Environmental Impact Statement
Phoenix Homes -
Old Montreal Road

Draft Report

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Submitted To:

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List of Acronyms and Abbreviations

ANSI – Areas of natural or scientific interest
cm – centimetres
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
EIS – Environmental Impact Statement
ELC – Ecological Land Classification
ESA – *Endangered Species Act*
FWCA – *Fish and Wildlife Conservation Act*
ha - hectare
KAL – Kilgour & Associates Ltd.
km – kilometre
LIO – Land Information Ontario
m – metre
MBCA – *Migratory Birds Convention Act*
MECP – Ministry of Environment, Conservation and Parks
NESS – natural environmental system strategy
NHIC – Natural Heritage Information Centre (2020a)
OBBA – Ontario Breeding Bird Atlas
OMAFRA – Ontario Ministry of Agriculture, Food, and Rural Affairs
OP – Official Plan
ORAA – Ontario Reptile and Amphibian Atlas
PPS – Provincial Policy Statement
PSW – Provincially Significant Wetland,
RNA – Rural Natural Area
ROW – Right-of-Way
RVCA – Rideau Valley Conservation Authority
SAR – Species at risk
SARA – *Species at Risk Act*
SARO – Species at Risk in Ontario
SWH – Significant Wildlife Habitat
TCR – Tree Conservation Report
UNA – Urban Natural Area

1.0 INTRODUCTION

This report is an Environmental Impact Statement (EIS) prepared by Kilgour & Associates Ltd. (KAL; Appendix A) on behalf of Phoenix Homes in support of their proposed development of the properties on Old Montreal Road, Ottawa, Ontario. The subject properties (Cumberland; CON 1 PT LOT 27, 28 OS; PIN 145260027, 145260023, 145260026, 145260024, 145260025) are located at 1154, 1180, 1172, 1176, and 1208 Old Montreal Road and cover approximately 18.5 ha. The proposed development area (herein the "Site") will include approximately 5.3 ha on the northern half of the properties (Figure 1).

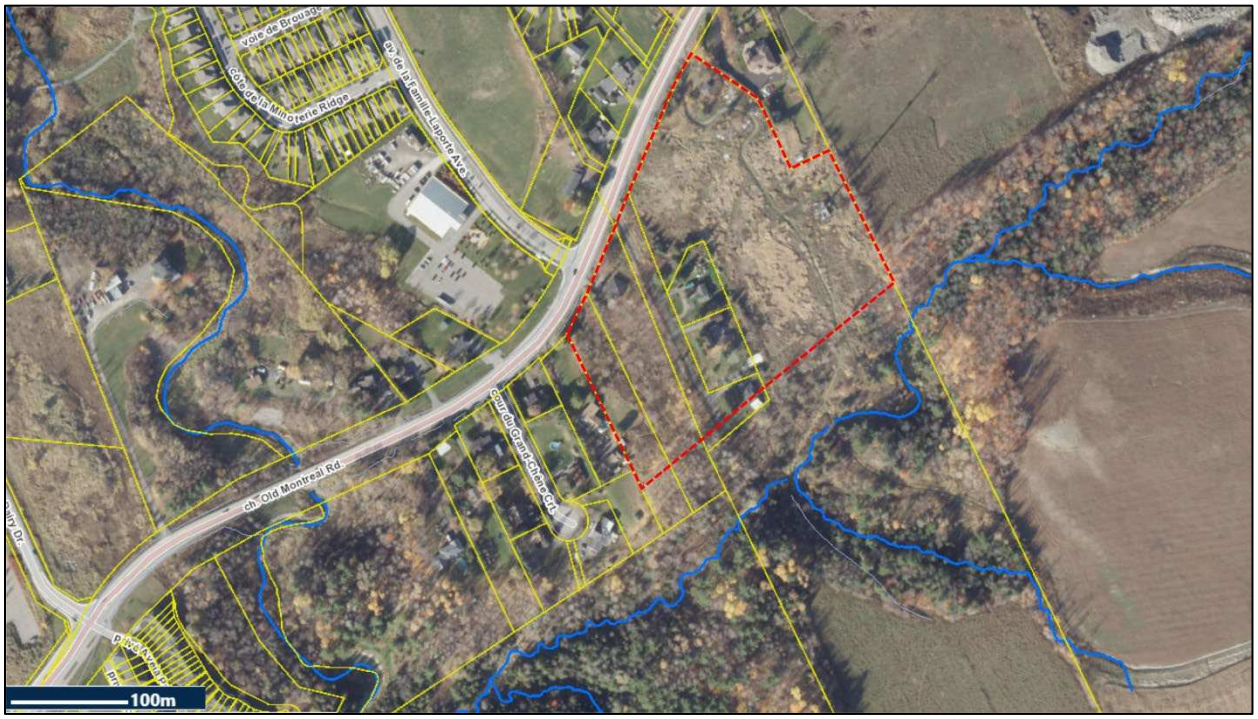


Figure 1. Site context

The full property areas cross multiple rural zones (RR and RU), a parks and open spaces zone (O1) and an agricultural (AG) zone at the south-most end (Ottawa, 2017a). The Site itself spans only the RR an RU zones and abuts the O1 zone. The purpose of the RR zone is to recognize and permit large-lot residential development in planned subdivisions. The purpose of the RU zone accommodates agricultural, forestry, country residential lots created by severance, and other land uses characteristic of Ottawa's countryside. The purpose of the O1 zone is to permit parks, open spaces, and related and compatible uses. These include river corridors such as the Cardinal Creek on site.

In the City of Ottawa (hereafter referred to as "the City"), an EIS is required when development or site alteration is proposed in or adjacent to natural heritage features (City of Ottawa, 2015). The purposes of an EIS are to 1) identify natural heritage features on or adjacent to the site, 2) identify potential impacts of the proposed development to those features, and 3) identify mitigation measures to minimize or eliminate those impacts. There are several triggers for this EIS including: 1) proximity of the site to a

Cardinal Creek tributary; and, 2) the presence of potential habitat for species at risk (SAR) including Butternut (*Juglans cinerea*) and Barn Swallow (*Hirundo rustica*).

The specific project supported by this EIS is the development of a new residential subdivision on the northern portion of the site. The southern boundary of the proposed development will be to the north of an unnamed tributary to Cardinal Creek and its associated valley, with the appropriate buffer determined by geological surveys of the valley and in consultation with the City and RVCA.

2.0 ENVIRONMENTAL POLICY CONTEXT

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

2.1 The Provincial Policy Statement, 2020

The Provincial Policy Statement (PPS; 2020) was issued under Section 3 of the Planning Act (1990). The current PPS came into effect on May 1, 2020. Natural features are afforded protections under Section 2.1 of the PPS. Protections may include maintenance, restoration, and improved function of diversity, connectivity, ecological function, and biodiversity of natural heritage systems. These protections restrict development and site alteration in significant natural areas (e.g., woodlands, wetlands, wildlife habitat) unless it can be demonstrated that there will be no negative effects on the features and ecological functions of those natural areas. Technical guidance for implementing the natural heritage policies of the PPS is found within the second edition of the *Manual for Natural Heritage Policies of the Provincial Policy Statement* (Ministry of Natural Resources and Forestry (MNRF), 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

The City of Ottawa Official Plan (OP) provides direction for future growth in the City of Ottawa and is a policy framework to guide physical development to 2031. The OP was first approved in 2003 and is updated every five years. The most recent update was approved by City council in 2013. This EIS is limited to the natural environment (e.g., natural heritage system) and land use designations related to the natural environment.

2.3 Species at Risk Act, 2002

The federal Species at Risk Act (SARA, 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; 1994) and listed as Endangered, Threatened, or Extirpated under Schedule 1 of SARA are protected wherever they occur in Canada, regardless of land ownership.

2.4 Endangered Species Act, 2007

The provincial Endangered Species Act (ESA, 2007) is administered by the Ministry of Environment, Conservation, and Parks (MECP) and provides protection for species at risk (SAR) and their habitat. The Act prohibits killing, harming, harassing, possessing, transporting, buying, or selling Extirpated, Endangered, and Threatened species. 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 (1985) is administered by Fisheries and Oceans Canada (DFO) and provides protections to fish, fish habitat, and fisheries. Specifically, the Fisheries Act provides:

- Protection for all fish and fish habitat
- Prohibition against the "harmful alteration, disruption or destruction of fish habitat"
- Prohibition against causing "the death of fish by means other than fishing"

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

2.6 Migratory Birds Convention Act, 1994

The Migratory Birds Convention Act (MBCA) is legislation administered by the ECCC that provides protection for migratory birds listed in the Act. The disturbance, destruction, take and killing of migratory birds, their eggs, and their nests are prohibited in the Act. The “incidental take” and work 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) is prohibited.

2.7 Fish and Wildlife Conservation Act, 1997

The provincial Fish and Wildlife Conservation Act (FWCA; 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 “fur-bearing” or “game” animals.

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. The Act provides mechanisms to regulate works and site alterations that have a 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*.

3.0 METHODOLOGY

3.1 Desktop and Background Data Review

3.1.1 Agency Consultation

The Study Area is located within the jurisdictions of MECP Kemptville district and the Rideau Valley Conservation Authority (RVCA). A request for confirmation of SAR related to the Study Area was submitted to the MECP (Appendix B). MECP responded with additional species to be considered on July 31, 2021 (Appendix B).

No request for information was submitted to Fisheries and Oceans Canada (DFO) for this project as the Site is setback from the adjacent water feature (i.e. the Cardinal Creek Tributary) by >60 m and includes no areas of fish habitat.

3.1.2 Records Review

The description of the existing natural environment is partially based on a desktop review of previously completed studies and information available on publicly accessible databases, including:

- Urban Natural Areas Environmental Evaluation Study (Muncaster Environmental Planning Inc., 2005; 2006)

On-line databases queried for SAR, provincially rare species, and natural heritage features included the following:

- DFO SAR Mapping (DFO, 2020)
- Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA) Drainage Classification Mapping (OMAFRA, 2020)
- Ontario MNRF
    - Natural Heritage Information Centre (NHIC, 2020a)
    - Land Information Ontario (LIO) Provincially Tracked Species Grid Detail (MNRF, 2020b)
    - Species at Risk in Ontario (SARO) List (MNRF, 2020c)
- SARA, Schedule 1 (Government of Canada, 2020)
- Ontario Breeding Bird Atlas (OBBA; Cadman et. al., 2007; Ontario Nature, 2020a))
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2020b)
- Atlas of the Mammals of Ontario (AMO; Dobbyn, 1994)
- RVCA Mapping Geoportal (RVCA, 2021)

- City of Ottawa
    - Official Plan Schedules (City of Ottawa, 2013)
    - geoOttawa Mapping database (City of Ottawa, 2021)

3.2 Field Surveys

The following field surveys were undertaken to support this report.

3.2.1 Vegetation

The natural vegetation communities on Site were visited on June 18, 2021, by KAL Biologists Kesia Miyashita and Nicholas Moore. Each community was identified and mapped in the field using the standard Ecological Land Classification (ELC) methods for Ontario (Lee et al., 1998). This method results in a standardized description of each vegetation community, giving information on vegetation type and soils. Where possible, communities were mapped to the most detailed level of 'vegetation type'. In some cases, where a suitable vegetation type did not exist, or mapping to this level did not provide a great deal of additional information, communities are described using the higher level of 'ecosite' type.

The ELC study also included a survey of Site trees. All treed areas on Site were checked for Butternut (listed as Endangered under ESA and SARA) and assess the potential for bat presence based on the presence of wildlife trees (e.g., those with cavities, dead leaf cluster, and/or snags ideal for bat roosting), and to document trees that may be impacted by the proposed development. Tree survey data were recorded in accordance with the City's Tree Conservation Report (TCR) Guidelines (City of Ottawa, 2014).

Trees with diameter at breast height (DBH) ≥ 10 cm standing in open areas were individually recorded and mapped. Clusters of trees on Site contained too many trees to practically list every individual over 10 cm DBH. For these areas, only significantly sized trees (i.e., generally >50 cm DBH) were individually identified and mapped.

3.2.2 Wildlife

Birds

An initial exploratory field visit to the Site on November 13, 2017, (i.e. well outside the typical bird season for Ottawa) had noted evidence of possible former Barn Swallow nests in two old, ramshackle farm buildings (KAL, 2017). Two breeding bird surveys (point counts) were completed in 2021 identify birds species using the site, including possible Barn Swallows. Surveys followed point count guidelines by the Ontario Breeding Bird Atlas. Breeding bird surveys are to be completed from survey stations that, combined, provide suitable viewing of all habitats on-site on calm weather days with light wind (less than 3 on the Beaufort scale) and no precipitation. Surveys must take place between sunrise and five hours after sunrise between May 24 and July 15. The Ontario Breeding Bird Atlas calls for two surveys per year during the breeding bird survey.

The bird surveys for this project were conducted on June 9 and 23, 2021 (Table 1), by KAL Biologist Rob Hallett from four locations (B1 through B4, Figure 2) across the Site. Barns on the Site had been removed in 2018.

Figure 2. Existing conditions

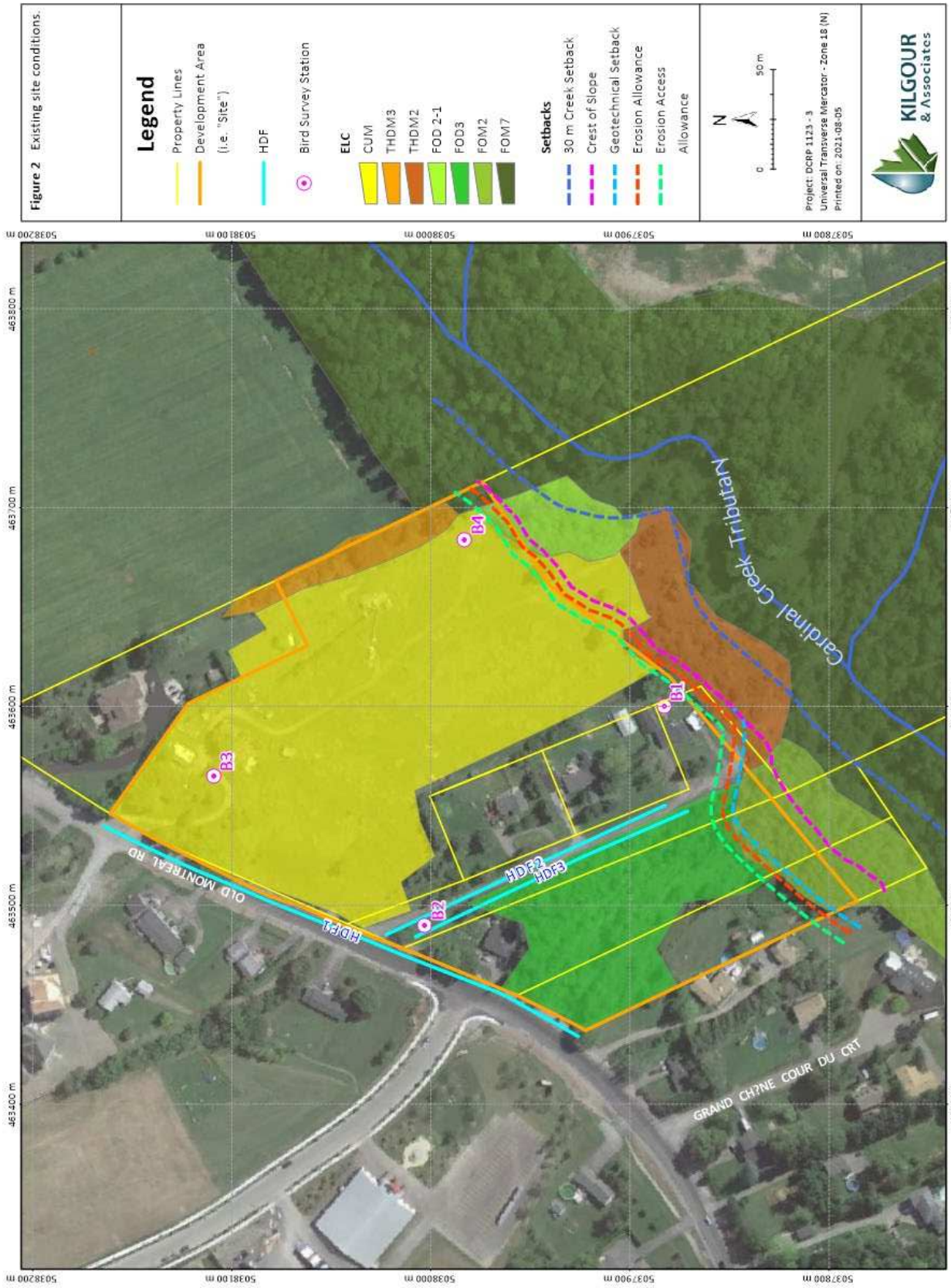


Table 1. Summary of dates and weather conditions of morning breeding bird surveys, 2021

Date	Start Time	Cloud Cover/ Precipitation	Air Temperature (°C)	Wind (Beaufort)
2021-06-09	05:00	clear / dry	26	0
2021-06-23	06:00	20% / dry	20	2-3

4.0 PROPERTY INFORMATION

4.1 Landforms, Soils and Geology

The broader site area is underlain by two soil associations: Grenville and Rideau (Schut and Wilson, 1987). Topography within and near the Site vary from nearly level to highly sloping. The Site itself abuts a steep valley containing a significant tributary to Cardinal Creek. The Site (and majority of the broader property) is part of the Rideau association. Rideau soils occur on level marine clay plains deposited by the Champlain Sea, and on sloping banks and of abandoned channels cut into marine clay deposits by the ancestral Ottawa River (Schut and Wilson, 1987). Soil textures range from clay to silty clay loam, with subsurface beds of clay and silty clay present.

The north slopes of the Cardinal Creek Tributary valley are heavily vegetated and the that the ravine generally conveys very little water, except possibly during spring run-off. The crest of the slope (i.e. the edge of the valley top) as determined exp is indicated in Figure 2. Setbacks to protect the valley slope stability (i.e. limit of hazardous lands) are measured from the crest of the slope, except along the eastern end of the development area, where the geotechnical set back is pulled back an additional ~24 m from the crest, encompassing a raised, forested area there (exp, 2016).

4.2 Surface Water and Fish Habitat

The Site lies within the Cardinal Creek Catchment (RVCA, 2014). The Cardinal Creek Catchment is home to both warm and cool water fish species. The report lists 40 species of recreational and bait fish within Cardinal Creek (RVCA, 2014). No SAR fish were listed in the catchment report.

The Ottawa River occurs approximately 1.1 km to the north of the site. The Cardinal Creek joins the Ottawa River at this point as well. Cardinal Creek occurs approximately 250 m to the west of the site and is separated by multiple residential dwellings.

A tributary to Cardinal Creek crosses the property south of the Site. Setbacks requirements to this feature are set per the *Greater Cardinal Creek Subwatershed Management Plan* (AECOM, 2014) asthe greater of:

- the regulatory flood line;
- the Geotechnical limit of hazard lands;
- 30 m from normal high water mark;
- 25 m from top of bank; and/or

- setback as determined through a Drain Engineer's Report.

No regulatory flood line currently exists for the Cardinal Creek tributary. The other setback components are indicated in Figure 2.

Three headwater drainage features (HDFs) are/were located at the north end of the Site (Figure 2; KAL 2021a). HDF1, the roadside ditch along Montreal Road, conveys road runoff and spring meltwater from the Site and surrounding area to Cardinal Creek ~250 m to the west. The feature has bankfull width of 5.4 m with a wetted width of 100 to 115 cm at the peak of the spring freshet a maximum depth of 17 cm. Flow was 0.32 m/s in the spring of 2018 but was barely detectable in the spring of 2021. No water was observed in the feature beyond the spring freshet. The substate is muddy with significant grass growth. The left upstream bank (north) is the gravel shoulder to Montreal Road. The right upstream bank is a mix of yards and fields with some trees and shrubs along its length.

This feature received a management directive of "Mitigation" (KAL, 2021). The feature is not required to be maintained per se but if it is to be removed, its functionality must be replicated or enhanced through lot level conveyance measures as part of the site stormwater management system. Any replacement features/systems should be vegetated to mimic online wet vegetation pockets to the extent possible and must convey water to the same final receiver (i.e. Cardinal Creek). As a roadside ditch for a major arterial road, this feature is not considered by this EIS to require setbacks.

HDF2 and HDF 3 were small swales in 2018 located along the east and west sides respectively of the driveway running up the center of 1180 Old Montreal Road. They conveyed spring runoff norward down the slope. In 2018, both features were both very shallow with no definable banks and both flattened out completely before they reach HDF1 (i.e., had no discernible connection to HDF1). During the spring freshet in 2018, HDF2 had a wetted width of 55 to 110cm with a depth of 1 to 3 cm as it ran south down the length of the driveway. Water from the feature spread out at the bottom end with no detectable depth before, presumably, percolating into the HDF1. The feature was fully grassed with lawn through it and extending to the east. The west edge was the gravel driveway. In 2021 the shape of the feature was still evident though it was completely dry.

During the spring freshet 2018, HDF3 had a wetted width of 40 cm with a depth of 4 to 8 cm (in pockets) as it ran south down the length of the driveway. Water from the feature again spread out at the bottom end with no detectable depth. The feature had a mud and gravel substrate with some portions grassed. Shrubby vegetation grew along the west side; the east edge was the gravel driveway. By the spring of 2021, the length of the feature was inundated with new shrub growth, the channel form along most of its length was no longer evident and no water was present.

As these reaches do not connect directly to HDF1, but may provide some opportunity for infiltration, they received management directives of "Maintain Recharge" (KAL, 2021). There is no requirement to retain the feature per se, but the stormwater management system for the development cannot redirect Site runoff to alternate receivers (i.e., Site runoff cannot be redirected towards the Cardinal Creek tributary.

4.3 Vegetation Cover

4.3.1 ELC

The site and adjacent lands lie within the Cardinal Creek Catchment (RVCA, 2014). This catchment area is primarily composed of agriculture (54%), urban (17%), and forest (17%) (RVCA, 2014). The remaining components of the Cardinal Creek Catchment include rural (11%) and wetland (1%).

The majority of the site is categorized as Cultural Meadow (CUM) (Lee et al., 1998) (Figure 2). This area is an old field habitat caused by the succession of previous pasture habitat. Vegetation cover is composed primarily of grass species Reed Canary Grass (*Phalaris arundinacea*), Smooth Brome (*Bromus inermis*), Kentucky Blue Grass (*Poa pratensis*) and Timothy (*Phleum pratense*), with forbs such New England Aster (*Symphyotrichum novae-angliae*), goldenrod species (*Solidago* spp.), aster species (*Asteraceae* spp.), Common Milkweed (*Asclepias* syriaca), Viper's Bugloss (*Echium vulgare*), dock species (*Rumex* spp.), Common Mullein (*Verbascum thapsus*), Crown Vetch (*Securigera varia*), Bladder Campion (*Silene vulgaris*), Purple Loosestrife (*Lythrum salicaria*), Foxtail Barley (*Hordeum jubatum*), and Wild Carrot (*Daucus carota*).

The northern corner of the Cultural Meadow includes three clusters of trees. directly adjacent to Old Montreal Road is a cluster composed of a few large trees and many saplings and small trees with American Elm (*Ulmus americana*), White Pine (*Pinus strobus*), Eastern White Cedar (*Thuja occidentalis*), Bur Oak (*Qurecus macrocarpa*), Black Cherry (*Prunus seritona*), White Spruce (*Picea glauca*), and Scots Pine (*Pinus sylvestris*). Directly behind this first patch and at the end of the driveway up 1180 Old Montreal Road are two clusters composed almost entirely of Manitoba Maples (*Acer negundo*).

The east side of the driveway at 1180 Old Montreal Road includes three residential yards with houses and mowed lawns.

West of the driveway at 1180 Old Montreal Road is a wooded area of Dry – Fresh Poplar – White Birch Deciduous Forest (FOD3) (Lee et al., 1998). This ecosite is was primarily composed of Trembling Aspen (*Populus tremuloides*) and White Birch (*Betula papyrifera*) with subordinate species of American Elm *americana*), Red Maple (*Acer rubrum*), Bur Oak, and White Ash (*Fraxinus americana*). Shrub species such as buckthorn species (*Rhamnus* spp.), Staghorn Sumac (*Rhus typhina*), and Red Osier Dogwood (*Cornus sericea*) are common.

The valley of the Cardinal Creek Tributary is forested with Fresh – Moist White Cedar – Hardwood Mixed Forest (FOM7) ecosite (Lee et al., 1998). This area is a bottomland forest of the creek and its floodplain. The dominate species are White Cedar (*Thuja occidentalis*), Green Ash (*Fraxinus pennsylvanica*), White Birch, and willow shrubs. Subordinate species observed are White Pine, American Elm, Black Spruce (*Picea mariana*), and Red Maple.

A small Dry – Fresh Oak – Red Maple Deciduous Forest Type (FOD2-1) (Lee et al., 1998) occurs at top of the valley slope at the north end of the Site. It is dominated Red Maple, White Ash and Northern Red Oak (*Quercus rubra*), with subordinate tree species of American Elm and Bur Oak.

Along the remainder of the upper and middle slope of the of the Valley directly behind the Site is a maturing Mixed Thicket ecosite (THDM2) (Lee et. al. 1998). This area contains mostly shrubs and sapling

trees with a few scattered larger trees. The dominant species is Staghorn Sumac with apple species, Scots Pine, Trembling Aspen, Common Lilac (*Syringa vulgaris*), buckthorn and Manitoba Maple the upper and middle slope of the steep slopes along the south of the site. A similar patch of Mixed Thicket (THDM3) ecosite (Lee et. al. 1998), but with a few Bur Oaks and American Elm, occurs along the northeast boundary of the Cultural Meadow

The southern-most corner of the Site along the upper edge of the Valley is a Dry – Fresh White Pine – Hardwood Mixed Forest (FOM2) (Lee et al., 1998). The majority of trees in this habitat are White Ash (*Fraxinus americana*), Trembling and Largetooth Aspen (*Populus tremuloides* and *P. grandidentata*), White Pine (*Pinus strobus*). Subordinate species are Sugar Maple (*Acer saccharum*), Black Cherry (*Prunus serotina*), White Birch (*Betula papyrifera*), and Red and Bur Oak (*Quercus rubra* and *Q. macrocarpa*). This habitat occurs in the middle and top of a steep slope along the south portion of the site. Trees in this area were large ranging from 20 to 60 cm diameter at breast height (DBH).

4.3.2 Site Trees

Tree ages were not specifically determined, however, the 1976 geoOttawa (Ottawa, 2021) air photo shows trees located along property boundaries, around homes, and along Cardinal Creek tributary. Most trees on the Site were <20 cm in diameter at breast height (DBH; KAL 2021b). Only 46 trees were larger than 20 cm DBH, and of those, only 23 had a decay class below "1" suggesting utility for bat roosting, which provides fewer than ten snags per hectare across the Site.

4.4 Wildlife

4.4.1 Birds

A total of 23 bird species were observed near on the Site (Table 2). There were no Barn Swallows, Bank Swallows, Bobolink, Eastern Meadowlark, Eastern Wood-Pewee or Wood Thrush observed. Based on extended walks around the broader vicinity of the site, including around culverts and other structures in the area, there was no evidence of Barn Swallow nesting.

Table 2. Breeding Birds Observed during field surveys in 2021

Common Name	Scientific Name	Common Name	Scientific Name
American Crow	*Corvus brachyrhynchos*	Great Crested Flycatcher	*Myiarchus crinitus*
American Goldfinch	*Carduelis tristis*	Mourning Dove	*Zenaida macroura*
American Redstart	*Setophaga ruticilla*	Northern Cardinal	*Cardinalis cardinalis*
American Robin	*Turdus migratorus*	Northern Flicker	*Colaptes auratus*
American Tree Sparrow	*Spizelloides arborea*	Red-eyed Vireo	*Vireo olivaceus*
Black-capped Chickadee	*Poecile atricapillus*	Savannah Sparrow	*Passerculus sandwichensis*
Blue Jay	*Cyanocitta cristata*	Song Sparrow	*Melospiza melodia*
Brown Thrasher	*Toxostoma rufa*	White-breasted nuthatch	*Sitta carolinensis*
Common Grackle	*Quiscalus quiscula*	White-eyed Vireo	*Vireo griseus*
Common Yellowthroat	*Geothlypis trichas*	White-throated Sparrow	*Zonotrichia albicollis*
Eastern Phoebe	*Sayornis phoebe*	Yellow Warbler	*Setophaga petechia*
European Starling	*Sturnus vulgaris*		

4.5 Species at Risk

There are 71 SAR currently known to occur within the region of the City of Ottawa (Appendix C). Based on our review of existing information, ELC delineations (habitat categorization), and field surveys, there is

potential for six of these SAR to both occur on or near the proposed project area and to have some potential to interact with the project. These include three species of bats (Northern Long-eared Myotis, Eastern Small-footed Myotis, and Tri-coloured Bat) and insect (Monarch Butterfly), and two bird species (Barn Swallow and Bobolink).

For listed bat species in areas subject to tree removal, especially when extent of the tree removal is relatively small compared to remaining available treed areas nearby, mitigation measures to protect bat species should focus on the avoidance of harm to individuals (email communication from MECP Biologist Carolyn Hann, July 30, 2021; Appendix B). If a proposed activity will avoid impairing or eliminating the function of habitat for supporting bat life processes (e.g. remove, stub, etc. a small number of potential maternity or day roost trees in treed habitats) but the timing of tree removal will avoid the bat active season (April 1 – September 30 in Southern Ontario / May 1 to August 31 in Northern Ontario), then there is no need to conduct species at risk bat surveys of treed habitats.

Neither of the two potentially present SAR bird species (Barn Swallow and Bobolink) were observed to occupy the Site in 2021. Accordingly, the Site is not currently considered to provide habitat for those species, though either species could begin using the Site as habitat in the future.

Monarch Butterfly is listed as species of Special Concern in Ontario. As such neither the species nor its habitat is directly protected under the ESA.

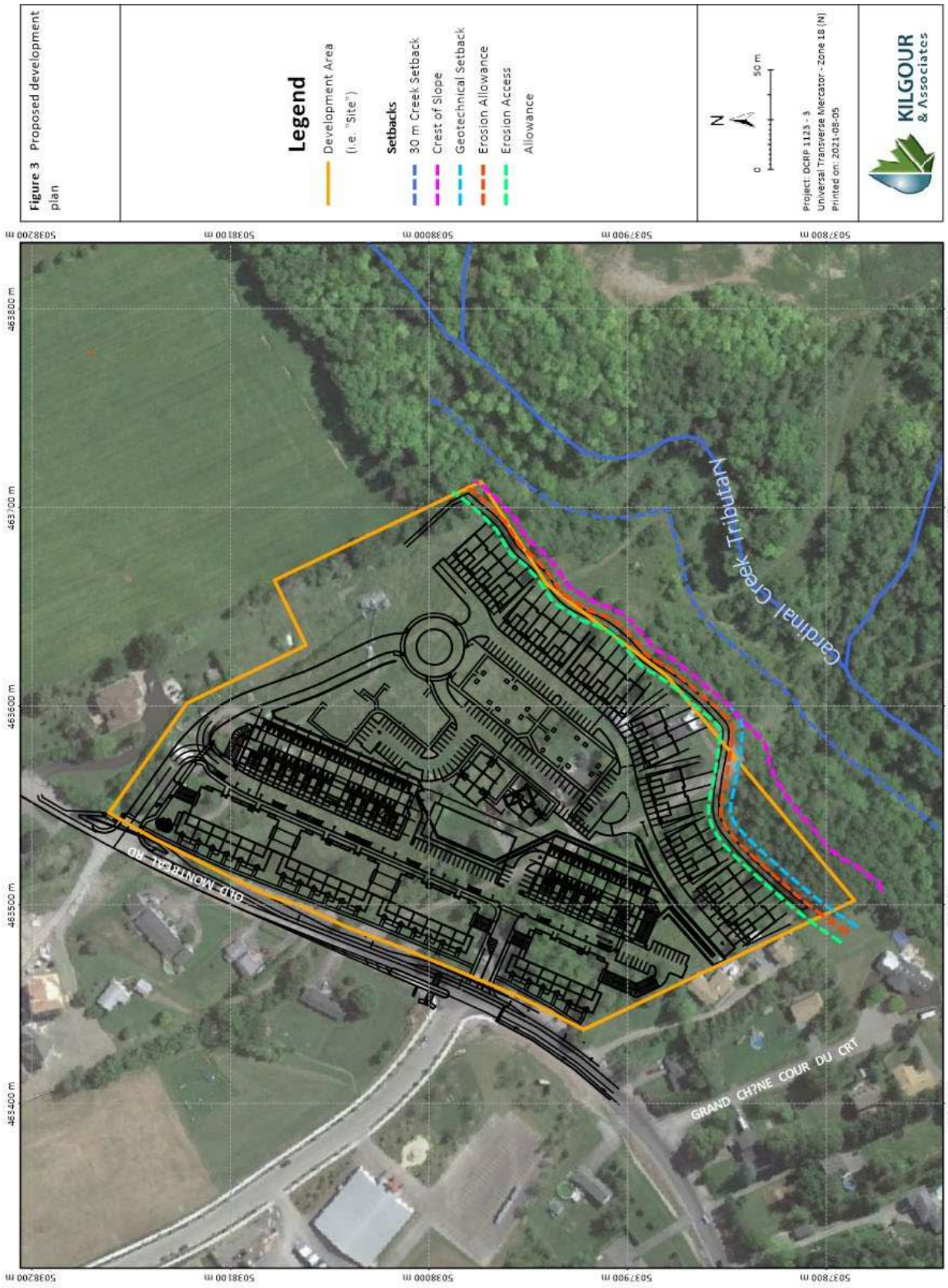
5.0 DESCRIPTION OF THE PROPOSED PROJECT

Phoenix Homes is proposing to develop the site with a mix of medium and high-density development. The proposed site would combine stacked townhouse condominiums, semi- detached homes and freehold townhouses on municipal right of ways and private streets (Figure 3).

Parking for the semi-detached and freehold townhouses is provided for with standard construction single car garages, driveways and residual on-street parking. Parking for the stacked condominiums is provided by a combination of surface parking lot, on-street parking and below ground parking.

Site development will require significant regrading and terracing of the steeply sloping properties that will necessitate the removal of all trees from the Site. Land clearing and construction are anticipated to begin in late 2021.

Figure 3. Proposed development plan



6.0 IMPACT ASSESSMENT

6.1 Surface Water and Fish Habitat

The proposed development respects the required setbacks for the Cardinal Creek tributary for geotechnical limit of hazard lands, high water mark and top of bank (Figure 3). There is no regulatory floodplain here. As such no negative impacts are anticipated to this feature.

The roadside ditch (HDF1) along Old Montreal Road will be reattained its current position relative to the roadway. The two minor swales on the Site (HDF 2 and 3) will be removed, though site drainage will still be directed to Cardinal Creek via HDF1. We do not anticipate negative to area surface water from site development.

6.2 Vegetation / Trees

All trees on the Site must be removed to accommodate required regrading. Trees to the south of the Site along the valley of the Cardinal Creek tributary will be protected and retained. Tree planting through the new community will be determined through a landscape plan for the Site.

6.3 Species at Risk

Based on our SAR assessment (Section 4.5), five SAR have some potential to interact with proposed development directly as individuals and/or considering impacts to their habitat: Northern Long-eared Myotis, Eastern Small-footed Myotis, Tri-coloured Bat, Barn Swallow, and Bobolink.

For listed bat species, so long as no tree clearing occurs April 1 and September 30 within a give year, no harm is anticipated to individual bats. The removal of trees from the Site, given their generally small size and relatively limited numbers, is considered a significant loss of habitat with the retention of the forested areas south of the Site (i.e. along the Cardinal Creek tributary).

The Site is not considered to currently provide habitat for either Barn Swallow or Bobolink and neither species is present. Accordingly, the proposed development is not anticipated to impact either species. Either species, however, could begin using the Site as habitat if the site is retained in its current configuration i.e., if development of the Site is delayed. If either species does begin using the Site prior to he commencement of Site development, additional mitigation measures would be required.

7.0 MITIGATION

7.1 Surface Water Features

Construction works near water during the development of the residential community will, at minimum, require standard erosion and sediment control mitigation measures to protect receiving waters from sediment-laden runoff, including:

- a multi-faceted approach to provide erosion and sediment control;
- retention of existing vegetation and stabilize exposed soils with vegetation where possible;
- limiting the duration of soil exposure and phase construction;
- limiting the size of disturbed areas by minimizing nonessential clearing and grading;

- minimizing slope length and gradient of disturbed areas;
- refuelling of machinery should occur >30 m from any watercourse;
- maintaining overland sheet flow and avoid concentrated flows; and
- storing/stockpiling all soil away (e.g., greater than 30 m) from watercourses, drainage features and top of steep slopes.

7.2 Vegetation / Trees

This report does not constitute permission to remove trees from the Site. As the Site is located within the urban boundary, any tree removal from the Site must be authorized under tree removal permit to be issued by the City. To minimize impacts to trees adjacent to the Site, the following general protection measures are recommended as necessary during construction:

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

Specific trees to be planted on the site will be identified in the landscape plan for the development. Trees species identified in this plan however must be non-invasive and be native to the Ottawa. Final selection of tree species within the landscape plan must also consider the City of Ottawa's Clay Soils Policy. Recommended tree species to consider in the landscaping plan include Red Maple (*Acer rubrum*), White Spruce (*Picea glauca*), Pin Cherry (*Prunus pensylvanica*), White Birch (*Betula papyrifera*), Black Cherry (*Prunus nigra*), White Cedar (*Thuja occidentalis*) and Serviceberry (*Amelanchier* spp.) as other suitable candidate species. Burr Oak may be considered where spacing allows for future showcase trees. Common Juniper (*Juniperus communis*), Maple-leaf Viburnum (*Viburnum acerifolium*), Nannyberry (*Viburnum lentago*) and Northern Bush-honeysuckle (*Diervilla lonicera*) may be considered as appropriate shrub species.

Trees are to be planted within areas of town homes at a density equivalent to one tree per lot, with additional tree plantings to be included throughout the remainder of the development where feasible

(e.g. in larger single lots, adjacent to buildings and/or in other public areas) with a target of planting the equivalent of 1 tree per unit through the broader community.

No mitigation measures are required to protect other site vegetation (i.e. other than trees).

7.3 Species at Risk

7.3.1 SAR Bats

While trees on the Site are not considered to provide habitat for SAR bats, bat occurrences or roosts could occur within any given year. No removal of trees from site can be permitted during the active bat season between April 1 and September 30.

7.3.2 SAR Birds

No SAR birds currently use the Site. If land development of the area begins prior to April 15, 2022, no further mitigation efforts specific to SAR birds are required. If the commencement of site development, however, is delayed beyond this date, additionally surveys of the Site will be required to ensure the continued absence of SAR birds. Surveys must be conducted by a qualified biologist in each year in which the site development is delayed.

If SAR birds should begin occupying the Site, the project proponent would be required to file and Notice of Activity with the MECP for work within Bobolink or Barn Swallow habitat (as appropriate) and implement a standard mitigation/compensation program as per Ontario Regulation 242/08, thereby ensuring the overall project leads to a net benefit for the species.

7.4 Wildlife Mitigation

Common wildlife species may occur on or near the Site. The following mitigation measures shall be implemented during the construction of the project to generally protect wildlife:

- Areas are not to be cleared of vegetation other than trees (e.g. meadow grasses or shrubs) during sensitive times of the year for wildlife (April 15 to August 15) unless mitigation measures are implemented and/or the habitat has been inspected by a qualified Biologist. Tree removal must be fully prohibited for the Site between April 1 and September 30 for the protection of bats.
- Do not harm, feed, or unnecessarily harass wildlife.
- Manage waste to prevent attracting wildlife to the Site. Effective mitigation measures include litter prevention and keeping all trash secured in wildlife-proof containers and promptly removing it from the Site, especially during warm weather.
- Drive slowly and avoid hitting wildlife.
- Manage stockpiles and equipment on Site to prevent wildlife from being attracted to artificial habitat. Cover and contain any piles of soil, fill, brush, rocks and other loose materials and cap ends of pipes where necessary to keep wildlife out. Ensure that trailers, bins, boxes, and vacant buildings are secured at the end of each workday to prevent access by wildlife.
- Check the entire work site for wildlife prior to beginning work each day.

- Inspect protective fencing and/or other installed wildlife exclusion measures daily and after each rain event to ensure their integrity and continued function.
- Monitor construction activities to ensure compliance with the project-specific protocol (where applicable) or any other requirements.
- If SAR are encountered on the work site, immediately stop all work and comply with the project-specific SAR protocol (where applicable; e.g., contact project Biologist to determine next steps).
- Follow the best practices for the construction and maintenance of bird-safe buildings, such as applying visual markers on windows to prevent birds from colliding with glass and reducing the intensity and direction of night lighting (turn off lights at night if possible). See https://flap.org/workplaces-safe-for-birds/ for more resources and tips on designing and maintaining bird-friendly buildings.

8.0 SUMMARY AND RECOMMENDATIONS

It is our professional opinion that no significant negative impacts are anticipated to species-at-risk or their habitats, or to significant natural heritage features present in the broader project vicinity under the proposed project if all mitigation recommendations provided within this report are followed.

9.0 CLOSURE

This report was prepared for exclusive use by Phoenix Homes and/or their agents and may be distributed only by or in accordance with their express instructions. Questions relating to the data and interpretation can be addressed to the undersigned.

Respectfully submitted,

KILGOUR & ASSOCIATES LTD.

_____	_____
Anthony Francis, PhD	Kesia Miyashita, MSc
Project Director	Project Bioloigst

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10.0 LITERATURE CITED

Cadman, M.D., P.F.J. Eagles, and F.M. Helleiner. 2007. Atlas of Breeding Birds of Ontario. University of Waterloo Press, Waterloo, Ontario.

City of Ottawa. 2014. Tree Conservation Report Guidelines (Online). Available at: https://ottawa.ca/en/residents/water-and-environment/trees-and-community-forests/protection#tree-conservation-report-guidelines

City of Ottawa. 2015. Environmental Impact Statement Guidelines - Appendix 10: Mitigation Measures for the City of Ottawa. Available at: https://documents.ottawa.ca/sites/default/files/documents/eis_guidelines2015_en.pdf

City of Ottawa. 2018. Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment (draft guidelines). Available at: https://documents.ottawa.ca/sites/default/files/significant_woodlands_draft_guidelines_FINAL.pdf

City of Ottawa. 2021. geoOttawa Interactive web mapping application. Available at: http://maps.ottawa.ca/geoottawa/

Dobbyn J.S. 1994. Atlas Of The Mammals Of Ontario. Federation of Ontario Naturalists, Don Mills, Ontario, 120 pp.

exp Services Inc. 2016. DCR Phoenix Group of Companies Preliminary Geotechnical Investigation. Project Number: OTT-00234493-AO. Prepared for: DCR/ Phoenix Group of Companies.

Fisheries and Oceans Canada (DFO). 2020. Aquatic species at risk map. Available at: http://dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

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

Government of Canada. 2020. Species at Risk Public Registry. Available at: http://www.registrelep-sararegistry.gc.ca/sar/index/default_e.cfm

Kilgour & Associates Limited (KAL), Parish Geomorphic, Mattamy Homes. 2010. Mattamy Richmond Lands: Natural Environment & Impact Assessment Study. February 2010.

Kilgour & Associates (KAL). 2020. Fish and Fish Habitat Risk Assessment for The Proposed Van Gaal Drain Realignment Project Updated Report. Report Date: January 28, 2020. Project Code: CAIV725

Lee, H.R., W. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, North Bay.

Ministry of Agriculture, Food and Rural Affairs (OMAFRA). 2020. Drainage Classification Mapping Available at: http://www.omafra.gov.on.ca/english/landuse/gis/portal.htm

Ministry of Natural Resources and Forestry (MNRF). 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Ontario Ministry of Natural Resources. Second Edition. March 18, 2010. MNR Number 52630

Ministry of Natural Resources and Forestry. 2017. Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis & Tri-Colored Bat. OMNRF Guelph District. 13 pp.

Ministry of Natural Resources and Forestry (MNRF). 2020a. Natural Heritage Information Centre: Make Natural Heritage Map. Available At: https://www.ontario.ca/page/make-natural-heritage-area-map

Ministry of Natural Resources and Forestry (MNRF). 2020b. Provincially Tracked Species Grid Detail. Available At: https://geohub.lio.gov.on.ca/datasets/provincially-tracked-species-grid-detail

Ministry of Natural Resources and Forestry (MNRF). 2020c. Species at Risk in Ontario (SARO) List. Available At: https://www.ontario.ca/page/species-risk-ontario

Muncaster Environmental Planning Inc. 2005. Urban Natural Areas Environmental Evaluation Study. Final Report. Ottawa: Environmental Management Division, Planning & Growth Management Dept., City of Ottawa.

Muncaster Environmental Planning Inc. 2006. Urban Natural Areas Environmental Evaluation Study. Final Report. Ottawa: Environmental Management Division, Planning & Growth Management Dept., City of Ottawa.

Ontario Nature. 2020a. Ontario Breeding Bird Atlas. Available at: https://ontarionature.org/programs/citizen-science/breeding-bird-atlas/

Ontario Nature. 2020b. Herp Atlas. Available at: https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/

Rideau Valley Conservation Authority (RVCA). 2014. Cardinal Creek 2014 Summary Report. Available at: http://204.101.207.53/IM/Documents/Aquatics/City_Stream_Watch/Final_CSW2014_Cardinal.pdf

Rideau Valley Conservation Authority (RVCA). 2021 Rideau Valley Conservation Authority website. Available at: http://www.rvca.ca/

Schut, L.W. and Wilson, E.A. 1987. The Soils of the Regional Municipality of Ottawa-Carleton (excluding the Ottawa Urban Fringe). Vols. 1 & 2. Report No. 58 of the Ontario Institute of Pedology.

Appendix A – Report Authors

Anthony Francis, PhD

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

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

Kesia Miyashita, MSc

Appendix B – Agency Correspondence

Appendix C – SAR Screening

Species Name (*Taxonomic Name*)	Status under Ontario Endangered Species Act (ESA)	Status under federal Species at Risk Act (SARA) - Schedule 1	Habitat Description	Potential to Occur in the Project Vicinity (Yes / No)	If Potentially Present - Probability of Interaction with the Project (None, Low, Moderate, High)
Avian					
Bald Eagle (*Haliaeetus leucocephalus*)	Special Concern	No Status	Nest in mature forests near open water. In large trees such as Pine and Poplar.	Yes	Low. Habitat does not occur in the Project Area. Was not observed in the Project Area
Bank Swallow (*Riparia riparia*)	Threatened	Threatened	Colonial nester; burrows in eroding silt or sand banks, sand pit walls, and human-made settings, which are often found on banks of rivers and lakes.	Yes	Low. Habitat suitability is limited. Was not observed in the Project Area
Barn Swallow (*Hirundo rustica*)	Threatened	Threatened	Nests on barns and other structures; forages in open areas for flying insects. Live in close association with humans and prefer to nest in structures such as open barns, under bridges, and in culverts.	Yes	Moderate. Site habitat is suitable but the species was not observed in the Project Area
Black Tern (*Chlidonias niger*)	Special Concern	No Status	Build floating nests in loose colonies in shallow marshes, especially cattails.	Yes	None. Habitat does not occur in the Project Area
Bobolink (*Dolichonyx oryzivorus*)	Threatened	Threatened	Live in tall grass prairie and other open meadows. With major clearing of prairies, Bobolink are moving to hayfields. Build nests on the ground in dense grasses.	Yes	Moderate. Site habitat is suitable but the species was not observed in the Project Area
Canada Warbler (*Cardellina canadensis*)	Special Concern	Threatened	Prefers wet forests with dense shrub layers. Nests located on or near the ground on mossy logs or roots, along stream banks or on hummocks.	Yes	Low. Habitat does not occur in the Project Area. The adjacent creek valley has some suitability but the species was not observed.

Cerulean Warbler (*Setophaga cerulea*)	Threatened	Endangered	Prefers mature deciduous forests with an open under storey.	No	None. Not present in the vicinity.
Chimney Swift (*Chaetura pelagica*)	Threatened	Threatened	Nests in traditional-style open brick chimneys (and rarely in hollow trees). Tend to stay close to water	Yes	Low, habitat does not occur in the Project Area
Common Nighthawk (*Chordeiles minor*)	Special Concern	Threatened	Nests in 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.	Yes	Low. Habitat areas have been subject active agriculture and other disturbance.
Eastern Meadowlark (*Sturnella magna*)	Threatened	Threatened	Typically nest in tall grasslands (pastures/hayfields) but also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Often use trees, shrubs, or fence posts to elevate song perches.	Yes	Low. Presence is possible but the small size of the meadow with scattered tree clusters provides low habitat suitability.
Eastern Whip-poor-will (*Antrostomus vociferus*)	Threatened	Threatened	Nests on the ground in open deciduous or mixed woodlands with little underbrush.	Yes	Low. Presence is possible but very unlikely on the Site. Forested patches are too small and are densely scrubby.
Eastern Wood-pewee (*Contopus virens*)	Special Concern	Special Concern	Woodland species, often found in the mid-canopy layer near clearings and edges of deciduous and mixed forests.	Yes	Low. Habitat is on the Site is suitable and the adjacent creek valley is more so, but the species was not observed.
Golden Eagle (*Aquila chrysaetos*)	Endangered	No Status	Nest 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.	No	None. Not present in the vicinity.

Golden-winged Warbler (*Vermivora chrysoptera*)	Special Concern	Threatened	Ground nesting in areas of young shrubs surrounded by mature forest. Often areas that have recently been disturbed such as field edges, hydro or utility right-of-ways, or logged areas.	Yes	Low. Habitat is on the Site is suitable, but the species was not observed.
Grasshopper Sparrow (*Ammodramus savannarum*)	Special Concern	Special Concern	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.	Yes	Low. Habitat is on the Site is marginally suitable, but the species was not observed.
Evening Grosbeak (*Coccothraustes vespertinus*)	Special Concern	Special Concern	Nest in trees or large shrubs; prefer mature coniferous forests but will also use deciduous forests, parklands and orchards.	No	None. Not present in the vicinity.
Henslow's Sparrow (*Ammodramus henslowii*)	Endangered	Endangered	Tends to avoid fields that have been grazed or are crowded with trees and shrubbs. Prefers extensive, dense, tall grasslands where it can more easily conceal its small ground nest.	No	None. Not present in the vicinity.
Horned Grebe (*Podiceps auritus)*	Special Concern	No Status	Nest in small ponds, marshes and shallow bays that contain areas of open water and emergent vegetation.	No	None. Not present in the vicinity.
Least Bittern (*Ixobrychus exilis*)	Threatened	Threatened	Found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels.	Yes	Low. Habitat does not occur in the Project Area.
Loggerhead Shrike (*Lanius ludovicianus*)	Endangered	Endangered	The Loggerhead prefers pasture or other grasslands with scattered low trees and shrubs. Lives in fields or alvars (areas of exposed bedrock) with short grass, which makes it easier to spot prey.	No	None. Not present in the vicinity.
Olive-sided Flycatcher (*Contopus cooperi*)	Special Concern	Threatened	Found along natural 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.	Yes	Low. Habitat is on the Site is marginally suitable, but the species was not observed.

Peregrine Falcon (*Falco peregrinus*)	Special Concern (as of January 2013)	Special Concern	Nest 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.	Yes	None. Habitat does not occur in the Project Area
Red Knot (*Calidris canutus rufa*)	Endangered	Endangered	Prefer open beaches, mudflats, and coastal lagoons, where they feast on molluscs, crustaceans, and other invertebrates.	No	None. Not present in the vicinity.
Red-headed Woodpecker (*Melanerpes erythrocephalus*)	Special Concern	Threatened	Lives in open woodland and woodland edges, and is often found in parks, golf courses, and cemeteries. These area typically have many dead trees, which the birds use for nesting and perching.	No	None. Not present in the vicinity.
Rusty Blackbird (*Euphagus carolinus*)	Special Concern	Special Concern	Prefers wet wooded or shrubby areas (nests at edges of boreal wetlands and coniferous forests). These areas include bogs, marshes and beaver ponds.	Yes	Low. Habitat is on the Site is marginally suitable, but the species was not observed.
Short-eared Owl (*Asio flammeus*)	Special Concern	Special Concern	Lives in open areas such as grasslands, marshes and tundra where it nests on the ground and hunts for small mammals.	Yes	Low. Habitat is on the Site is suitable, but the species was not observed.
Wood Thrush (*Hylocichla mustelina*)	Special Concern	Threatened	Lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing and perches. Usually build nests in sugar maple or American beech.	Yes	Low. Habitat is on the Site is suitable, but the species was not observed.
Fish					
American Eel (*Anguilla rostrata*)	Endangered	No Status	Primarily nocturnal, hiding in soft substrate or submerged vegetation during the day.	Yes	None. Habitat does not occur in the Project Area
Bridle Shiner (*Notropis bifrenatus*)	Special Concern	Special Concern	Prefers clear water with abundant vegetation over silty or sandy substrate.	No	None. Habitat does not occur in the Project Area
Channel Darter (*Percina copelandi*)	Special Concern	Threatened	Prefers clean streams and lakes with moderate current over sandy or rocky substrate.	Yes	None. Habitat does not occur in the Project Area
Lake Sturgeon (*Acipenser fulvescens*)	Endangered	No Status	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.	Yes	None. Habitat does not occur in the Project Area

Northern Brook Lamprey (*Ichthyomyzon fossor*)	Special Concern	Special Concern	Non-parasitic species; prefers shallow areas with warm water. Larvae live in burrows in soft substrate for up to 7 years.	Yes	None. Habitat does not occur in the Project Area
Northern Sunfish (*Lepomis peltastes*)	Special Concern	No Status	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.	No	None. Habitat does not occur in the Project Area
River Redhorse (*Moxostoma carinatum*)	Special Concern	Special Concern	Prefers fast-flowing, clear rivers over rocky substrate.	No	None. Habitat does not occur in the Project Area
Silver Lamprey (*Ichthyomyzon unicuspis*)	Special Concern	Special Concern	Require clear water for 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.	Yes	None. Habitat does not occur in the Project Area
Molluscs					
Hickorynut (*Obovaria olivaria*)	Endangered	Endangered	Live on sandy beds in large, wide, deep rivers. Usually more than two or three metres deep. Larval host believed to be Lake Sturgeon.	No	None. Habitat does not occur in the Project Area
Mammals					
Algonquin Wolf (*Canis sp.*)	Threatened	Special Concern	Not restricted to any specific habitat type but typically occurs in deciduous and mixed forest landscapes.	No	None. Not present in the vicinity.
Eastern Cougar (*Puma concolor*)	Endangered	No Status	Live in large, undisturbed forests or other natural areas where there is little human activity	No	None. Not present in the vicinity.
Eastern Small-footed Myotis (*Myotis leibii*)	Endangered	No Status	In the spring and summer, eastern small-footed bats 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.	Yes	Moderate. Site habitat provides some habitat potential but is sub-optimal given low snag density. More suitable habitat will be retained in the adjacent creek valley. Timing restrictions on tree clearing will protect transiently-present individuals.
Gray Fox (*Urocyon cinereoargenteus*)	Threatened	Threatened	Live in deciduous forests and marshes. Their dens are usually found in dense shrubs close to a water source but they will also use rocky areas, hollow trees, and underground burrows dug by other animals.	Yes	Low. Low habitat suitability on the Site though the adjacent creek valley is better. Limited presence in the Ottawa area.

Little Brown Myotis (*Myotis lucifugus*)	Endangered	Endangered	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.	Yes	Moderate. Site habitat provides some habitat potential but is sub-optimal given low snag density. More suitable habitat will be retained in the adjacent creek valley. Timing restrictions on tree clearing will protect transiently-present individuals.
Northern Myotis / Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	Endangered	Associated with boreal forests, choosing to roost under loose bark and in the cavities of trees.	Yes	Moderate. Site habitat provides some habitat potential but is sub-optimal given low snag density. More suitable habitat will be retained in the adjacent creek valley. Timing restrictions on tree clearing will protect transiently-present individuals.
Tri-coloured Bat / Eastern Pipistrelle (*Perimyotis subflavus*)	Endangered	Endangered	Roosts mainly in trees during summer; overwinters in caves and mines along with other species, but often uses deeper parts of the hibernaculum.	Yes	Moderate. Site habitat provides some habitat potential but is sub-optimal given low snag density. More suitable habitat will be retained in the adjacent creek valley. Timing restrictions on tree clearing will protect transiently-present individuals.
Amphbians					
Western Chorus Frog (*Pseudacris triseriata*)	No Status	Threatened	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.	Yes	None. Negligable habitat potential on site.
Reptiles					
Blanding's Turtle (*Emydoidea blandingii*)	Threatened	Threatened	Quiet lakes, streams and wetlands with abundant emergent vegetation; also frequently occurs in adjacent upland forests.	Yes	Low. Suitable habitat does not occur in the Project Area. Adjacent creek (60 m away) has limited suitability.
Eastern Musk Turtle / Stinkpot (*Sternotherus odoratus*)	Special Concern	Special Concern	Found in ponds, lakes, marshes, and rivers that are generally slow-moving have abundant emergent vegetation and muddy bottoms that thye burrow into for winter hibernation.	Yes	Low. Suitable habitat does not occur in the Project Area. Adjacent creek (60 m away) has limited suitability.
Eastern Ribbonsnake (*Thamnophis sauritus*)	Special Concern	Special Concern	Found in marshy edges of wetlands and watercourses. Livebearer (does not lay eggs).	No	None. Not present in the vicinity.

Milksnake (*Lampropeltis triangulum*)	No Status	Special Concern	Found in variety of open, scrubby or edge habitats, including pastures.	No longer listed	Not applicable as this species is not protected on private lands
Northern Map Turtle (*Graptemys geographica*)	Special Concern	Special Concern	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.	Yes	Low. Suitable habitat does not occur in the Project Area. Adjacent creek (60 m away) has limited suitability.
Snapping Turtle (*Chelydra serpentina*)	Special Concern	Special Concern	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.	Yes	Low. Suitable habitat does not occur in the Project Area. Adjacent creek (60 m away) has limited suitability.
Spiny Softshell (*Apalone spinifera*)	Endangered	Threatened	Found primarily in rivers and lakes but also in creeks, ditches and ponds near rivers. Habitat requirements are open sand or gravel nesting areas, shallow muddy or sandy areas to bury in, deep pools for hibernation, areas for basking, and suitable habitat for crayfish and other food species.	Yes	Low. Suitable habitat does not occur in the Project Area. Adjacent creek (60 m away) has limited suitability.
Spotted Turtle (*Clemmys guttata*)	Endangered	Endangered	Semi-aquatic and prefers ponds, marshes, bogs, and even ditches with slow-moving, unpolluted water and an abundant suply of aquatic vegetation.	Yes	Low. Suitable habitat does not occur in the Project Area. Adjacent creek (60 m away) has limited suitability.
Wood Turtle (Glyptemys insculpta)	Endangered	Threatened	The wood turtle prefers clear rivers, streams, or creeks with a slight current and sandy or gravelly bottom. Wooded areas are essential habitat for the Wood Turtle, but they are found in other habitats, such as wet meadows, swamps, and fields.	Yes	Low. Low habitat suitability on the Site though the adjacent creek valley is better. Limited presence in the Ottawa area.
Plants					
American Chestnut (*Castanea dentata*)	Endangered	Endangered	Typical habitat is upland deciduous forests on sandy acidic soils, occuring with red oak, black cherry, sugar maple and beech.	No	None. Not present in the vicinity.
American Ginseng (*Panax quinquefolius*)	Endangered	Endangered	Grows in rich, moist, but well-drained, and relatively mature, deciduous woods dominated by Sugar Maple, White Ash, and American Basswood.	Yes	Low. Habitat is on and/or adjacent to the Site is unsuitable.

Butternut (*Juglans cinerea*)	Endangered	Endangered	Commonly found in riparian habitats, but is also found on rich, moist, well-drained loams, and well-drained gravels, especially those of limestone origin.	Yes	Low. Habitat is on and/or adjacent to the Site is suitable, but no individuals were observed.
Eastern Prairie Fringed-orchid (Platanthera leucophaea)	Endangered	Endangered	Populations are found in three main habitat types: fens (peat-forming wetlands fed by groundwater), tallgrass prairie, and moist old fields	No	None. Not present in the vicinity.
Lichens					
Flooded Jellyskin (*Leptogium rivulare*)	No Status	Threatened	It grows in seasonally flooded habitats, typically on the bark of deciduoud trees and rocks along the margins of seasonal ponds and on rocks along shorelines and stream/riverbeds.	No	Not applicable as this species is not protected on private lands
Pale-bellied Frost Lichen (*Physconia subpallida*)	Endangered	Endangered	Typically grows on the bark of hardwood trees such as White ash, Black walnut, and American elm. Could also be found growing on fence posts and boulders.	Yes	Low. Habitat is on and/or adjacent to the Site is suitable, but no individuals were observed.
Insects					
Bogbean Buckmoth (Hemileuca sp. 1)	Endangered	Endangered	Restricted to open, chalky, low shrub fens containing large amounts of bogbean, an emergent wetland flowering plant.	No	None. Not present in the vicinity.
Gypsy Cuckoo Bumble Bee (*Bombus bohemicus*)	Endangered	Endangered	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.	Yes	Low. As habitat generalist, any area potentially suitable but te speices has limited presence in the Ottawa area.
Monarch butterfly (*Danaus plexippus*)	Special Concern	Special Concern	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.	Yes	Moderate, though the species is not protected under the ESA.
Mottled Duskywing (*Erynnis martialis*)	Endangered	No Status	Requires host plants such as the New Jersey Tea and the Prairie Redroot. These plants grow in dry, well-drained soils or alvar habitat within oak woodland, pine woodland, roadsides, riverbanks, shady hillsides and tall grass prairies.	No	None. Not present in the vicinity.

Nine-spotted Lady Beetle (*Coccinella novemnotata*)	Endangered	No Status	Occur within agricultural areas, suburban gardens, parks, coniferous forests, deciduous forests, prairie grasslands, meadows, riparian areas and isolated natural areas.	No	None. Not present in the vicinity.
Rapids Clubtail (*Gomphus quadricolor*)	Endangered	Endangered	Inhabit a wide variety of riverine habitats ranging in size from the St. Lawrence River to small creeks Larvae are typically found in microhabitats with slow to moderate flow and fine sand or silt substrates where they burrow into the stream bed. Adults disperse from the river after emerging and feed in the forest canopy and other riparian vegetation.	No	None. Not present in the vicinity.
Rusty-patched Bumble Bee (*Bombus affinis*)	Endangered	Endangered	Can be found in open habitat such as mixed farmland, urban settings, savannah, open woods, and sand dunes.	Yes	Low. As habitat generalist, any area potentially suitable but te speices has limited presence in the Ottawa area.
Transverse Lady Beetle (*Coccinella transversoguttata*)	Endangered	Special Concern	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.	No	None. Not present in the vicinity.
West Virginia White butterfly (*Pieris virginiensis*)	Special Concern	No Status	Lives in moist, deciduous woodlots. Requires a supply of toothwort, a small, spring-blooming plant that is a member of the mustard family, since if it the only food source for larvae.	No	None. Not present in the vicinity.
Yellow-banded Bumble Bee (*Bombus terricola*)	Special Concern	Special Concern	Forage and habitat generalist, able to use a variety of nectaring plants and environmental conditions.	No	None. Not present in the vicinity.