City of Ottawa Integrated Environmental Review for Barrhaven Conservancy West

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Submitted To:

Hugo Lalonde
Director, Land Development

Barrhaven Conservancy Development Corporation
2934 Baseline Road, Suite 302
Ottawa, ON
K2H 1B2

KILGOUR & ASSOCIATES LTD.
www.kilgourassociates.com
Project Number: CAIV 977.9

TABLE OF CONTENTS

List of Tables

List of Appendices

List of Acronyms and Abbreviations

ANSI – Areas of Natural or Scientific Interest
BCDC - Barrhaven Conservancy Village Development Corporation
cm – centimetres
CRZ – Critical Root Zone
DBH – Diameter at Breast Height
EIS – Environmental Impact Statement
ESA – *Endangered Species Act*
ESC – Erosion Sediment Control
IER – Integrated Environmental Review
ha - hectare
km – kilometre
LID – Low Impact Design
m – metre
OP – 2003 City of Ottawa Official Plan
RVCA – Rideau Valley Conservation Authority
SAR – Species at risk

1.0 INTRODUCTION

This Integrated Environmental Review (IER), has been prepared by Kilgour & Associates Limited (KAL) on behalf of Barrhaven Conservancy Development Corporation (BCDC) in support of their proposed residential subdivision, named Barrhaven Conservancy West (the "Site") located in the Barrhaven area of Ottawa, Ontario.

The Site, along with the entire Barrhaven Conservancy Community, is owned by the Barrhaven Conservancy Development Corporation (2934 Baseline Rd Suite 302, Ottawa, ON K2H 1B2, 613-518-1864). The full Barrhaven Conservancy Community is comprised of seven contiguous property parcels at 3285, 3288, 3300, and 3305 Borrisokane Road, and 4305, 4345, and 4375 McKenna Casey Drive, and is located on Concession 3 Lots 13-14 and Concession 4 Lots 13-15. The Site itself includes portions of this area west of the Foster Watercourse, covering an area of approximately 36.5 ha. The Site is zoned Developmental Reserve (DR).

The Site is entirely within the City of Ottawa Urban Area. It was previously (i.e. prior to 2019) largely dominated by agricultural land uses and was located within the regulatory floodplain of the Jock River. The floodplain on the Site and the broader lands of the Barrhaven Conservancy Community was modified through a Cut and Fill Program under Official Plan Amendment (OPA) 212. All areas of the Site have recently been regraded to a higher elevation, removing them from the floodplain and razing all the natural landcover within the area.

The current City of Ottawa (2022) Official Plan does not provide guidance for, or specifically indicate a requirement for, an IER though, per Section 11.8 Paragraph 2), it indicates:

> *Development shall comply with the complete application submission requirements of the* Planning Act*. The City will maintain a Development Application Study policy, which will be reviewed with applicants in the pre-consultation process. To process the application, the City may require additional information and/or reports as listed in the Policy. The additional information and/or reports will be identified in writing after a pre-application consultation or after further review of the development proposal. All required reports must be completed to the satisfaction of the City or relevant approval authority.*

This IER has been written following the guidance provided by the 2003 City of Ottawa Official Plan (i.e. the official plan under which this development application is submitted; herein, the "OP"; City of Ottawa, 2021), Section 4.7.1 – "*Integrated Environmental Review to Assess Development Applications*". It is presented as a preliminary report to accompany the draft plan submission for the proposed development on the Barrhaven Conservancy Land site. This document presents information from studies completed to date as part of the planning and approvals process for the proposed development. The studies reviewed will form part of the initial draft plan submission that has not yet been reviewed or approved by the City of Ottawa. The intent of the report is to summarize the natural heritage information from the various environmental studies, to indicate findings that will influence the detailed design of the proposed site plan, and to confirm the proposal and application comply with Section 4.7 of the OP.

Herein and as per OP Section 4.7.1 – Integrated Environmental Review to Assess Development Applications, Policy 2:

- a brief overview of the individual technical studies and other relevant environmental background material;
- graphic illustrations, showing the spatial features and functions (e.g. natural vegetation, watercourses,) as have been identified in the individual studies;
- a summary of the potential environmental concerns raised, the scope of environmental interactions between studies, and the total package of mitigation measures, including any required development conditions and monitoring, as recommended in individual studies;
- a summary of how the proposed design complies with the environmental policies contained in Section 4 of the OP;
- a statement with respect to how the recommendations of the support studies and the design with nature approach have influenced the design of the development; and
- an indication that the statement has been reviewed and concurred with by the individual sub-consultants involved in the design team and technical studies.

This report has the following structure.

- Section 2.0 provides an overview of the environmental setting, as determined by the component studies.
- Section 3.0 provides a description of the proposed project.
- Section 4.0 discusses the potential environmental effects and required mitigation measures that are proposed by the proponent or required by a regulating agency.
- Section 5.0 provides a summary of how the project and its proposed design comply with the environmental policies in Section 4 of the OP.
- Section 6.0 provides a statement on how the recommendations of the support studies and the "Design With Nature" approach have influenced the design of the development, per the requirements of Policy 4.7 of the OP.
- Section 7.0 is the statement that this IER has been reviewed and concurred with by the individual sub-consultants involved in the design and delivery of technical supporting studies.
- Appendix A provides figures and supporting documents.

2.0 ENVIRONMENTAL CONDITIONS

This section provides an overview of the various technical studies related to the Site and a summary of the environmental concerns identified.

2.1 Geotechnical

2.1.1 General Geotechnical Assessment

The geotechnical investigation for the Site, prepared by Paterson Group Inc. (2022) reviewed available subsurface soil and groundwater information prepared by others and provided geotechnical recommendations for the design of the proposed residential development. It is expected that the proposed residential buildings will be founded on conventional shallow footings placed on an undisturbed, stiff to firm silty clay bearing surface or an engineered fill pad over an approved subgrade soil. Due to the presence of a silty clay deposit, permissible grade raise restrictions are recommended for this site. Tree planting setbacks are also recommended (Section 6.7 “Landscaping Considerations” [Paterson Group, 2021]; Section 4.3.2 in this report).

2.1.2 Soil Quality

A Phase One Environmental Site Assessment was prepared for the Site by Paterson Group (2022). The report found no potential environmental concerns and concluded that further investigation was not required to support development for urban residential purposes.

2.2 Terrestrial Environment

The Site had historically been subject to active agriculture, generally to within 5 m of the drainage features traversing the site (the Foster Watercourse and the O’Keefe Drain). When it was an agricultural area, the site had treed hedgerows between fields (KAL, 2022). All trees and other site vegetation, however, were removed as part of the Cut and Fill Program in 2020 in accordance with a City of Ottawa Tree Cut Permit (File Number D06-01-19-0129). Narrow bands of trees occurring directly along the banks of the Jock River and the O’Keefe Drain south of the Site were retained (Appendix A - Figure 1). No natural vegetation currently exists within areas of the Site specifically proposed for development. Only narrow bands of natural vegetation remain along the banks of O’Keefe Drain and the Foster Watercourse (KAL, 2022). However, as the residential development will be set back by at least 30 m from the top-of-banks (per Sections 2.3 and 4.4.2 below), these vegetated strips are ≥25 m from the edge of development.

No Provincially Significant Wetlands, wetlands found in association with Significant Woodlands, Significant Valleylands, or Areas of Natural and Scientific Interest occur on or adjacent to the Site (City of Ottawa, 2021; KAL, 2021). The nearest Provincially Significant Wetland is the Stony Swamp Wetland Complex, greater than 4 km away (KAL, 2022).

The nearest designated natural features to the Site include the Cambrian Road Complex and the Twin Elm Moraine Earth Science Area of Natural and Scientific Interest. The Cambrian Road Complex occurs to the south of the Jock River approximately 250 m west of Highway 416. The Twin Elm Moraine Earth Science Area of Natural and Scientific Interest is categorized as having moderate significance (KAL, 2022).

The South Nepean – Secondary Plan for Areas 9 & 10 (readopted by the City of Ottawa and reconfirmed in the OP; City of Ottawa, 2021), which predates amalgamation, provided a development vision for the area with floodplain lands along the Jock River to be re-naturalized, while areas of mid- to high-density residential development with some areas of commercial development were to occur outside of the naturalized area. The floodplain on the Site was modified through a Cut and Fill Program under Official Plan Amendment (OPA) 212. OPA 212 delineates areas of Conservation designation and the Residential designation separated by the new regulatory flood line for the Jock River.

The Jock River Reach One Subwatershed Study (Stantec, 2017) generally reflects the intent of the Secondary Plan, i.e., the protection of natural heritage elements including existing shoreline vegetation and fish habitat with the renaturalization of the floodplain areas. While the subwatershed study identified a number of specific natural heritage features (e.g. forest and wetland areas) required to be preserved within the broader catchment, none of those habitats occur within the proposed residential areas of the Barrhaven Conservancy West, nor in the existing floodplain corridor south of it. The subwatershed study also noted both the general importance of the Jock River riparian area as an important natural corridor and the significant lack of natural forest and wetland cover throughout the catchment.

2.3 Aquatic Environment

The Jock River flows from west to east ~150-350 m south of the southern boundary of the Site, for approximately 3 km to its confluence with the Rideau River (Appendix A – Figure 1). The Site is entirely within Reach 1 of the Jock River Subwatershed. The Jock River adjacent to the Site has a meandering channel with moderate macrophyte coverage and relatively steep banks. The river consists largely of 'run' habitat with substrate dominated by clay and muck/silt. Water velocities are relatively slow and depths at mid-channel are 3 to 4 m. Areas of coarse substrate (i.e. cobble, boulder, gravel) with shallower depths and higher flow velocities occur beyond the west end of the Site at Highway 416 and east of the Site at the Greenbank Road crossing (KAL, 2020). The existing riparian area along the Jock River contains a band of mature forest as a natural riparian buffer. The Jock River is classified as a warm/warm-cool water system that is home to a baitfish and recreational fishery of approximately 40 species (RVCA, 2016).

Two channelized water features occur within or adjacent to the Site and flow to the Jock River: the O'Keefe Drain and the Foster Watercourse (Appendix A – Figure 1). These features support cool water warm water tolerant fish communities respectively (KAL, 2022). The existing vegetated buffer along these features south of the Site is ~5 m in width.

The required development setbacks for all three drainage features adjacent to the site are based, per the requirement of the *Jock River Reach One Subwatershed Study* (Stantec, 2007), on the maximum of the greatest of: the regulatory floodplain, the meander belt width, the geotechnical hazard limit, 15 m top of the defined bank or 30 m from the normal high watermark. For the O'Keefe Drain and Foster Watercourse, the setbacks correspond with 30 m from the normal high-water mark; for the Jock River, it corresponds with the 100-year flood line, which abuts the southern edge of the Site (KAL, 2022).

2.4 Species at Risk

Five species at risk were identified as having some (albeit limited) potential to interact with the proposed development project, though the species do not currently occupy the Site. These include Bank Swallow, Barn Swallow, Northern Map Turtle, Snapping Turtle, and Blanding's Turtle (KAL, 2022).

3.0 PROPOSED UNDERTAKING

Development of the Barrhaven Conservancy West Community will consist of two stages. Stage 1 is the residential land development of houses, roadways, and parks, along both sides of the O'Keefe Drain; the current study only reviews Stage 1. Stage 2 will be the restoration of the Jock River floodplain corridor including the establishment of forests and wetland features. Stage 2 will also include pathway connections along the Jock River. The current community plan for Stage 1 does not include a pathway extension directly along the O'Keefe Drain, northward but does retain green space >100 m in width along its western side, which would be included as a part of the Stage 2 works, through which a northward pathway could be run.

The proposed Barrhaven Conservancy West development will be a residential community consisting of detached and multiple attached dwellings (townhomes and back-to-back [B2B] townhomes), parkland, walkway blocks and pathways (Appendix A – Figure 2). The new community will require culvert crossings over the Foster Watercourse and the O'Keefe Drain. These crossings, however, will be addressed separately from this current project through an application to the RVCA.

3.1 Water Supply Servicing

The Barrhaven Conservancy West site is located adjacent to the City of Ottawa's Pressure Zone (PZ) 3SW (previously known as PZ BARR). PZ SUC (i.e. the South Urban Community) services the lands that are east of the subject property, as well as south of the Jock River. The City of Ottawa has recently reconfigured the pressure zones servicing Barrhaven and the South Urban Community (SUC) in order to improve reliability and efficiency and to increase pumping capacity to accommodate for future growth in the area (DSEL, 2022).

Servicing of Barrhaven Conservancy West site from the SUC pressure zone has been confirmed as being feasible (DSEL, 2023). Future watermain extensions from Nepean Town Centre development areas, being constructed as part of Barrhaven Conservancy East Phases 2-4 approvals, will facilitate servicing to the Conservancy East Phase 5 lands via watermain extension along the future Chapman Mills Drive extension, through the Claridge "Burnett Lands" development area, and future extension from Flaggstaff Drive northward along Borrisokane Road. Future modelling at the detailed design stage will confirm phasing of the extensions of trunk watermains and sizing of the local watermain network. The proposed water supply design will conform to all relevant City and MECP Guidelines and Policies (DSEL, 2023).

3.2 Wastewater Management

The Site will be serviced by local sanitary sewers, an on-site trunk sanitary sewer, and the off-site South Nepean Collector (SNC) trunk sanitary sewer (DSEL, 2023). There is residual capacity in the downstream

SNC providing sufficient capacity for the peak sanitary flows for the subject property, including external commercial and community park flows.

The Conservancy West area will require a low lift sanitary pumping station due to a constraint imposed by the existing Foster Watercourse that bisects the property which does not allow for gravity drainage all the way to the South Nepean Collector connection point. Detailed design for the station will be coordinated with the City during the detailed design stage for the development area (DSEL, 2023).

3.3 Stormwater Management

The developed Site will include multiple OGS units at various locations along the southern boundary of the property, discharging to the Jock River via naturalized channels. By way of an MECP Certificate of Technology Assessment and manufacturer's design report, the OGS units will demonstrate compliance with Enhanced Level of Protection requirements, with specific drainage area parameters for each area. The manufacturer's reported efficiency of TSS removal of the OGS units is expected to be based on a 'fine distribution' particle size distribution, unless otherwise approved by the City of Ottawa, RVCA, and MECP. Additional treatment train elements such as deep sump catch basins and an infiltration-type low impact design (LID) element within the ROW will also be utilized to achieve the desired TSS removals (DSEL, 2023).

3.4 Floodplain Renaturalization

The new regulatory flood plain along the entire Barrhaven Conservancy Community (East and West) will allow lands between 80 and 400 m wide to be re-established as a natural Jock River open space corridor. This area will include the development of ~5 ha of wetland and ~32 ha of forest cover. Concept plans for the renaturalization of the floodplain along the Eastern Community (Kilgour 2020) are currently under review with the City and the RVCA. The floodplain areas south of the Site (i.e. the Western Community) will be developed in subsequent development phases in consultation with the City and the RVCA

4.0 POTENTIAL EFFECTS AND MITIGATION

4.1 Geotechnical

4.1.1 Anticipated Effects

From a geotechnical perspective, the subject site is suitable for the proposed residential development. It is expected that the proposed residential buildings will be founded on conventional shallow footings placed on an undisturbed, stiff to firm silty clay-bearing surface or engineered fill over an approved subgrade surface (Paterson Group, 2022).

Due to the presence of a silty clay deposit, permissible grade raise restrictions are recommended for this site. Through most of the site, a low to medium sensitivity clay soil was encountered between the anticipated design underside of footing elevations and 3.5 m below finished grade. In the northwest corner of the site, high-sensitivity clay soils were encountered between the anticipated design underside of footing elevations and 3.5 m below finished grade (Paterson Group, 2022).

Slope Stability was examined, and setbacks were established in the geotechnical report.

4.1.2 Required Mitigation

To reduce potential long-term liabilities, consideration should be given to accounting for a larger groundwater lowering and to provide means to reduce long term groundwater lowering (e.g. clay dykes, restriction on planting around the dwellings, etc). Building on silty clay deposits increases the likelihood of movements and therefore of cracking. The use of steel reinforcement in foundations placed at key structural locations will tend to reduce foundation cracking compared to unreinforced foundations. (Paterson Group, 2022).

A 5 m toe erosion allowance is deemed appropriate for slopes associated with the Foster Watercourse and O'Keefe Drains based on the cohesive nature of the soils, the observed erosion areas and the current watercourse depth and width. It is considered that a toe erosion allowance of 5 m and an erosion access allowance of 6 m is required from the top of the stable slope (i.e.- slope with a factor of safety greater than 1.5) (Paterson Group, 2021). These set requirements are thus narrower than the 30 m setbacks otherwise required (Section 2.3).

A permit to take water may be required depending on the proposed construction plan and timing (Paterson Group, 2022).

4.2 Erosion and Sediment

4.2.1 Anticipated Effects

Soil erosion occurs naturally and is a function of soil type, climate, and topography (David Schaeffer Engineering Limited, 2021). The extent of erosion losses is exaggerated during construction where the vegetation has been removed and the top layer of soil is disturbed.

4.2.2 Required Mitigation

An erosion and sediment control (ESC) plan must be developed by the project engineers prior to the commencing of construction. ESC measures must be in place during construction. The ESC plan must include, at a minimum, the following recommendations in the contract documents (David Schaeffer Engineering Limited, 2021):

- Limit the extent of exposed soils at any given time.
- Re-vegetate exposed areas as soon as possible.
- Minimize the area to be cleared and grubbed.
- Protect exposed slopes with plastic or synthetic mulches.
- Install silt fencing to prevent sediment from entering existing ditches.
- No refuelling or cleaning of equipment near existing watercourses.
- Provide sediment traps and basins during dewatering.
- Install filter cloth between catch basins and frames.
- Installation of mud mats at construction accesses.
- Construction of temporary sedimentation ponds to treat water prior to discharging into existing wetlands and watercourses.

4.3 Trees

4.3.1 Anticipated Effects

All trees on the Site have been removed as part of the Cut and Fill Program. Trees along the Foster Water Course will be retained within the 30 m buffer surrounding these features. Riparian forest areas along the Jock River will remain intact except at the crossing of the O'Keefe Drain and Foster Watercourse. Impacts to these trees must be assessed through a Tree Conservation Report to be conducted as part of the detailed design for that project.

A tree planting plan will be created as part of the landscape plan for the development. The resulting canopy cover within the entire development area will exceed 30% at maturity and meet the City of Ottawa target for this area. The implementation of suitable mitigation measures will minimize the risk to existing trees. (KAL, 2022).

4.3.2 Required Mitigation

The following recommendations are to minimize impact to any trees remaining adjacent to the Site:

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

Tree planting plans will be created as part of the landscape plan for the development. The tree planting plan for the residential areas of the Site is to include directives that will lead to at least 6% canopy cover

at maturity (i.e. considering trees planted on private lots and in common areas). Trees and other plants identified in landscape plans must be non-invasive and locally appropriate native species (KAL, 2021). Removal of trees can only be undertaken following appropriate consultation with City planning staff.

Tree planting within the residential development area shall be governed by the geotechnical guidelines appropriate for the on-site soil types. The Site includes zones of high soil sensitivity and medium/low sensitivity (Appendix A – Figure 3; Paterson Group. 2022):

For medium/low sensitivity areas:

- Large trees (mature height over 14 m) can be planted within these areas provided a tree to foundation setback equal to the full mature height of the tree can be provided (e.g. in a park or other green space); and

- Tree planting setback limits may be reduced to 4.5 m for small (mature height up to 7.5 m) and medium-size trees (mature tree height 7.5 to 14 m), provided that the following additional conditions are met:

    - The underside of footing is 2.1 m or greater below the lowest finished grade for footings within 10 m from the tree, as measured from the centre of the tree;

    - A small tree must be provided with a minimum of 25 m^3 of available soils volume while a medium tree must be provided with a minimum of 30 m^3 of available soil volume. The developer is to ensure that the soil is generally un-compacted when backfilling in street tree planting locations;

    - The tree species must be small (mature tree height up to 7.5 m) to medium size (mature tree height 7.5 m to 14 m).

    - The foundation walls are to be reinforced at least nominally (minimum of two upper and two lower 15M bars in the foundation wall);

    - Grading surrounding the tree must promote drainage to the tree root zone (in such a manner as not to be detrimental to the tree.

For high sensitivity areas:

- Large trees (mature height over 14 m) can be planted within these areas provided a tree to foundation setback equal to the full mature height of the tree can be provided (e.g. in a park or other green space).

- Tree planting setback limits are increased to 7.5 m for small (mature height up to 7.5 m) and medium-size trees (mature tree height 7.5 to 14 m) provided that the same additional conditions as above are met.

4.4 Fish and Fish Habitat

4.4.1 Anticipated Effects

No development work will occur within the newly defined floodplain or within 30 m of the normal high-water mark of the Jock River. The two existing drainage features (i.e. the Foster Watercourse and the O'Keefe Drain) will be protected with setbacks of at least 30 m from the normal high-water mark (Appendix A – Figure 2; KAL, 2021).

There are no predicted negative impacts to surface water features on or adjacent to the Site related to site development given the application of conventional construction-phase mitigations, proposed stormwater treatment, and proposed enhancements to the corridor adjacent to the Jock River and associated tributaries (KAL, 2021).

4.4.2 Required Mitigation

Existing watercourses on the Site will not be altered by the project. The community has been designed to situate both Foster Watercourse and the O'Keefe Drain within 70 m wide corridors, which accommodates all required setbacks (i.e. floodplain and 30 m for top-of-bank and corresponding normal high water mark). The future road crossings of both features will require review/consultation with DFO authorization and, likely, a permit from the RVCA. Required mitigation measures specific to the road crossings will be established through the associated permitting process and must be complied with to ensure no negative impacts to aquatic habitat in the vicinity of the Site.

There is some potential for indirect impacts via sediment deposition and overland erosion from the Site. All impacts to surface water features can be managed with the implementation of appropriate mitigation measures, such as:

- Implementation of natural channel design principles in the design process
- Design and implement erosion and sediment controls to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment
- An Erosion and Sediment Control Plan outlining mitigation measures to limit potential for sediment and erosion to enter these watercourses. Mitigation measures will include silt fence, stone and/or straw bale check dams, monitoring frequency, and reporting requirements.

4.5 Species at Risk

4.5.1 Potential Effects

Five SAR have some (albeit limited) potential to be impacted by the development project: Bank Swallow, Barn Swallow, Snapping Turtle, Northern Map Turtle, and Blanding's Turtle.

Bank Swallow has not been observed nesting on the Site. However, landscape conditions created during the Cut and Fill Program and subsequent construction activities may result in suitable nesting habitats. There is therefore some potential (in the absence of mitigation) for the project to interact with Bank

Swallow. The implementation of suitable mitigation measures will minimize the risk resulting in no impacts to Bank Swallow.

Barn Swallow nests have not been observed on or adjacent to the Site, though some individuals may feed over the Site beyond the protected 200 m from likely nest locations off-site. The implementation of suitable mitigation measures will minimize the risk resulting in no impacts to Barn Swallow.

The three at-risk turtle species are most likely to occur in the Jock River or the drainage features on the Site. The implementation of suitable mitigation measures during the construction period will minimize the risk resulting in no impacts to turtles.

4.5.2 Required Mitigation

- All on-site staff should undergo environmental awareness training to be able to identify the potential SAR that may be encountered
- If the preparation works are to occur between April 1st – October 30th, consider isolating the Site with suitable fencing prior to commencing work to prevent turtles from accessing the Site
- Removal of vegetation suitable as nesting habitat should occur outside of the breeding bird season (April 1 to August 31)
- Perform daily pre-work searches of the construction area to ensure no wildlife has entered the work area

Bank Swallows, Barn Swallows and turtles may occur on the Site. General wildlife mitigation measures will be sufficient to protect turtles. If construction requires fill piles on the Site, rounding or tarping fill piles (i.e. avoiding the creation of exposed vertical edges) would prevent attracting Bank Swallow to the Site.

4.6 General Wildlife

4.6.1 Potential Effects

Common wildlife species were previously observed on the Site, all of which are represented throughout the developed adjacent landscape. With the application of appropriate mitigation measures, the potential for negative impacts to these species can be minimized.

4.6.2 Required Mitigation

The following mitigation measures should be implemented during the construction of the project to generally protect wildlife (KAL, 2022):

- Areas shall not be cleared during sensitive times of the year for wildlife (breeding season; early spring to early summer) unless mitigation measures are implemented and/or the habitat has been inspected by a qualified Biologist.
- 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 the 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 worksite, immediately stop all work in the immediate vicinity and comply with the project-specific SAR protocol (where applicable; e.g. contact project Biologist to determine next steps).
- Buildings on Site should be inspected to ensure the absence of snakes, bats, and any other wildlife immediately prior to demolition. Bats may day-roost in buildings while snakes may be present in building foundations/walls in search of food, shelter, and/or overwintering habitat. Any wildlife present in buildings should be removed and safely relocated by a qualified person.

5.0 COMPLIANCE WITH POLICY 4.7 – ENVIRONMENTAL PROTECTION

A number of studies have been required by the City of Ottawa in the completion of an Integrated Environmental Review to assess a development application (Table 1). The study requirements and status for the development application demonstrate compliance with the requirements of the Official Plan.

Table 1. Demonstrated compliance with Policy 4.7 Environmental Protection

OP 2003 Section	Studies/Assessment Required	Where Required	Relevant Study and Status	Summary of Issue
4.7.1	Integrated environmental review to assess development applications	Summary of all environmental studies/assessments submitted with the development application	This document	
4.7.2	Tree retention and planting	All plans of subdivision and site plans	KAL(2022)	Tree cover on the Site will be re-established
4.7.2	Demonstrate no impact on the natural features or on the ecological function for which the area is identified	On lands adjacent to significant portions of the habitat of endangered and threatened species	KAL(2022)	No valued woodlands, urban or rural natural areas, rare communities, wetlands, steep slopes or valleys, or ANSIs were observed on the site.
4.7.3	Demonstrate no negative impact on fish habitat; If there is impact – review by Department of Fisheries and Oceans	On or adjacent to fish habitat	KAL(2022)	Existing channels will be protected with required setbacks.
4.7.3	Erosion and sediment control plan	All development proposals	DSEL(2023)	ESC Plan requirements are detailed within the Adequacy of Services Report
4.7.3	Determine appropriate setback from rivers, lakes and streams	Development proposals adjacent to rivers, lakes and streams	KAL(2022)	Setback for the Jock River is equal to the 100 yr floodplain. Setbacks for other watercourses on site is 30 m from the normal high watermark
4.7.5	Hydrogeology/terrain analysis	Subdivisions based on private services	Study not required.	Subdivision based on public services.

OP 2003 Section	Studies/Assessment Required	Where Required	Relevant Study and Status	Summary of Issue
4.7.5	Groundwater impact assessment	Groundwater resources areas	Study not required	N/A
4.7.5	Wellhead protection study	Wellhead Protection Area designated on Schedule K	OP Schedule K (City of Ottawa, 2021)	N/A
4.7.6	Stormwater site management plans	Site plan and subdivision and zoning amendment applications	DSEL (2023)	SWM will respect natural drainage and provide appropriate quality and quantity controls for the Jock River and tributaries.
4.7.7	Assessment of landscape feature	Geomorphic, Geological and Landform feature (designated on Schedule K); Features (e.g. ANSI) identified in other studies	Study not required.	No landscape features as identified on Schedule K of the City of Ottawa Official Plan.

6.0 INCORPORATION OF DESIGN WITH NATURE PRINCIPLES

Section 4.7 – Environmental Protection of the current 2003 City of Ottawa Official Plan identifies planning objectives to support natural features and functions in the development of lands within the City (City of Ottawa, 2021). The stated objectives are:

- Increasing forest cover across the city;
- Maintaining and improving water quality;
- Maintaining base flows and reducing peak flows in surface water;
- Protecting and improving the habitat for fish and wildlife in stream corridors;
- Protecting springs, recharge areas, headwater wetlands and other hydrological areas; and
- Managing resources by using low-maintenance, natural solutions.

The City of Ottawa desires that land developments achieve these objectives through design with nature. The purpose of this section is to demonstrate the compliance of the proposed development with the design with nature principles.

In support of the development application by BCDC, the various studies described above have been completed to identify significant natural resources that may be present on the site.

There are no significant environmental features occurring on or being retained on the site. The development application does support environmental initiatives identified by the City of Ottawa, as demonstrated above in Section 6. Additional measures are:

- The development area currently has limited tree coverage. While the residential development cannot produce new forest areas, canopy cover will be enhanced through tree plantings;
- Surface water drainage shall respect natural drainage patterns and meet stormwater quality and quantity controls for the receivers;
- The proposed project is being carried out in an area that does not and has not contained significant wetland habitat, or significant habitat for species considered rare, threatened or endangered species; and
- Significant investment is being proposed in the open space blocks along the Jock River and tributaries to restore wetland, meadowlands and forest to the catchment area.

6.1 Integration of Energy Efficiency and Sustainable Design

The City of Ottawa calls for a description of how efficient and sustainable design principles have been incorporated into new developments following a Sustainable Design Checklist (City of Ottawa, 2021; now known as the Green Checklist; Table 2).

Table 2. City of Ottawa Site Plan Control Approval Green Checklist

ID	Question	Response
1a	Does the project proponent intent to seek LEED certification for this project?	No
1b	If yes, which level of LEED certification is the project intended or designed to meet?	None
1c	Will this project be seeking certification under another third-party green building rating system?	No
2	Will this project include renewable energy facilities and pursue a FIT or MicroFIT contract under the Ontario Power Authority's Feed-in Tariff program?	No
3	Which features is the project designed to incorporate?	None

7.0 CLOSURE

The following persons have read this Integrated Environmental Review and agree that this document provides a reasonable summary of the highlights of their individual component studies.

Natural Environment, Aquatic Habitat, Tree Conservation Kilgour & Associates Limited: Anthony Francis, PhD	**Geotechnical Investigation** Paterson Group:
Stormwater Management David Schaeffer Engineering Limited: Kevin Murphy, P.Eng.	**Site Environmental Assessment** Paterson Group:

8.0 LITERATURE CITED

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Appendix A
Figures

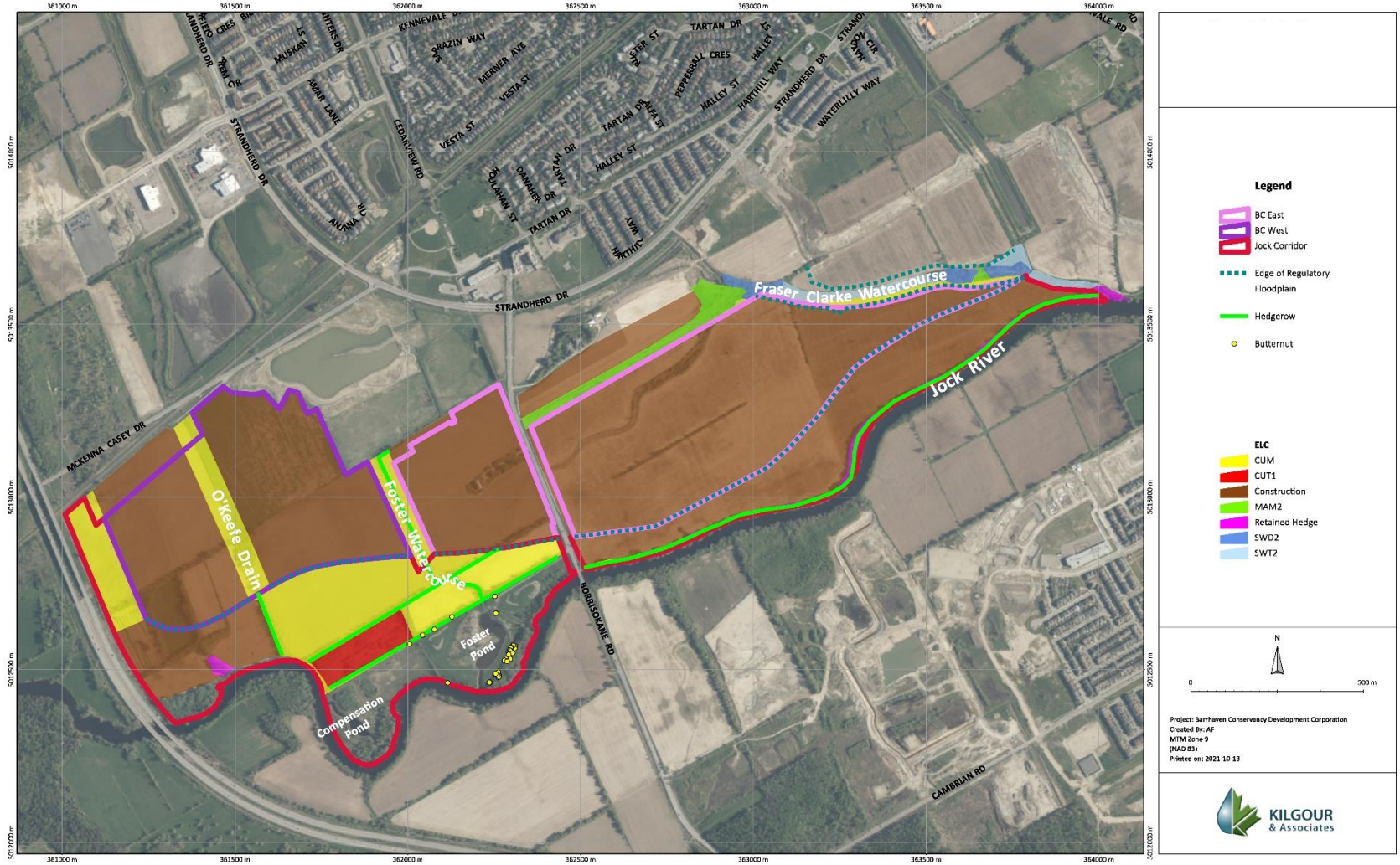

Figure 1 Existing site conditions

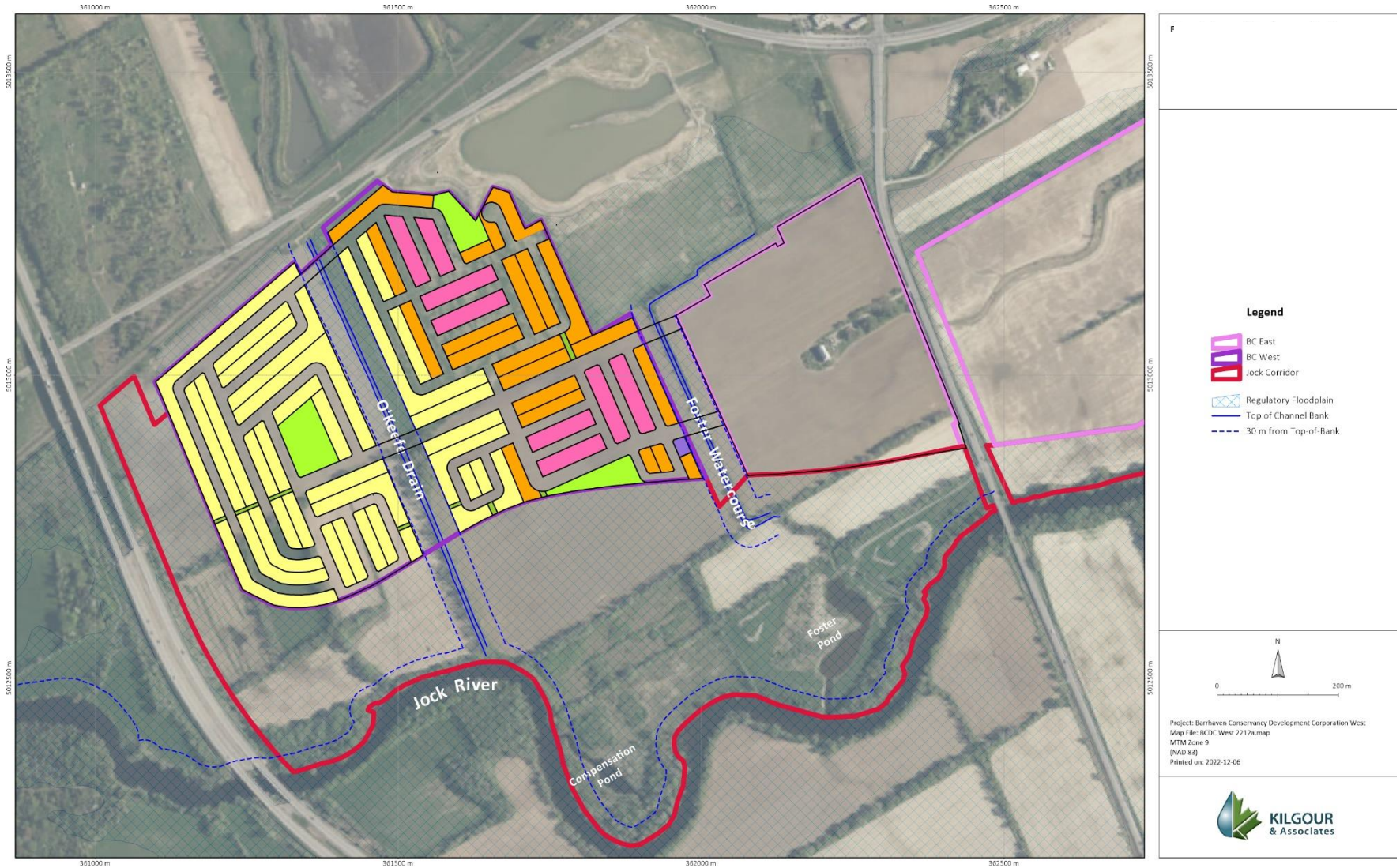

Figure 2 Proposed site development

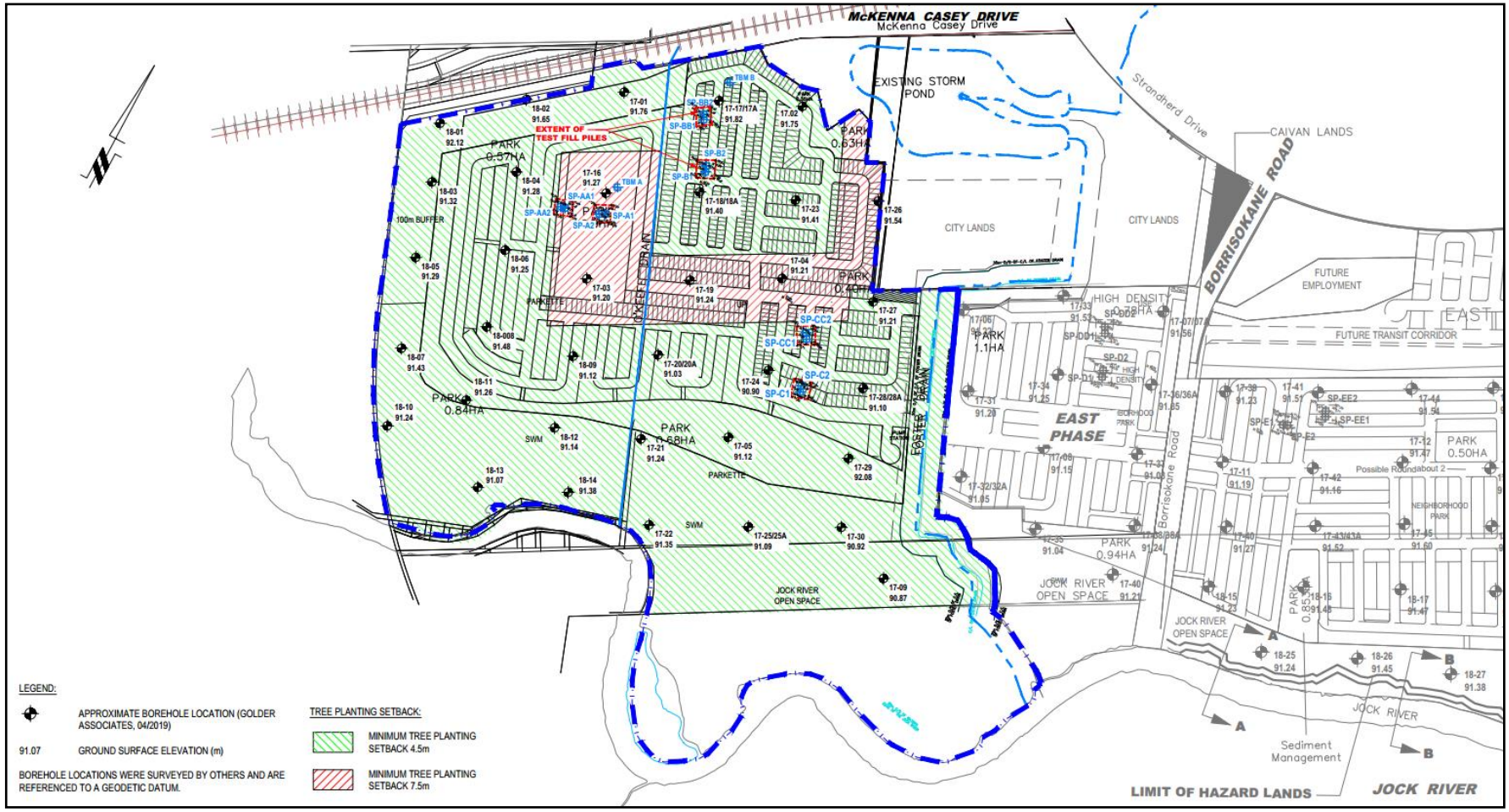

Figure 3 Soil sensitivity zones affecting tree planting restrictions

(Paterson Group, 2022)