

Environmental Impact Statement Minto Arcadia Phase 6

Updated Report

January 26, 2023

Submitted To:
Minto Communities - Canada
200-180 Kent St.
Ottawa, ON
K1P 0B6

KILGOUR & ASSOCIATES LTD.
www.kilgourassociates.com
Project Number: MINTO1210



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1.0 INTRODUCTION

This report is an Environmental Impact Statement prepared by Kilgour & Associates Ltd. (KAL, Appendix 1) on behalf of Minto in support of their ongoing development within their broader Arcadia residential project in Kanata, in Ottawa's west end. The report specifically addresses the Phase 6 area of the development. The report is an update to a previous EIS that addressed both the Phase 5 and 6 areas within the Arcadia Community (KAL, 2022). As such, the majority of this report is based on that earlier review.

Phase 6 was generally cleared and regraded in conjunction with community development in the adjacent Phase 3 and 4 areas. That preparatory work was reviewed as part of the EIS for the Phase 3 and 4 areas (KAL, 2018). Following the regarding work on the site, the Phase 6 areas is devoid of natural cover with the exception of a single small stand of trees immediately adjacent to Campeau Drive. The focus of the EIS will be to review:

- 1) the remaining tree cluster on the site,
- 2) the proposed development in relation to previous considerations of species at risk (SAR) habitat on the site and other wildlife considerations; and
- 3) the required setbacks for the community to both Feedmill Creek and the Carp River.

2.0 PROPERTY INFORMATION

The Phase 6 area, located at 8415 Campeau Drive, comprises a portion of parcel of a previously larger property on Huntmar Drive (CON 1 N PT LOT 3 RP5R14184; PART 5; PIN: 045100344) wholly owned by Minto. The property is currently zoned as R4 Residential within the City of Ottawa Zoning Bylaw.

3.0 SITE AND THE NATURAL ENVIRONMENT

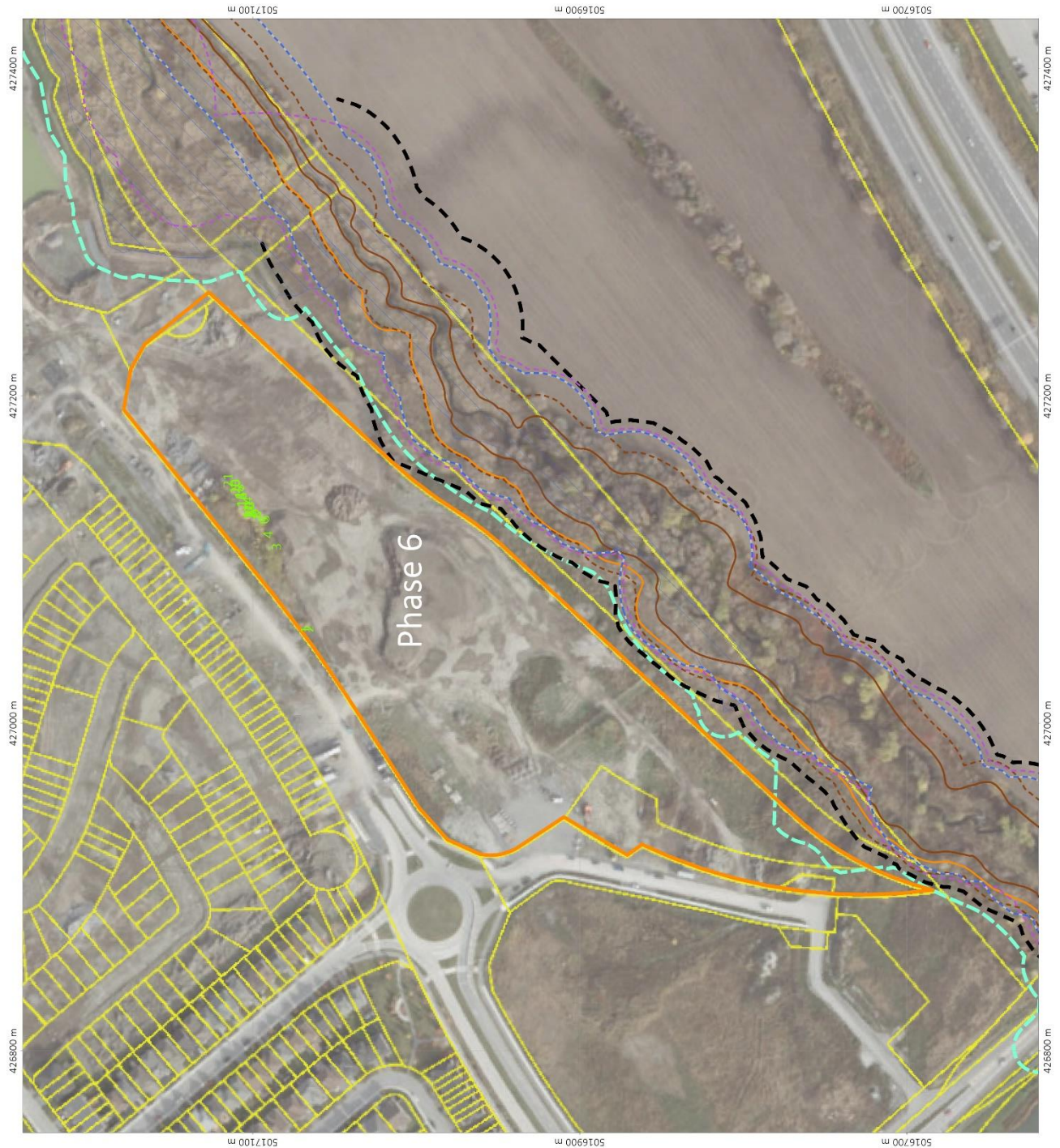
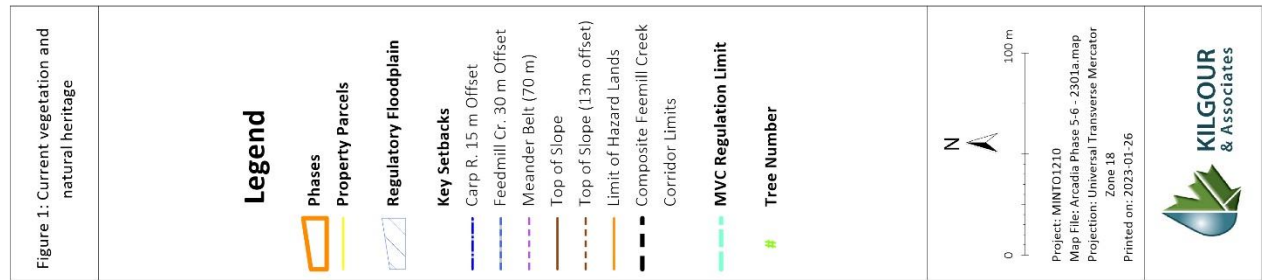
3.1 Methodology and Area of Detailed Assessment

Colour digital aerial photographs from geoOttawa (Ottawa, 2021a) and Google Earth were initially used to review and identify natural environment features on the broader property. KAL biologist Catherine Proulx visited the site on May 21, 2021, to review its condition at that time. The site was revisited on January 24, 2023 by KAL Biologist Robert Hallett specifically to identify the remaining trees located on along Campeau Drive. The review of site trees is provided directly within this EIS, as opposed to within a separate Tree Conservation Report per the instructions of City of Ottawa Planning Forester Hayley Murray (Personal Communication, January 17, 2021).

3.2 Landform, Soils and Geology

The entire Phase 6 area has been stripped, filled, and graded. No original soil structures or layers exist on the surface in these areas. The Phase 6 area has been similarly razed except for a narrow, vegetated strip along its northern edge adjacent to Campeau Drive (Figure 1).





3.3 Surface Water

The site and adjacent lands lie within the Carp River Watershed, which is managed by the Mississippi Valley Conservation Authority (MVCA). No natural surface water features or wetlands are present directly on site.

Feedmill Creek runs eastward to the Carp River to the south of Phase 6. It is separated from the creek corridor by a parcel of land reserved for the future transit corridor. The corridor for Feedmill Creek has set based on the maximum of the following setbacks identified within the Kanata West Implementation Plan (Appendix 2):

- The floodplain;
 - Using updated mapping from MVCA (Floodplain and Regulation Limit), which delineates the 1:100 year flood plain boundary for the watercourse as well as related erosion hazard limits.
- The meander belt;
 - The greater of a) 100m per the Implementation Plan b) 70m width per the watershed Study
- A 30m Setback from Natural High Water Mark (NHWM);
- A 13m Setback from the Top of Slope; and
- The Hazard Limit.
 - Based on files “PG2472-1 to -4 and PG2472-5” from Paterson.

Additionally, the 2010 Kanata West Implementation Plan requires a minimum “preservation” along this section of Feedmill Creek. The total cross-section of the preserved riparian corridor must extend to a width of at least 100m (Reach 1) and 80m (Reach 2), regardless of whether the maximum combination of the above setbacks allows for a narrower span. Following these guidelines, the corridor (see Figure 1) has been set conservatively so as to accommodate both the ancestral (northern) and manmade farm channel (southern)

Finally, a small portion of the Phase 6 area also extends to within the MVCA Regulation limit of Feedmill Creek. Any development (which includes construction, site grading and the placement or removal of fill) within the regulated area requires written permission from the Conservation Authority to ensure that the watercourse and its riparian corridor are adequately protected. Both the watercourse and its riparian corridor will be protected in accordance with to setback provision established by previous studies as indicated above.

The Carp River is located to the east of the site. Setbacks to the Carp River were originally defined within the *Carp River Watershed/Subwatershed Study* (Robinson Consultants, 2004). All reaches of the Carp River upstream of Richardson Side Road were defined as a tolerant warm-water fish community (Type 3) with a required setback of 15 m.

Both the Carp River adjacent to Phase 5 and its associated corridor were significantly reconstructed as part of the Carp River Restoration Project per the *Carp River, Poole Creek and Feedmill Creek Restoration Update and Amendment* (Delcan, 2010). Work on Carp River was completed in 2017. The Carp River Restoration Project was designed and conducted so as to pull the 100-year floodplain back to the eastern edge of the Minto’s property, where it is currently situated. The filled area on Minto’s property now serves



as a developable area. At its closest point, the top-of-bank of the realigned Carp River is located 20 m from the eastern boundary of the Phase 5 area.

3.4 Land Cover and Trees

Most of the Phase 6 area was cleared and regraded. The northern-most edge of Phase 6 adjacent to Campeau Drive, however, includes a narrow (~10 m wide) band of cultural meadow (CUM) with a sparse scattering of asters, burdock, clover, thistle, cow vetch and grasses. A small cluster of trees (Figure 1) occurs within the strip consisting of two species: 15 Balsam poplars (*Populus balsamifera*; DBH 12-38 cm) and 6 White Willow (*Salix alba*; DBH 10-31 cm). A detailed breakdown of the site trees is provided in Appendix 4.

3.5 Wildlife

Phase 6 is currently under active construction and, as such, would not provide wildlife habitat. During the summer, however, there is some limited potential for transient access by common species.

3.6 Species at Risk

A natural heritage information request was originally submitted to the Kemptville MNRF office to determine SAR, SAR habitat, and natural heritage features potentially present on and adjacent to the site in 2011, prior to the start of development of the broader area. At the time, the MNRF indicated the possible presence of Butternut, Loggerhead Shrike and Henslow's Sparrow (Endangered), plus Bobolink, Blanding's Turtle and Eastern Musk Turtle (Threatened) (Appendix 3). Milksnake, Eastern Ribbonsnake, and Snapping Turtle (Special Concern) were also identified as possibly present though they were not protected under the *ESA*. Eastern Musk Turtle has since been downgraded to Special Concern. As such, it is also no longer subject to the *ESA*. Milksnake has now been completely delisted. It is still prohibited, however, to directly harm any of these species under the Ontario Fish and Wildlife Conservation Act. These species do not have legal habitat protection.

Our background information review of the site identified 12 species listed under the *Endangered Species Act* (Ontario, 2007) and *Species At Risk Act* (Canada, 2002) to occur on or in proximity to the property (Bank Swallow [*Riparia riparia*], Barn Swallow [*Hirundo rustica*], Bobolink [*Dolichonyx oryzivorus*], Eastern Meadowlark [*Sturnella magna*], Eastern Wood-pewee [*Contopus virens*], Wood Thrush [*Hylocichla mustelina*], Monarch [*Danaus plexippus*], Little Brown Myotis [*Myotis lucifuga*], Northern Long-eared Myotis [*Myotis septentrionalis*], Eastern Small-footed Myotis [*Myotis leibii*], Tri-colored Bat [*Pipistrellus subflavus*], Butternut [*Juglans cinerea*]).

Table 2 indicates the habitat requirements of protected SAR potentially present within the broader area and whether the property may provide significant habitat.



Table 1. Species-at-risk potential for the site.

Species Name	Provincial (ESA) Status	Habitat Requirement	Habitat on Site	Project Concerns Associated with Habitat on Site
Birds				
Bank Swallow (<i>Riparia riparia</i>)	Threatened	Colonial nester; burrows in eroding silt or sandbanks, sandpit walls, and other similar habitats	No nesting habitat is present on or adjacent to the site. As barren areas undergoing active groundworks, Phases 5 and 6 are unlikely to provide suitable feeding grounds despite being open areas. The adjacent river corridor could provide suitable foraging grounds and would continue to do so after development within Phases 5 and 6.	Negligible potential for presence within development areas. Not a concern for this project.
Barn Swallow (<i>Hirundo rustica</i>)	Threatened	Species prefers to nest on manmade structures such as bridges, barns, and buildings near open terrestrial and aquatic habitats where it forages.	No nesting habitat is present on or adjacent to the site. As barren areas undergoing active groundworks, Phases 5 and 6 are unlikely to provide suitable feeding grounds despite being open areas. The adjacent river corridor could provide suitable foraging grounds and would continue to do so after development within Phases 5 and 6.	Negligible potential for presence within development areas. Not a concern for this project.
Bobolink (<i>Dolichonyx oryzivorus</i>)	Threatened	Periodically mown, dry meadow for nesting. Habitat (meadow) should be > 10 ha, and preferably > 30 ha before bobolink are attracted to the site. Not near tall trees	No suitable habitat remains on site. The area previously supported the species but was cleared under an agreement with the MNFR in 2012.	The Phase 5 and 6 areas are no longer protected as habitat (i.e. following the 2012 agreement. Groundworks in the area would be prohibited from commencing while the birds were present but regrading within Phase 5 and 6 has been ongoing since 2018. No suitable habitat remains and there is negligible potential for presence. Not a concern for this project.
Eastern Meadowlark (<i>Sturnella magna</i>)	Threatened	Prefers grasslands and pastures >5 ha in area with moderately tall grasses (25 to 50 cm) and abundant litter cover. High proportion of grasses to forbs and shrubs (<35% forbs and shrubs).	No suitable habitat on site.	Negligible potential for presence. Not a concern for this project.
Eastern Wood-pewee (<i>Contopus virens</i>)	Special Concern	Prefers mature and intermediate-aged deciduous and mixed forest with an open understory. Often nests and forages near open areas and forest edges.	No suitable habitat on site. No woodlands exist on site.	Negligible potential for presence. Not a concern for this project.
Wood Thrush (<i>Hylocichla mustelina</i>)	Special Concern	Moist deciduous hardwood or mixed forests with trees >16 m in height, a closed canopy (>70%), moderate sub-canopy and shrub layer, fairly open forest floor, and moist soil.	No suitable habitat on site. No woodlands exist on site.	Negligible potential for presence. Not a concern for this project.
Butterflies				



Species Name	Provincial (ESA) Status	Habitat Requirement	Habitat on Site	Project Concerns Associated with Habitat on Site
Monarch (<i>Danaus plexippus</i>)	Special Concern	Caterpillars require Milkweed species and are confined to meadow and open areas where it grows, while adults feed on nectar ins a variety of habitats.	No suitable habitat on site.	Transient presence is possible in the summer but the species is not currently protected under the ESA. Not a concern for this project.
Mammals				
Little Brown Myotis (<i>Myotis lucifuga</i>)	Endangered	Widespread, roosting in trees and buildings. Hibernates in caves or abandoned mines.	No suitable roosting or maternity habitat is available on site. No potential bat hibernacula on site.	Negligible potential for presence. Not a concern for this project.
Northern Long-eared Myotis (<i>Myotis septentrionalis</i>)	Endangered	Associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. Hibernates in caves or abandoned mines.	No suitable roosting or maternity habitat is available on site. No potential bat hibernacula on site.	Negligible potential for presence. Not a concern for this project.
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	Endangered	Species roosts in a range of habitats including under rocks, rocky outcroppings, buildings, under bridges, caves, mines, and hollow trees. Hibernates in smaller caves subject to air movement.	No suitable roosting or maternity habitat is available on site. No potential bat hibernacula on site.	Negligible potential for presence. Not a concern for this project.
Tri-coloured Bat (<i>Pipistrellus subflavus</i>)	Endangered	Prefers to roost in trees in old forests but sometimes uses buildings. Forage over watercourses or open fields with large trees nearby. They never forage in deep woods. Hibernates in caves or abandoned mines.	No suitable roosting or maternity habitat is available on site. No potential bat hibernacula on site.	Negligible potential for presence. Not a concern for this project.
Turtles				
Blanding's Turtle (<i>Emydoidea blandingii</i>)	Threatened	Species prefers shallow water usually in large wetlands or shallow lakes with a high abundance of emergent vegetation.	Habitat areas are limited to the Carp River corridor as per the agreements with the MNRF regarding the Carp River Restoration project. Transient presence is possible but is considered extremely unlikely given the highly disturbed conditions over of the site.	Negligible potential for presence. Potential interactions with the species can be prevented through the use of silt fencing installed around the perimeter of the development areas while under construction. Limited concern for this project.
Eastern Musk Turtle (<i>Sternotherus odoratus</i>)	Special Concern	Ponds, lakes, marshes and rivers that are generally slow-moving have abundant emergent vegetation and muddy bottoms	Species could use the Carp River for travel and nesting, though no such activity has been observed in studies of the area since 2011. No such usage would occur during the winter.	The species is not currently protected under the ESA. Negligible potential for presence. Potential interactions with the species can be prevented through the use of silt fencing installed around the perimeter of the development areas while under construction. Not a concern for this project.
Snapping Turtle (<i>Chelydra serpentina</i>)	Special Concern	Freshwater habitat characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation.	Species could use the Carp River and/or Feedmill Creek corridors for travel and nesting, though no such activity has been observed in studies of the area since 2011.	The species is not currently protected under the ESA. Negligible potential for presence. Potential interactions with the species can be prevented through the use of silt fencing installed around the perimeter of the development areas while under construction.



Species Name	Provincial (ESA) Status	Habitat Requirement	Habitat on Site	Project Concerns Associated with Habitat on Site
				Not a concern for this project.
Vascular Plants				
Butternut (<i>Juglans cinerea</i>)	Endangered	Variable but typically on well-drained soils.	Habitat suitability is extremely low. No individuals are present on site.	Negligible potential for presence. Not a concern for this project.



Bobolink were found to be using the property in 2012. Minto however, developed a compensation plan for the species (Kilgour, 2012) prior to commencing construction on adjacent phases of the community, which was accepted by the MNR in 2014 (Appendix 3), thereby exempting the site from protection under the ESA as habitat. The property no longer provides suitable habitat for grassland birds and further Bobolink presence is extremely unlikely.

As part of the studies supporting the Carp River Restoration Project, Category 2 Blanding's Turtle habitat was found to occur along the former channel of the Carp River and the in wetland areas immediately adjacent to the river (Kilgour, 2014). Areas within 250 of the western edge of the river (i.e. most of Phase 5) were considered to constitute Category 3 habitat, based on standard definitions within the Blanding's Turtle General Habitat Description (MNR, 2013). These areas were found, however, to provide limited utility for the species (KAL, 2014). The Carp River Restoration was designed in part to improve turtle habitat within the new floodplain while redeveloping areas outside of the floodplain (e.g. the Phase 5 areas) as non-turtle habitat (Appendix 3). This has taken place. The property no longer provides suitable turtle habitat and further Blanding's Turtle presence on the site is extremely unlikely.

3.7 Other Natural Heritage Features

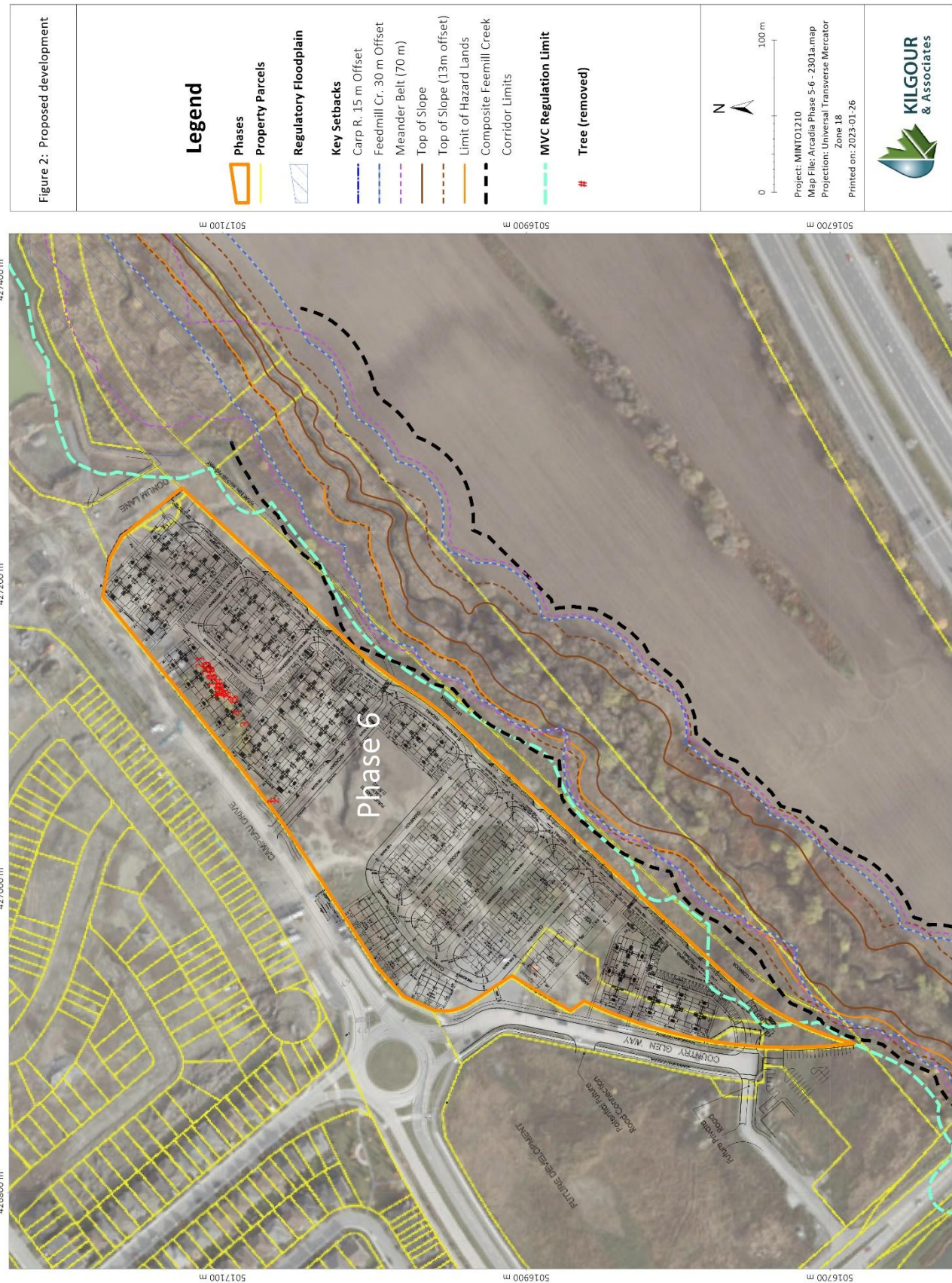
There are no provincially significant wetlands, wetlands found in association with significant woodlands, significant valleylands, or Life Science Areas of Natural and Scientific Interest on or adjacent to the site. With no Special Concern species occurring on the site, and no previous observations of larger groupings of other taxa, no Significant Wildlife Habitat is present.

4.0 PROJECT DESCRIPTION

Phase 6 will include higher-density residential development with a mix of urban town units (104 units) and low-rise apartments (264 units). Parking for the units will include a mix of surface and underground spaces. A 0.56 ha park will be located in the center of the development.

Phase 6 development will occur outside of the Feedmill Creek corridor following the setbacks identified in Section 3.3 and will be separated from that feature by the City's rapid transit corridor. Residential construction is anticipated to begin in early-2023 and be completed in 2025.





5.0 IMPACT ASSESSMENT

5.1 Impacts to Surface Water Features

The Phase 6 areas respects the required setbacks associated with the Feedmill Creek corridor (Figure 2) related to the flood plain limits, valley wall/erosion setbacks, and the meander belt allowances, as well as the composite Feedmill Creek Corridor limits at that account for aquatic habitat buffers and both terrestrial and wildlife habitat in accordance with previous studies (see Section 3.3). The proposed development will be separated from the creek corridor by the City-owned LRT corridor. Future pathways along the creek would be incorporated into the design of the LRT and be located within the LRT corridor. Accordingly, no negative impacts are anticipated from the proposed Phase 6 development to Feedmill Creek or its associate corridor.

5.2 Impacts to Trees and Site Vegetation

Only 21 trees are currently located within a small cluster on the north edge of the development. These trees will be removed in accordance a tree clearing permit issued by the City. This report will support he application for that permit. All existing tree and vegetative cover within the 100 + m wide Feedmill Creek corridor will be fully preserved.

5.3 Impacts to Species at Risk

There are currently no SAR or their habitats on or adjacent to the site. Mitigation measures identified in is Section 6.2 must be in place to ensure no harm to transiently present individuals.

5.4 Impacts to Wildlife

The potential for wildlife presence within the highly disturbed lands of the development area is very low. All additional land clearing and filling within the MAM ecosite along the eastern edge of the site will be completed in the winter of 2018/2019. The MAM area at that time is completely dry and will not support any overwintering turtles or frogs. Standard construction mitigations are anticipated to prevent impacts to any wildlife that does occur on the site; therefore, no impacts to wildlife are predicted from the project.

All existing tree and vegetative cover within the 100 + m wide Feedmill Creek corridor will be fully preserved, thus retaining any current (though likely limited) use of this area by wildlife. Glazing within the site buildings will consider the City's Bird-Safe guidelines to protect birds potentially residing within this corridor Mitigations.

6.0 RECOMMENDED MITIGATION MEASURES

6.1 Mitigations to Protect Area Surface Water

Development of the property will require standard erosion and sediment control mitigation measures to in place to protect adjacent lands and nearby waters from sediment-laden runoff.

- Adopt a multi-barrier approach to provide erosion and sediment control;



- Retain existing vegetation and stabilize exposed soils with vegetation where possible;
- Limit the duration of soil exposure and phase construction when possible;
- Limit the size of disturbed areas by minimizing nonessential clearing and grading;
- Minimize slope length and gradient of disturbed areas; and
- Control overland sheet flow to avoid concentrated flows.

The zoning proposed for the proposed residential development for Phase 6 does not extend into the LRT corridor located between Phase 6 and Feedmill Creek corridor. It is recognized that if the LRT corridor is not constructed, it would be rezoned as O1, which would not impact the current development or the ecology of the Feedmill Creek corridor. Any such planning measures related to the LRT, however, would be approved through the higher-level planning and would not otherwise be associated with the this project.

As a portion of the Phase 6 area extends to within the MVCA Regulation limit of Feedmill Creek site development work within that area requires written permission from the Conservation Authority.

6.2 Mitigation for Trees and Site Vegetation

The small cluster of trees located on Phase 6 will be removed at the commencement of construction, which will leave the site free of trees. The tree removal can only be completed under a tree removal permit issued by the City of Ottawa. The *Migratory Bird Convention Act* protects the nests and young of migratory breeding birds in Canada. City of Ottawa guidelines require no clearing of trees or vegetation between April 1 and August 15, unless a qualified biologist has determined that no nesting is occurring within 5 days prior to the clearing.

Specific trees to be planted on the site will be identified in the landscape plan for the development. Tree species identified in this plan however must be non-invasive and native to the Ottawa area. Recommended tree species to consider in the landscaping plan include Red Maple, White Spruce, White Pine and Black Cherry all of which currently occur near the site. Other local tree species however may also be considered. Trees are to be planted in proximity to the urban town units must be planted at a density equivalent to no less than one tree per lot (i.e. 104 trees), though the distribution of specific planting locations may be varied from necessarily planting on every lot, as may be dictated by individual lot considerations. Additional tree planting is required as feasible with proximity to the low-rise apartments, especially within amenity areas, and within the public park space to extent compatible with park planning requirements.

Section 4.8.2 2 of the OP calls for an urban canopy target of 40% canopy though it is understood that this target is intended for the urban area as a whole. Canopy cover of 40% is not generally feasible directly within an area of high-density development. The OP indicates that the development of sub-targets will be based on evolving urban form, climate resiliency, and environmental factors. These have not yet been established. The site currently includes only one small cluster of 21 trees. Tree planting associate with the urban town units alone thus constitutes a five-fold increase in the number of site trees.



6.3 Mitigation for Species at Risk

Phase 6 is no longer protected as Bobolink habitat following the 2012 agreement with MNR, but direct impacts to individuals are still be prohibited. Accordingly, groundworks in the area are prohibited from commencing if/while the birds are but are fully permissible once the birds are absent. Grading work within the phase has been ongoing since 2018. As such no suitable habitat remains and there is negligible potential for presence at any time of year.

The removal of the adjacent Phase 5 lands from the Carp River floodplain required areas previously classed a Blanding's Turtle habitat to be filled and regraded. The 2014 agreement with the MNR (Appendix 3) imposed mitigation measures to be employed during the modification of corridor, but stipulated that "Once the corridor is modified and the new 100-year flood plain is legally established, filing of the required areas will begin and these 'filled' areas will be available as developable land" (i.e. will no longer constitute habitat). With the restoration of the corridor having been completed and the 100-year floodplain having been legally established (Ottawa, 2021a). The mitigation measures required under the MNR permit were to be (and were) implemented as part of the tender for the corridor restoration and no longer apply directly to the work in Phase 5. Regardless, it is recommended here the erosion and sediment control fencing surrounding Phases 5 and 6 be maintained in full working order throughout the period of land development and construction to prevent the potential transient entrance of turtles to work areas.

6.4 Mitigations for General Wildlife

Common wildlife species have been observed in the vicinity of Phases 5 and 6 during various field programs to support development in the Arcadia Community since 2012. The following mitigation measures shall be implemented during construction of the project:

General measures to protect wildlife must be implemented. Contractors must:

- Have a Biologist inspect all sites prior to clearing to identify any new wildlife issues (e.g., hibernating animals or nursing mothers and their young, etc.) and to inform or adjust mitigation plans as needed;
- Tree clearing will not occur between April 1 and August 15, without first determining the absence of nesting species prior to clearing. This restriction also applies to mammals and ground-nesting birds. All nest searches must be conducted by a qualified Biologist within 4 days of site clearing;
- Areas to be cleared must be pre-stressed to encourage wildlife to move away from a site prior to the onset of construction. Methods of pre-stressing include having one or more people walk the site while talking loudly or playing loud music, or placing pieces of cloth or other objects that carry a strong human scent into animal dens. Common pre-construction activities, such as surveying, or installing protective fencing, can contribute to pre-stressing. The final set of pre-stressing measures will be confirmed as part of the Biologists' pre-clearing inspection.
- Site clearing activities should begin at the west side of the property and proceed toward the wetland. The goal is to ensure that any wildlife within the workspace can retreat into the retained natural area without having to cross cleared lands;



- Conduct vegetation clearing and groundworks such that existing connections to adjacent areas of habitat are maintained until the final stage of clearing so that wildlife can use these connections to leave the site;
- Ensure that perimeter fencing does not prevent wildlife from leaving the site during vegetation clearing. Once the work area has been cleared, it can be securely fenced to keep wildlife from returning. Silt fencing may be useful to keep small animals such as reptiles and amphibians out of the work area;
- Contractors and other on-site workers should be briefed on appropriate measures to reduce human-wildlife conflict during the work (e.g., waste management, no feeding wildlife, no deliberate harm to wildlife, safe relocation techniques to get wildlife to leave the site). Provide contact numbers for large animal removal, rehabilitation of injured or orphaned wildlife, and species at risk reporting.

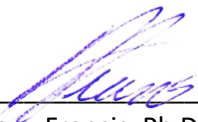
For this project, the two main considerations from Bird Safe guidelines and associated with for birds residing in the Feedmill Creek Corridor likely relate to light leakage at night and glazing transparency/reflectivity. Nighttime light leakage from the Phase 6 area will generally be separated from the naturalized corridor by the LRT corridor, which will include an illuminated transit station.

While Section 6.2 of the report calls for tree plantings associated with the apartment blocks around the periphery site. Locations selected for such plantings should be planned avoid proximity to building windows to reduce tree reflections in the glazing. Moreover, glazing materials and patterns should be select in accordance with the Bird Safe guidelines, especially where trees are present.

7.0 SUMMARY AND RECOMMENDATIONS

It is my professional opinion that no negative impacts are anticipated to natural heritage features on or near this property under the proposed project. Mitigation measures shall be implemented to prevent impacts to trees and wildlife species in the area during project development.

KILGOUR & ASSOCIATES LTD.



Anthony Francis, Ph.D.
Senior Ecologist



8.0 REFERENCES

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Appendix 1
Qualifications of Report Author

Anthony Francis, PhD

Dr. Francis is an ecologist with over 20 years of experience in both terrestrial and aquatic projects. His doctoral thesis work on global plant diversity patterns included conducting tree surveys across North America. As a consulting ecologist, he has worked on diverse ecological projects including literature reviews of forestry management and species-at-risk; environmental studies of contaminants (metals and suspended particulates); geomatic and statistical analyses for federal and provincial ministries as well as for private industry; and aquatic and terrestrial species inventories. He has contributed to environmental impact statements and federal environmental screening assessments for creek realignments and other infrastructure projects across Ontario.

Appendix 2
Carp River, Poole Creek and Feedmill Creek
Corridor Width Limits Rationale

Appendix 3
Government Communications and Records

**Appendix 4
Site Trees**

Site Trees: Note, all existing site trees will be removed.

	Species	Taxonomic Name	Number of Stems	DBH	Trunk Health	Canopy Health	Decay class
1	White Willow	<i>Salix alba</i>	1	10	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
2	White Willow	<i>Salix alba</i>	2	10	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
3	White Willow	<i>Salix alba</i>	2	23	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
4	Balsam poplar	<i>Populus balsamifera</i>	1	16	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
5	Balsam poplar	<i>Populus balsamifera</i>	1	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
6	Balsam poplar	<i>Populus balsamifera</i>	1	17	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	4: Recently dead, bark peeling, only large branches intact
7	Balsam poplar	<i>Populus balsamifera</i>	1	34	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
8	Balsam poplar	<i>Populus balsamifera</i>	1	21	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
9	Balsam poplar	<i>Populus balsamifera</i>	1	38	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
10	Balsam poplar	<i>Populus balsamifera</i>	1	29	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
11	Balsam poplar	<i>Populus balsamifera</i>	1	19	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
12	Balsam poplar	<i>Populus balsamifera</i>	1	24	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
13	Balsam poplar	<i>Populus balsamifera</i>	1	21	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
14	Balsam poplar	<i>Populus balsamifera</i>	1	15	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
15	Balsam poplar	<i>Populus balsamifera</i>	2	33	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
16	White Willow	<i>Salix alba</i>	8	31	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
17	White Willow	<i>Salix alba</i>	4	28	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
18	Balsam poplar	<i>Populus balsamifera</i>	1	19	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
19	White Willow	<i>Salix alba</i>	8	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree

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20	Balsam poplar	<i>Populus balsamifera</i>	1	12	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree
21	Balsam poplar	<i>Populus balsamifera</i>	3	22	Good: tree displays less than 15% deficiency/defect	Good: tree displays less than 15% deficiency/defect	1: Healthy, live tree