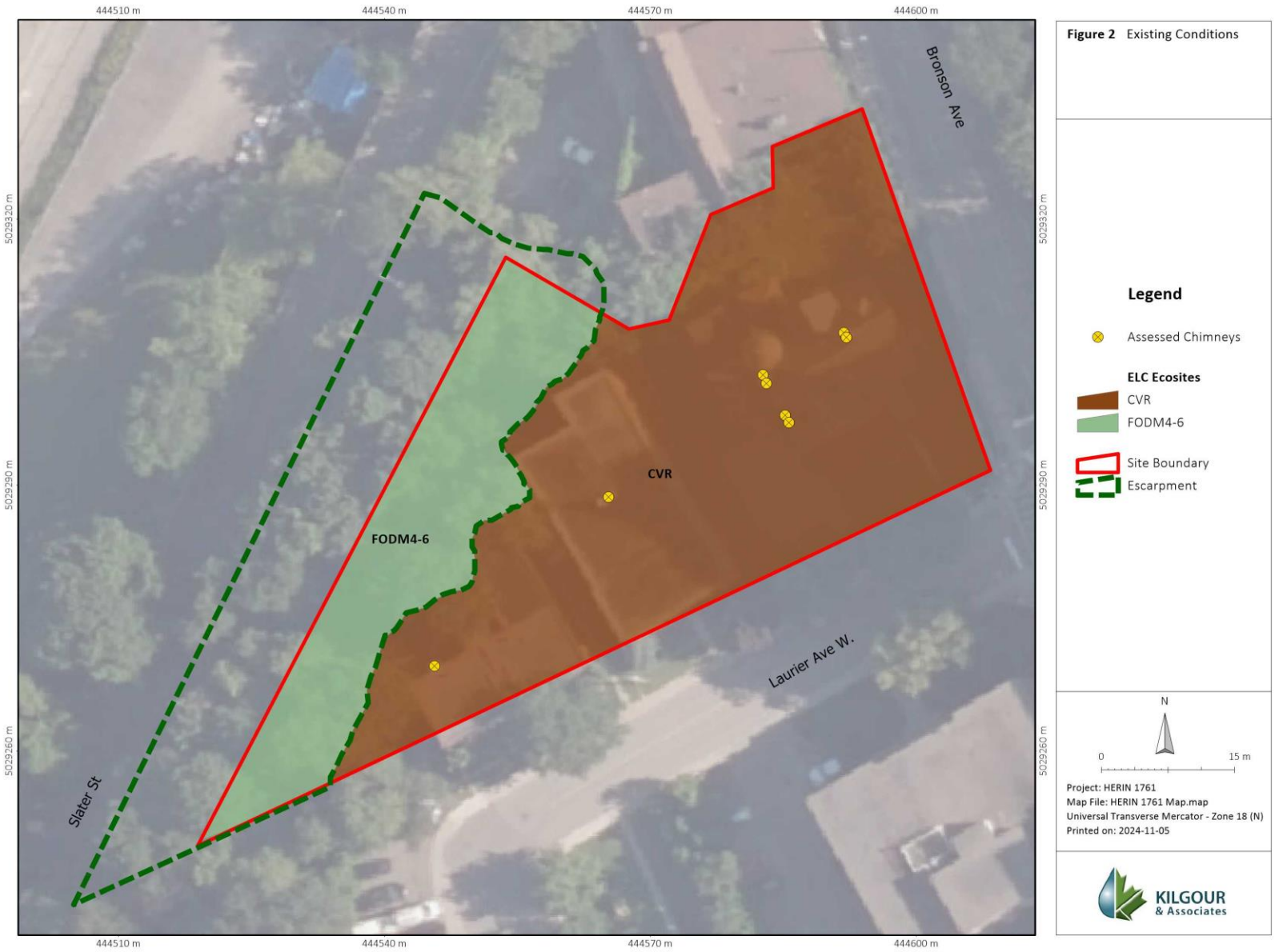

Figure 2 Existing Conditions

5.3.1.1 Residential (CVR)

The majority of the Site is characterized as a Residential landcover unit, comprising two low-rise apartment blocks and one heritage dwelling (Figure 2). Manicured lawn areas (dominated by Kentucky Bluegrass) with planted trees and shrubs, including Honey Locust (*Gleditsia tracanthos*), Crab Apple (*Malus* sp.), Emerald Cedar (*Thuja occidentalis* 'Emerald'), Japanese Tree Lilac (*Syringa reticulata*) and Norway Maple (*Acer platanoides*), front onto Laurier Avenue (Figure 3).

Figure 3 Residential (CVR) unit, along Laurier Avenue, looking east (photo taken October 16, 2024

5.3.1.2 Dry – Fresh Norway Maple Deciduous Forest Type (FODM4-6)

The north edge of the Site is characterized as a Dry – Fresh Norway Maple Deciduous Forest Type (FODM4-6). It is situated on a steep, north-facing slope extending down to Slater Street (Figure 2). Lower portions of the slope along Slater Street are supported by retaining walls. The canopy is dominated by Norway Maple, with occasional White Ash (*Fraxinus americanus*), Manitoba Maple (*Acer negundo*) and American Elm (*Ulmus americana;* Figure 4). Groundcover is sparse, with much of the slope characterized by exposed soils and rock. Occasional groundcover species include Wild Grape (*Vitis riparia*) and seedlings of Norway Maple, Manitoba Maple and Common Lilac (*Syringa vulgaris*).

Figure 4 Dry – Fresh Norway Maple Deciduous Forest (FODM4-6) situated along the steeply sloping escarpment on the north edge of the Site; photo taken October 16, 2024

5.4 Wildlife Surveys

5.4.1 Chimney Swift Nesting Habitat Investigation

The Site currently supports three buildings: two low-rise apartment buildings at addresses 601 and 603 Laurier Avenue and one heritage dwelling at 593 Laurier Avenue. Five chimneys were investigated using a drone: three on the heritage dwelling, and one on each of the apartment buildings. Photographs taken by the drone confirmed that four of the five chimneys were capped. The three chimneys on the heritage dwelling supported either full caps or mesh screens over the chimney openings (Figure 5). The chimney on the building at 601 Laurier Avenue also supported a full cap (Figure 6). The chimney on the apartment building at 603

Laurier Avenue appeared uncapped at the time of the investigation; however, recent aerial imagery suggests that it had previously been capped. That chimney comprises a narrow pipe lining set within the brick chimney (Figure 7); the opening of the pipe is smaller than the preferred chimney diameter for Chimney Swift (i.e. <20 cm vs. the minimum requirement of 28.5 cm). Additionally, the smooth surface of the narrow pipe would not provide a suitable nesting surface for Chimney Swift. Based on these observations, it is not anticipated that any of the chimneys on-site provide suitable habitat for Chimney Swift.

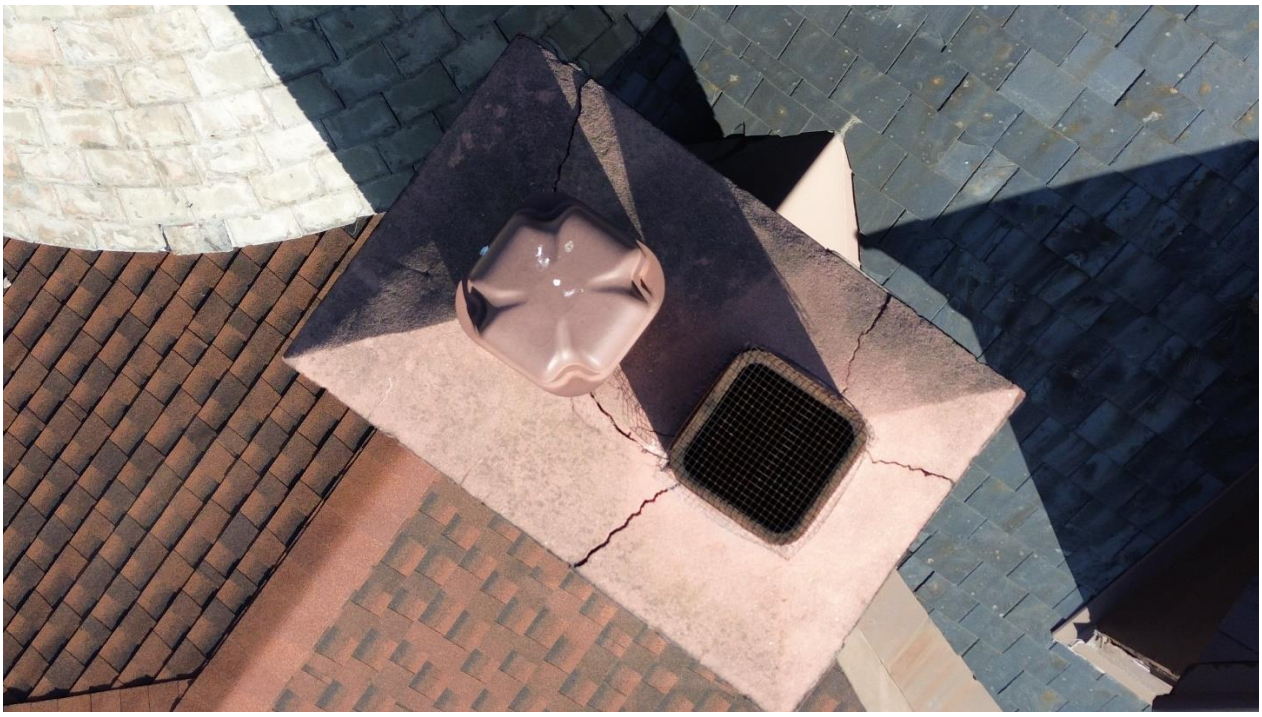

Figure 5 Chimney caps on the heritage dwelling, showing a full cap to the left and a mesh screen cap to the right; photo taken October 31, 2024

Figure 6 Capped chimney on the apartment building at 603 Laurier Avenue; photo taken October 31, 2024

Figure 7 Uncapped chimney on the apartment building at 603 Laurier Avenue, showing a pipe inset into a traditional style chimney; photo taken October 31, 2024

5.5 Species at Risk

The Preliminary SAR Screening identified a total of 64 SAR with some potential to occur within the broader vicinity of the Site based on a desktop review of observation records and publicly available databases (Appendix B). The 64 SAR initially screened for consideration were assessed based on general habitat availability on the Site, the potential for those species to occur within the project area, and/or their likelihood for interactions generally with future development. Of those 64 species, nine were considered to have some potential to occur on the Site and/or to interact with the project (Table 2; Appendix B).

Table 2 Species at risk with moderate or high potential to interact with the project

Common Name	Taxonomic Name	ESA Status	SARA Status	Potential to Interact with Project
Birds				
Chimney Swift	*Chaetura pelagica*	Threatened	Threatened	Moderate
Mammals				
Eastern Red Bat	*Lasiurus borealis*	Endangered (January 2025)	Not Listed	Moderate
Eastern Small-footed Myotis	*Myotis leibii*	Endangered	Not Listed	Moderate
Hoary Bat	*Lasiurus cinereus*	Endangered (January 2025)	Not Listed	Moderate
Little Brown Myotis	*Myotis lucifugus*	Endangered	Endangered	Moderate
Northern Myotis	*Myotis septentrionalis*	Endangered	Endangered	Moderate
Silver-haired Bat	*Lasionycteris noctivagans*	Endangered (January 2025)	Not Listed	Moderate
Tri-colored Bat	*Perimyotis subflavus*	Endangered	Endangered	Moderate
Reptiles				
Eastern Milksnake	*Lapropeltis triangulum*	Not Listed	Special Concern	Moderate

[1] Rows highlighted in yellow indicate species ranked as Threatened or Endangered under the ESA that have a moderate to high likelihood of occurring on the Site.

SAR presented in Table 1 that are not listed or are listed as Special Concern under the ESA are not considered further as SAR in this report because they do not receive individual or habitat protection under the ESA (whereas Threatened and Endangered species do). However, individuals of these 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 under the ESA may receive habitat protection if they are observed in habitats that meet the criteria for designation as SWH for Special Concern Species (MNRF, 2015a). Species of Special Concern will be discussed with SWH in Section 5.7.

Of the protected SAR reviewed, eight demonstrated potential to interact with the proposed project. These species are discussed further below.

5.5.1 Chimney Swift

Chimney Swift is listed as Threatened under the ESA. Nest-supporting features are highly sensitive to alteration, especially during the breeding season. Chimney Swifts depend on these features for reproduction, providing areas for resting, shelter, refuge from the elements, and are habitually used. Chimney Swifts exhibit high nest and roost site fidelity with nest and roost sites being used from year to year as long as the feature remains stable (MECP, 2021b).

Chimney Swift Category 1 Habitat is defined as a human-made nest/roost, or a natural nest/roost cavity plus the area within 90 m of the natural cavity (MECP, 2021b). Categories 2 and 3 for habitat are not applicable to this species.

Per the Chimney Swift General Habitat Description (MECP, 2021b), activities in the habitat area can continue as long as the function of these areas for the species is maintained and individuals of the species are not killed, harmed, or harassed. In natural settings, the area immediately surrounding a nesting or roosting tree cavity (i.e., 90 m) is important for maintaining the function and physical stability of the feature. As such, it is included as part of the Category 1 habitat description. This buffer, however, is not included as part of the protected area around non-natural nest-supporting structures, such as a constructed chimney. Within the urban environment, the consideration of whether adjacent human activities are compatible with the habitat area is limited to the assessment of impacts on the chimney itself.

None of the chimneys on-site appeared to be suitable for Chimney Swift. Four of the five chimneys were fully capped or covered in a mesh screen, and the one chimney that remained uncapped was topped by a narrow pipe, which had a diameter smaller than the 28.5 cm preferred by Chimney Swift. As such, Chimney Swift are unlikely to be using the chimneys of the buildings on-site and no impacts from the proposed development on Chimney Swift are anticipated.

5.5.2 SAR Bats

The Committee on the Status of Species at Risk in Ontario (COSSARO) has updated the provincial status for the Hoary Bat, Silver-haired Bat, and Eastern Red Bat to Endangered. These species will receive general habitat protection on or prior to January 31, 2025. Although these species are not officially listed at the time of preparing this EIS, it is anticipated that protections will apply throughout a future development timeline. As such, these species are considered and assessed as Endangered species in this EIS, as well as previously-listed bat species.

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 FODM4-6 unit along the north edge of the Site mainly supports medium-sized trees (DBH ranging from 15 cm to 56 cm) that were generally in good to fair condition (IFS Associates, 2024). The TCR identifies four trees in relatively poor condition and/or in early stages of decay that may be suitable as bat roosting habitat. No snags were observed on-Site. Some small piles of rocks were present on site, potentially suitable for nesting Eastern Small-footed SAR bats. The Site is unlikely to provide opportunity for bat maternity colonies, but may provide non-maternal roosting and foraging habitat, which is not formally protected as SAR habitat or SWH. Buildings used for roosting are not considered SWH.

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 Significant Wildlife Habitat

The Significant Wildlife Habitat (SWH) Criteria Schedule for Ecoregion 6E (MNRF, 2015a) 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.

5.6.1 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.

The Site does not meet the criteria for seasonal concentration areas.

5.6.2 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. Escarpment habitat is present along the northern boundary of the site; see Section 5.7 for further details.

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 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 (2015a) 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. The Site is a small, highly developed Site within a dense urban area; as such, it does not meet the criteria for Candidate SWH for any special concern or rare wildlife species with occurrence records in the vicinity.

5.7 Other Natural Heritage Features

The Site does not contain significant wetlands, significant coastal wetlands, ANSIs (life/earth science), or fish habitat. The Site does not contain significant valleylands or greenspace linkages. The westernmost portion of the Parliament Hill Urban Natural Area (UNA #181) is located approximately 440 m north of the Site.

The escarpment along the north edge of the Site is identified as a natural heritage feature in Schedule C11 of the City of Ottawa Official Plan (City of Ottawa, 2021). The escarpment area is mapped as a relatively small, isolated feature, disconnected from nearby natural heritage features (e.g., the Parliament Hill UNA to the north). The feature meets the City of Ottawa's definition of escarpment, defined as having "*slopes exceeding 75 per cent and height greater than three meters".* However, while the feature meets the definition of an escarpment, it is more accurately characterized as a steep, vegetated slope with limited ecological value, given its small size, isolated nature, and heavily urbanized setting (Figure 4).

No other significant natural heritage features are located within 120 m of the Site.

6.0 DESCRIPTION OF THE PROPOSED PROJECT

The proposed rezoning is intended to support the construction of a 28-storey apartment complex, with three levels of underground parking. The future site construction would require demolition of the low-rise apartment buildings at 601 and 603 Laurier Avenue, impacts to the west side of the heritage home at 593 Laurier Avenue.

Tree removal along Laurier Avenue and along the upper-most edge of the escarpment (i.e. near the rear of the Site) is anticipated to support the proposed project. While impacts to the mapped escarpment are anticipated, given its isolated, heavily urbanized nature and limited ecological value, there will be no significant ecological loss or net loss of 'escarpment habitat' as a result. It is anticipated that the proposed development will result in the loss of 27 trees, 20 of which are within the non-public facing portion of the escarpment (IFS Associates, 2024).

Figure 8 Proposed Development

7.0 IMPACT ASSESSMENT AND MITIGATION

7.1 Surface Water

For this project, as there are no surface water features present on the Site or immediately downstream of the Site, the proposed development of the Site is expected to have negligible potential to impact surface water and/or fish habitat.

Regardless, to protect waters within the broader catchment area during future development of the Site, an erosion and sediment control (ESC) plan will be required and must be developed to the satisfaction of RVCA. 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. 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 any 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.

7.2 Vegetation

No Butternut or Black Ash trees or any other regionally uncommon plant species were detected on the Site through either the TCR or the site reconnaissance field studies.

Tree removal on the Site will be limited to the fullest extent possible and only remove trees necessary to accommodate construction and development. It is anticipated that the proposed development will result in the loss of 27 trees, 20 of which are within the non-public facing portion of the escarpment (IFS Associates, 2024). To compensate for the loss of these trees, 27 trees should be planted on and/or directly adjacent to the Site as determined by the final site landscape plan and in consultation with City (i.e. for new on-site and off-site trees respectively. Further considerations on tree planting options/requirements are detailed in Section 7.5 below.

To help offset vegetation loss, species of trees (as well as of all other plant forms) indicated within landscape plans must be indigenous to the Ottawa area. The following tree and shrub species are recommended for planting and should be used to direct the development of the landscape plan for the Site. The following species are appropriate given Site conditions and are native and non-invasive: Alternate-leaf Dogwood (*Cornus alternifolia*), Basswood (*Tilia americana*), Black Walnut (*Juglans nigra*), Bur Oak (*Quercus macrocarpa*), , Honey Locust (*Gleditsia triacanthos*), Ironwood (*Ostrya virginiana*), Maple-leaf Viburnum (*Viburnum acerifolium*), Nannyberry (*Viburnum lentago*), Northern Bush-honeysuckle (*Diervilla lonicera*), Red Maple (*Acer rubrum*), Red Oak (*Quercus rubra*),, White Birch (*Betula papyrifera*), , and White Oak (*Quercus alba*).

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;
- 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

7.3.1 Chimney Swift

Past records had indicated past observations of Chimney Swift within 150 m of the Site, as recently as 2016 (The Cornell Lab of Ornithology, 2024). Upon detailed investigation of the existing buildings on the Site, however, it was confirmed that none of the chimneys are suitable for by Chimney Swifts. As such, it is not anticipated that Chimney Swifts would utilize the Site, and the proposed redevelopment of the Site is not anticipated to impact Chimney Swift. General wildlife mitigation measures are described in greater detail below.

7.3.2 SAR Bats

Potential impacts to individual at-risk bats directly can be mitigated by clearing trees, and the removal of potential bat roosting rock piles and crevices outside of the roosting season (April 1 to September 30, inclusive; MECP, 2024). Following this tree-clearing window would also avoid potential interactions with birds and bird nests under the Migratory Birds Convention Act (MBCA; Government of Canada 1994). As such, SAR bats are generally considered unlikely to be impacted by future site development.

7.4 General Wildlife Mitigation

The following mitigation measures shall be implemented during future construction to generally protect wildlife and potential SWH areas:

- 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);
        - Five SAR bat species were detected during acoustic bat surveys. The Site contains suitable foraging and roosting habitat. To 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). The breeding and roosting period for bats is recognized as April 1 to September 30 (MNRF, 2015b).

- 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, 2021c). 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;

- Develop an ESC plan. Install sediment control fence and inspect/maintain it periodically and after each rain event 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.

7.5 Other Significant Natural Heritage Features

The Site does not contain Significant Natural Heritage features. UNA #181 is located approximately 440 m north of the Site and is separated from the Site by dense urban developments and is unlikely to be affected by the proposed development. The mapped escarpment on the north side of the Site is recognized by the City of Ottawa as a natural heritage feature in Schedule C-11 of the OP. The proposed development will encroach into the natural community along the top of the escarpment. Due to its small size, isolated and heavily urbanized nature, it is unlikely that the proposed construction will have a significant impact to the existing minimal ecological value of the feature.

Despite having limited direct ecological functionality, tree cover within the escarpment generally is recognized as having some social benefit as a “green” feature, visible to the broader city on the approach into the downtown core from the northwest. However, trees to be removed from site will be limited to the back side of the escarpment green space against the rear property of the new site development (i.e. opposite to the publicly viewable side of the forest facing the northwest downtown approach way). As such, the removal of those trees would be anticipated to significantly reduce the visually apparent tree cover on the escarpment from the perspective of that approach way.

Regardless, it is recommended here that at least 20 of the new trees to be planted (i.e. per Section 7.2 above) be located within, or just below the existing treed area of the escarpment, especially within the newly available open space associated with the former extension of Slater Street immediately west of Bronson Avenue. This road strip was recently decommissioned and removed as part of the alignment of the adjacent broader streetscape, providing an opportunity for renaturalization of the lower toe of the escarpment.

Planting plans for trees in association with the escarpment slope (i.e. just north of the Site) must be coordinated with both the City and NCC, especially as the toe area of the escarpment may soon be subject to significant redevelopment that would either block public views of the escarpment trees anyway or remove the trees fully. If, through those coordination efforts, the City and/or NCC indicates the existence of such plans, then planting trees throughout the escarpment to maintain its natural heritage value would not be practical, feasible, or necessary.

8.0 CONCLUSION

This report provides a set of mitigation measures for employment 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 Heritage Investments and may only be distributed by Heritage Investments. Questions relating to the data and interpretation can be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.

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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. (2024). *iNaturalist*. iNaturalist. https://www.inaturalist.org/

City of Ottawa. (2021). *City of Ottawa Official Plan*. https://ottawa.ca/en/planning-development-and-construction/official-plan-and-master-plans/official-plan#

City of Ottawa. (2022). *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment*. https://documents.ottawa.ca/sites/documents/files/significant_woodlands_en.pdf

COSEWIC. (2018). *COSEWIC assessment and status report on the Chimney Swift* Chaetura pelagica *in Canada* (p. xii + 63). 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/chimney-swift-2018.html

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

Environment Canada. (2015). *Recovery strategy for Little Brown Myotis (Myotis lucifugus), Northern Myotis (Myotis septentrionalis), and Tri-colored Bat (Perimyotis subflavus) in Canada [Proposed]* (Species at Risk Act Recovery Strategy Series, p. 110).

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. (2024). *Species at Risk Public Registry*. https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10

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

Government of Ontario. (1990b). Planning Act*, R.S.O. 1990, c. P.13*. https://www.ontario.ca/laws/statute/90p13

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

Government of Ontario. (2020). *Provincial Policy Statement, 2020—Under the Planning Act*. https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf

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

IFS Associates. (2024). *Tree conservation report for 593, 601-603 Laurier Avenu West, Ottawa*.

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

LRL Engineering Ltd. (2024). *Geotechnical investigation: Proposed 28-storey apartments 593, 601, 603 Laurier Avenue West, Ottawa, Ontario*.

MECP. (2019). *Client's Guide to Preliminary Screening for Species at Risk* (Species at Risk Branch, Permission and Compliance, p. 9). Ministry of Environment, Conservation and Parks. https://www.lambtonshores.ca/en/invest-and-build/resources/Documents/Building-and-Renovating/Client-Guide-to-Preliminary-Screening-May-2019.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). *Chimney Swift General Habitat Description*. Ministry of the Environment, Conservation, and Parks. http://www.ontario.ca/page/chimney-swift-general-habitat-description

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

MECP. (2024). *Species at Risk in Ontario*. Ministry of the Environment, Conservation, and Parks. http://www.ontario.ca/page/species-risk-ontario

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. (2015a). *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. (2015b). *Technical Note: Species at Risk (SAR) Bats* (OMNRF Regional Operations Division, p. 37). Ministry of Natural Resources and Forestry.

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. (2024a). *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. (2024b). *Land Information Ontario*. Ministry of Natural Resources and Forestry. http://www.ontario.ca/page/land-information-ontario

MNRF. (2024c). *Natural Heritage Information Centre: Make a Natural Heritage Map*. Ministry of Natural Resources and Forestry. http://www.ontario.ca/page/make-natural-heritage-area-map

OMAFRA. (2023). *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. (2024). *eBird: An online database of bird distribution and abundance*. https://ebird.org/home

Toronto Entomologists' Association. (2024). *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. (2024). *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

Appendix A Qualifications of Report Authors

Kesia Miyashita, MSc, P.Biol.

Kesia is a biologist with fifteen years of experience, including 10 years of experience in environmental consulting and extensive field experience in ecosystems in Ontario, Alberta, and British Columbia. During her career in environmental consulting, Kesia 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, tree surveys, rare plant surveys and invasive weed surveys in a variety of natural environments, including native forest, urban nature preserves, grasslands, and wetlands. Prior to joining Kilgour & Associates Ltd. in May 2021, Kesia was employed with the Canadian Wildlife Service, where she contributed to policies and guidance documents related to the interface between the Species at Risk Act and the Impact Assessment Act and developed a strong understanding of key pieces of federal legislation. Kesia 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)

Nick 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.

Anthony Francis, PhD

Dr. Francis is a Senior Ecologist with 20 years' consulting experience to both government agencies and private industry. He has worked on a diversity of projects relating to species at risk (SAR), invasive species, terrestrial and aquatic habitat, environmental effects monitoring and mitigation, and fate/effects of contaminants. Within each of these subject areas, Dr. Francis has completed projects addressing specific site concerns and broader policy initiatives. Dr. Francis' academic background is in spatial ecology with a focus on tree species diversity. As a Senior Ecologist at KAL, he regularly completes TCRs, Environmental Impact Statements, and Integrated Environmental Reviews for land development projects throughout Ottawa and eastern Ontario. He is also a certified Butternut Health Assessor (BHA #104).

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) – approximately 1.4 km from 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
Bank Swallow (*Riparia riparia*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – approximately 280 m from 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) – approximately 280 m from 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.	Structures on and adjacent to the Site may provide suitable nesting habitat.	Low	Low	Low
Black Tern (*Chlidonias niger*)	**Special Concern**	**Not at Risk**	Cornell Lab of Ornithology (2024) – approximately 900 m from 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) – approximately 1.4 km from Site	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Canada Warbler (*Cardellina canadensis*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2024) – approximately 700 m from 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
Cerulean Warbler (*Setophaga cerulea)*	**Threatened**	**Endangered**	Cornell Lab of Ornithology (2024) – approximately 4.5 km from Site	Prefers mature deciduous forests. Area-sensitive species that require large forests (>100 ha) (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) – approximately 130 m from Site	Nests in traditional-style open brick chimneys (and rarely in hollow trees). Tends to stay close to water.	Buildings on and adjacent to the Site may provide suitable nesting habitat if chimneys are uncapped.	Moderate	Moderate	Moderate
Common Nighthawk (*Chordeiles minor*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2024) – approximately 350 m from 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 on and adjacent to the Site may provide suitable nesting habitat.	Low	Low	Low
Eastern Meadowlark (*Sturnella magna*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – approximately 530 m from Site	Breeds in hayfields, pastures, agricultural fields, and abandoned fields with tall grass that are ≥5 ha, and preferably >30 ha.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Eastern Whip-poor-will (*Antrostomus vociferus*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – approximately 530 m from Site	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, 2018a).	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Eastern Wood-Pewee (*Contopus virens*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2024) – approximately 300 m from 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) – approximately 500 m from 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	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	
				strongly linked to the cycle of Spruce Budworm.				
Golden Eagle (*Aquila chrysaetos*)	**Endangered**	**Not at Risk**	Cornell Lab of Ornithology (2024) – approximately 500 m from Site	Nests in remote, undisturbed areas, usually building their nests on ledges on a steep cliff/riverbank or large trees if needed. Most hunting is done near open areas such as large bogs or tundra. Migration only; no reported nests in Ottawa.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Golden-winged Warbler (*Vermivora chrysoptera*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2024) – approximately 1.23 km from Site	Ground-nests in areas of young shrubs surrounded by mature forest. Often found in areas that have recently been disturbed such as field edges, hydro or utility right-of-ways, or logged areas. Requires >10 ha of habitat (OMNR, 2000).	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) – approximately 500 m from 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 hidden in the field, woven from grasses in a small cup-like shape.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Horned Grebe (*Podiceps auritus*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2024) – approximately 500 m from Site	Nest in small ponds, marshes, and shallow bays that contain areas of open water and emergent vegetation. Migrant only; no reported nests in Ottawa.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Hudsonian Godwit (*Limosa haemastica*)	**Threatened**	**No Status**	Cornell Lab of Ornithology (2024) – approximately 1.12 km from Site	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 far north.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Least Bittern (*Ixobrychus exilis*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – approximately 2.5 km from Site	Found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels. They	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible

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						Habitat	Individuals	
				prefer larger marshes >5 ha in size and are intolerant of loss of habitat and human disturbance (OMNR, 2000).				
Lesser Yellowlegs (*Tringa flavipes*)	**Threatened**	**No Status**	Cornell Lab of Ornithology (2024) – approximately 600 m from 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
Loggerhead Shrike (*Lanius ludovicianus*)	**Endangered**	**Endangered**	Cornell Lab of Ornithology (2024) – approximately 600 m from Site	Prefers grazed pastures or other grasslands with scattered low trees and shrubs, especially hawthorns. Lives in fields or alvars (areas of exposed bedrock) with short grass, which makes it easier to spot prey.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Louisiana Waterthrush (*Seiurus motacilla*)	**Threatened**	**Threatened**	Cornell Lab of Ornithology (2024) – approximately 2.82 km from Site	Found in large tracts of mature deciduous or mixed forests in steep, forested ravines with running streams. Clear headwater streams and associated wetlands are preferred sites, but it will also inhabit wooded swamps (Environment Canada, 2011).	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) – approximately 500 m from 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) – approximately 245 m from 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.	Tall buildings on and adjacent to the Site and escarpment to the north may provide suitable habitat.	Low	Low	Low
Prothonotary Warbler (*Protonotoria citrea)*	**Endangered**	**Endangered**	Cornell Lab of Ornithology (2024) – approximately 3.37 km from Site	Nests in small cavities in the trunks of dead or dying trees standing in or near flooded woodlands or swamps. Only known to nest in southwestern Ontario, primarily along the north shore of Lake Erie.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Red-headed Woodpecker	**Endangered**	**Endangered**	Cornell Lab of Ornithology (2024) –	Lives in open woodland and woodland edges and is often	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible

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						Habitat	Individuals	
(*Melanerpes erythrocephalus*)			approximately 500 m from Site	found in parks, golf courses, and cemeteries. These areas typically have many dead trees, which the birds use for nesting and perching.				
Red-necked Phalarope (*Phalaropus lobatus*)	**Special Concern**	**Special Concern**	Cornell Lab of Ornithology (2024) – approximately 500 m from Site	Lives in coastal and inland marshes where it feeds in shallow ponds and nests on the grassy edges. Always near water during migration. 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) – approximately 560 m from 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) – approximately 830 m from 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
Wood Thrush (*Hylocichla mustelina*)	**Special Concern**	**Threatened**	Cornell Lab of Ornithology (2024) – approximately 700 m from 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 Red Bat (*Lasiurus borealis)*	**Endangered (January 2025)**	**Not Listed**	COSEWIC (2023) – in region	Typically roost among foliage, selecting areas that have overhead foliage for cover and open flight space below. Use both deciduous and coniferous forests of any age class. Maternity roosts tend to be in large diameter, tall trees	Buildings and trees on and adjacent to the Site may provide suitable roosting habitat.	Moderate	Moderate	Moderate
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.	Buildings and trees on and adjacent to the Site may provide suitable roosting habitat.	Moderate	Moderate	Moderate

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						Habitat	Individuals	
				Overwinters in caves and abandoned mines.				
Hoary Bat (*Lasiurus cinereus*)	**Endangered (January 2025)**	**Not Listed**	COSEWIC (2023) – in region	Typically roost among foliage, selecting areas that have overhead foliage for cover and open flight space below. Use both deciduous and coniferous forests of any age class. Maternity roosts tend to be in large diameter, tall trees	Buildings and trees on and adjacent to the Site may provide suitable roosting habitat.	Moderate	Moderate	Moderate
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.	Buildings and trees on and adjacent to the Site may provide suitable roosting habitat.	Moderate	Moderate	Moderate
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.	Buildings and trees on and adjacent to the Site may provide suitable roosting habitat.	Moderate	Moderate	Moderate
Silver-haired Bat (*Lasionycteris noctivagans*)	**Endangered (January 2025)January 2025)**	**Not Listed**	COSEWIC (2023) – in region	Typically roost under bark and in tree cavities, typically in large, decaying coniferous and deciduous trees. May roost in or on buildings.	Buildings and trees on and adjacent to the Site may provide suitable roosting habitat.	Moderate	Moderate	Moderate
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.	Buildings and trees on and adjacent to the Site may provide suitable roosting habitat.	Moderate	Moderate	Moderate
Reptiles								

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						Habitat	Individuals	
Blanding's Turtle (*Emydoidea blandingii*)	**Threatened**	**Endangered**	MNRF (2024a) – within 5 km of Site	Quiet lakes, streams, and wetlands with abundant emergent vegetation. Also frequently occurs in adjacent upland forests.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Eastern Milksnake (*Lampropeltis triangulum*)	**Not Listed**	**Special Concern**	MNRF (2024a)	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).	Structures on and adjacent to the Site and rocky escarpment to the north may provide suitable habitat.	Moderate	Moderate	Moderate
Eastern Musk Turtle / Stinkpot (*Sternotherus odoratus*)	**Special Concern**	**Special Concern**	MNRF (2024a)	Found in lakes, ponds, marshes, and rivers that are generally slow-moving, have abundant emergent vegetation, and muddy bottoms that they burrow into for winter hibernation.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Midland Painted Turtle (*Chrysemys picta marginata*)	**Not Listed**	**Special Concern**	California Academy of Sciences and National Geographic Society (2024) – approximately 450 m from 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.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Northern Map Turtle (*Graptemys geographica*)	**Special Concern**	**Special Concern**	MNRF (2024a)	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**	California Academy of Sciences and National Geographic Society (2024) – approximately 1.09 km from 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								
American Bumble Bee (*Bombus pensylvanicus*)	**Special Concern**	**No Status**	MNRF (2024a) – within 5 km of Site	Habitat generalist. Requires a variety of habitat throughout its life stages. Often found in or adjacent to open fields and meadows, grasslands,	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible

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						Habitat	Individuals	
				farmlands, and other undisturbed open habitats (Government of Canada, 2019).				
Gypsy Cuckoo Bumble Bee (*Bombus bohemicus*)	**Endangered**	**Endangered**	MNRF (2024a) – within 5 km of Site	Live in diverse habitats including open meadows, mixed farmlands, urban areas, boreal forest, and montane meadows. Host nests occur in abandoned underground rodent burrows and rotten logs.	Currently only known to occur in Pinery Provincial Park (MECP, 2019b).	None	None	None
Monarch (*Danaus plexippus*)	**Special Concern**	**Special Concern**	California Academy of Sciences and National Geographic Society (2024) – approximately 350 m from Site	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 Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Nine-spotted Lady Beetle (*Coccinella novemnotata*)	**Endangered**	**No Status**	MNRF (2024a) – within 5 km of Site	Occurs within agricultural areas, suburban gardens, parks, coniferous forests, deciduous forests, prairie grasslands, meadows, riparian areas, and isolated natural areas.	There have been no records of this species in Ontario since the mid-1990s (MECP, 2019c).	None	None	None
Rusty-patched Bumble Bee (*Bombus affinis*)	**Endangered**	**Endangered**	MNRF (2024a) – within 5 km of Site	Can be found in open habitat such as mixed farmland, urban settings, savannah, open woods, and sand dunes.	The range of this species is limited to southwestern Ontario (MECP, 2019e).	None	None	None
Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*)	**Endangered**	**No Status**	COSEWIC (2019) – in region	Habitat generalist. Host nests occur in meadows, old fields, farmlands, croplands, urban areas, and woodlands (COSEWIC, 2019).	The Site is within an urban area and may provide suitable habitat.	Low	Low	Low
Yellow-banded Bumble Bee (*Bombus terricola*)	**Special Concern**	**Special Concern**	California Academy of Sciences and National Geographic Society (2024) – approximately 1.05 km from Site	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 Site is within an urban area and may provide suitable habitat.	Low	Low	Low
Fish								

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						Habitat	Individuals	
American Eel (*Anguilla rostrata*)	**Endangered**	**No Status**	California Academy of Sciences and National Geographic Society (2024) – approximately 400 m from Site	Primarily nocturnal, hiding in soft substrate or submerged vegetation during the day.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Channel Darter (*Percina copelandi*)	**Special Concern**	**Special Concern**	DFO (2023) – within 5 km of Site	Prefers clean streams and lakes with moderate current over sandy or rocky substrate.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Cutlip Minnow (*Exoglossum maxillingua)*	**Threatened**	**Special Concern**	DFO (2023) – within 5 km of Site	Lives in warmer rivers and creeks with clear, slow-moving water, and a rocky or gravel bottom.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Lake Sturgeon (*Acipenser fulvescens*)	**Endangered**	**No Status**	MNRF (2024a) – within 5 km of Site	Only found in large lakes and rivers. Forages in cool water, 4-9 m deep over soft substrate; spawns in shallower, fast-flowing areas over rocks or gravel.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Northern Brook Lamprey (*Ichthyomyzon fossor*)	**Special Concern**	**Special Concern**	DFO (2023) – within 5 km of Site	Inhabits clear, coolwater streams. The larval stage requires soft substrates such as silt and sand for burrowing which are often found in the slow-moving portions of a stream. Adults are found in areas associated with spawning, including fast flowing riffles comprised of rock or gravel.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Northern Sunfish (*Lepomis peltastes*)	**Special Concern**	**Special Concern**	DFO (2023) – within 5 km of Site	Lives in shallow vegetated areas of quiet, slow flowing rivers and streams, as well as warm lakes and ponds with sandy banks or rocky bottoms.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
River Redhorse (*Moxostoma carinatum*)	**Special Concern**	**Special Concern**	DFO (2023) – within 5 km of Site	Prefers fast-flowing, clear rivers over rocky substrate.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Silver Lamprey (*Ichthyomyzon unicuspis*)	**Special Concern**	**Special Concern**	DFO (2023) – within 5 km of Site	Requires clear water where they can find fish hosts, relatively clean stream beds of sand and organic debris for larvae to live in, and unrestricted migration routes for spawning. Larvae live 4-7 years in burrows (prefer soft substrates); filter-feed on plankton.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Molluscs								

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						Habitat	Individuals	
Hickorynut (*Obovaria olivaria*)	**Endangered**	**Endangered**	DFO (2023) – within 5 km of Site	Live on the sandy beds in large, wide, deep rivers – usually more than two or three metres deep – with a moderate to strong current. Ottawa River.	The Site does not appear to contain suitable habitat.	Negligible	Negligible	Negligible
Vascular Plants								
Black Ash (*Fraxinus nigra*)	**Endangered**	**No Status**	MNRF (2024a) – within 5 km of Site	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**	California Academy of Sciences and National Geographic Society (2024) – approximately 1.23 km from Site	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.	Negligible	Negligible	Negligible
Lichens								
Black-foam Lichen (*Anzia colpodes*)	**No Status**	**Threatened**	MNRF (2024a) – within 5 km of Site	Grows on the trunks of mature deciduous trees growing on level or sloped land where high humidity is supplied by nearby wetlands, lakes, or streams. The most common host is Red Maple but it also occurs on White Ash, Sugar Maple, Red Oak, and very occasionally on other species.	Assumed to no longer occur in Ontario (COSEWIC, 2015).	None	None	None
Pale-bellied Frost Lichen (*Physconia subpallida*)	**Endangered**	**Endangered**	MNRF (2024a) – within 5 km of Site	Typically grows on the bark of hardwood trees such as White Ash, Black Walnut, and American Elm. Can also be found growing on fence posts and boulders.	There are no recent records of the species in the Ottawa area (MECP, 2019f).	None	None	None