Integrated Environmental Review
3387 Borrisokane Road

May 4, 2017

Submitted To: Glenview Homes (Cedarview) Ltd.
190 O'Connor Street, 11th Floor
Ottawa, Ontario
K2P 2R3

KILGOUR & ASSOCIATES LTD.
2285C St. Laurent Blvd., Unit 16
Ottawa, Ontario
K1G 4Z6
Canada
T:613.260.5555
F:877.260.4420
www.kilgourassociates.com
Project Number: GLNV496

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1.0 INTRODUCTION

Glenview Homes (Cedarview) Ltd. ("Glenview") is developing a new residential project south of Ottawa in the Barrhaven Ward at 3387 Borrisokane Road (Figure 1). The development and its supporting infrastructure (roadways, stormwater management systems, etc.) will be integrated with the infrastructure of adjacent development areas to the east and south owned by Mattamy Homes. Until this year, the Glenview property was under active agriculture. The development will include a 0.43 ha commercial block, a 2.4 ha school block, a 0.65 ha park, a 0.82 ha SWM pond and 5.50 ha of residential land. The unit count is 208 units (116 singles and 92 townhomes). The community will be build-out over three phases with the first phase expected to start in early 2019 to permit the first occupancy by homeowners in late 2019 and the last closing in late 2022.

This document, the Integrated Environmental Review (IER), is written in support of Glenview's proposed development. The IER has been written to meet the requirements of the City of Ottawa Official Plan, Section 4.7.1 – "*Integrated Environmental Review to Assess Development Applications*". This document presents information from studies completed in the planning and approvals process for the proposed development and demonstrates how information from the various environmental studies has influenced the design of the subdivision.

Herein and as per the IER guidelines we provide:

- a brief overview of the individual technical studies and other relevant environmental background material;
- graphic illustrations, showing the development concept for the residential area;
- 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 the individual studies;
- a summary of how the proposed design complies with the environmental policies contained in Section 4 of the City of Ottawa's Official Plan;
- a statement with respect to how the recommendations of the supporting studies and the design with nature approach have influenced the design of the development;
- a description of how the principles of Design Objective 7 (Section 2.5.1) to maximize the energy-efficiency of development and to promote sustainable design that reduces consumption, energy use and carbon footprint of the built environment have been considered; and
- an indication that the statement has been reviewed and concurred with by the individual sub-consultants involved in the design 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.

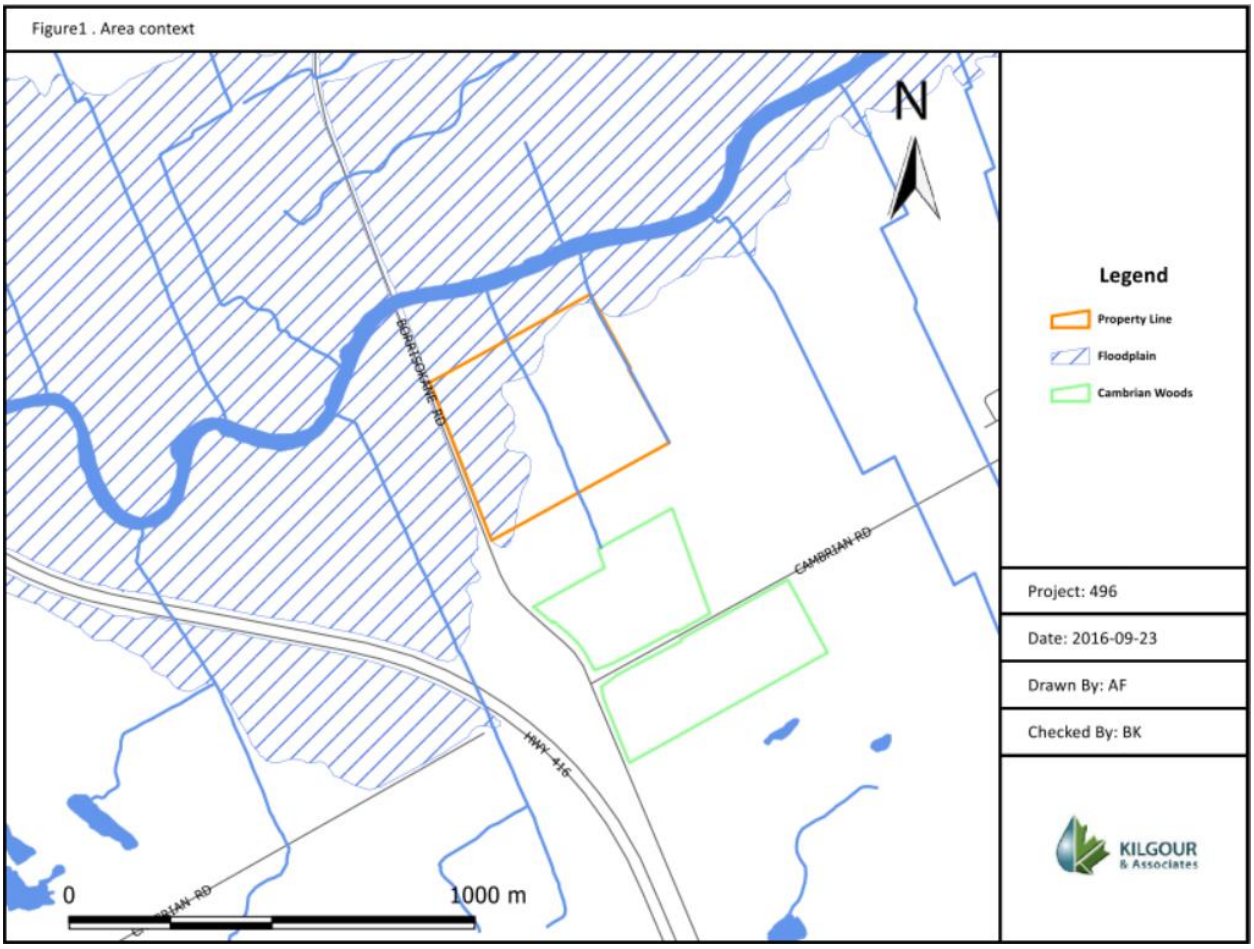
- Section 4.0 discusses the potential environmental effects and required mitigation measures that are proposed by the proponent, or required by regulating agencies.

- Section 5.0 provides a summary of how the project and its proposed design comply with the environmental policies in Section 4 of the City of Ottawa Official Plan.

- Section 6.0 provides a statement on how the recommendations of the supporting studies and the design with nature approach have influenced the design of the development. This section also includes the City's Green Checklist of how the principles of Design Objective 7 (Section 2.5.1) to maximize the energy-efficiency of development and to promote sustainable design that reduces consumption, energy use and carbon footprint of the built environment have been considered.

- 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.

Figure 1. Area Context.



2.0 ENVIRONMENTAL CONDITIONS

2.1 General Site

The subject property is cultivated agricultural area. The existing elevations within the proposed development area generally range between 91.5 m – 92 m (DSEL 2017). Two existing ditches cross the subject property, as detailed in the Headwater Drainage Feature Assessment (Kilgour & Associates Ltd., July 2016). Existing roadside ditches run along the eastern and western sides of Borrisokane Road, adjacent to the subject property.

The subject property is within the Jock River watershed, and is under the jurisdiction of the Rideau Valley Conservation Authority (RVCA). Part of the subject property is within the RVCA's identified 100-year regulatory floodplain (Figure 1). The City of Ottawa owns the lands north of the subject property, which are considered to be within the RVCA's identified 100-year regulatory floodplain.

South and east of the subject property, there are planned residential and employment development projects by Mattamy Homes Ltd, known as the Half Moon Bay West development project. The potential road network for the combined areas is still conceptual in nature and will be subject to refinements through future planning applications for these neighbouring lands. Glenview Homes (Cedarview) Ltd. is proceeding with development applications for 3387 Borrisokane Road on the understanding that development applications for these neighbouring lands are to also proceed in the short term. Mattamy Homes has submitted a Functional Servicing Report for Half Moon Bay West (DSEL 2016) and - at the time of publication of this report - is currently addressing comments as part of the development application process.

The following sections provide an overview of the various technical studies, a summary of the environmental concerns identified, interactions between disciplines and their concerns (if/when identified), mitigations identified, as well as development conditions and monitoring as identified by individual studies. The following environmental disciplines are considered here:

- Geotechnical Conditions
- Soil Quality
- Groundwater
- Terrestrial Environment
- Aquatic Environment
- Species at Risk

2.2 Geotechnical

Paterson Group was retained to conduct a geotechnical investigation of the property. The objectives included determining the subsoil and groundwater conditions at the site and providing geotechnical recommendations for the foundation design for the proposed buildings and pavement structure design. Field investigations were carried out in April 2011, with supplemental investigations done in September 2015.

Generally, the soil profile at the site consists of a topsoil layer, followed by a silty sand layer overlying a sensitive clay deposit. Bedrock in the area consists mostly of dolomite of the Oxford formation with an

overburden thickness of 10 to 25m. Paterson Group considers the property to be satisfactory for the proposed residential development, and that development would be subjected to grade raise restrictions of 0.6 – 1.2 m. If higher than permissible grade raises are required, preloading with or without surcharge, lightweight fill and /or other measures are required. Based on preliminary grading information, a settlement surcharge program and the use of sump pumps is required due to permissible grade raise exceedances across the site. Consequently, a surcharge program has been designed and is being implemented.

2.3 Soil Quality

Paterson Group completed a Phase 1 Environmental Site Assessment (ESA) in 2015 to investigate the potential for environmental concerns including contaminated soils over the entire Borrisokane Road property. The Phase 1 ESA included research of the historical use of the property and a site visit to examine the property. The Borrisokane Road site and surrounding properties have historically been used exclusively for agricultural purposes from 1960 to 2014. In 2014 adjacent lands to the east and south were being developed.

The historical site review did not identify any potentially contaminating activities on the site or neighboring properties. Paterson Group report concluded that no significant environmental concerns are present on the property, or adjacent properties, and that no further ESA investigations were required for the site.

2.4 Groundwater

Paterson Group initially completed a geotechnical field program across the Borrisokane Road property in April 2011 and September 2015. Nine boreholes and seven test pits were dug with a distribution to provide general coverage of the site. No deleterious materials or indication of possible contaminants were present at any of the test-hole locations.

Groundwater level readings were recorded in the boreholes placed in April 2011 and the test pit placed in September 2015. The groundwater depths were observed to be 1 to 1.5 m (April 2011) and 1.5 to 2 m (September 2015). Paterson Group's Geotechnical Investigations (May 2017) for the subject lands explain that the long-term groundwater table is estimated to be between 89.9 m (northwest) and 90.7 m (southeast).

2.5 Terrestrial Environment

The property consists of flat agricultural areas with a few small low lying areas throughout. Some of these areas are likely to be inundated with water, with potential to form ephemeral wetlands in the spring and early summer. There is evidence for this with the presence of small patches wetland vegetation (e.g., *typha latifolia*) in some of these low lying areas. The property also slopes near The two headwater features and the roadside ditch to allow sheet flow runoff to not be trapped in the cultivated fields.

There are no rocky outcrops on the site and no Earth Science Areas or Natural and Scientific Interest.

2.6 Aquatic Environment

The site and adjacent lands lie within the Jock River watershed in the Barrhaven Catchment subwatershed. The Jock River flows eastward to the Rideau River approximately 130 m north of the property. Two unnamed agricultural drainage ditches (herein the East and Center Drains) cross the property and connect to the Jock River. Both drains will be removed above the floodplain. The Center Drain will be re-established further westward within a 62 m wide corridor.

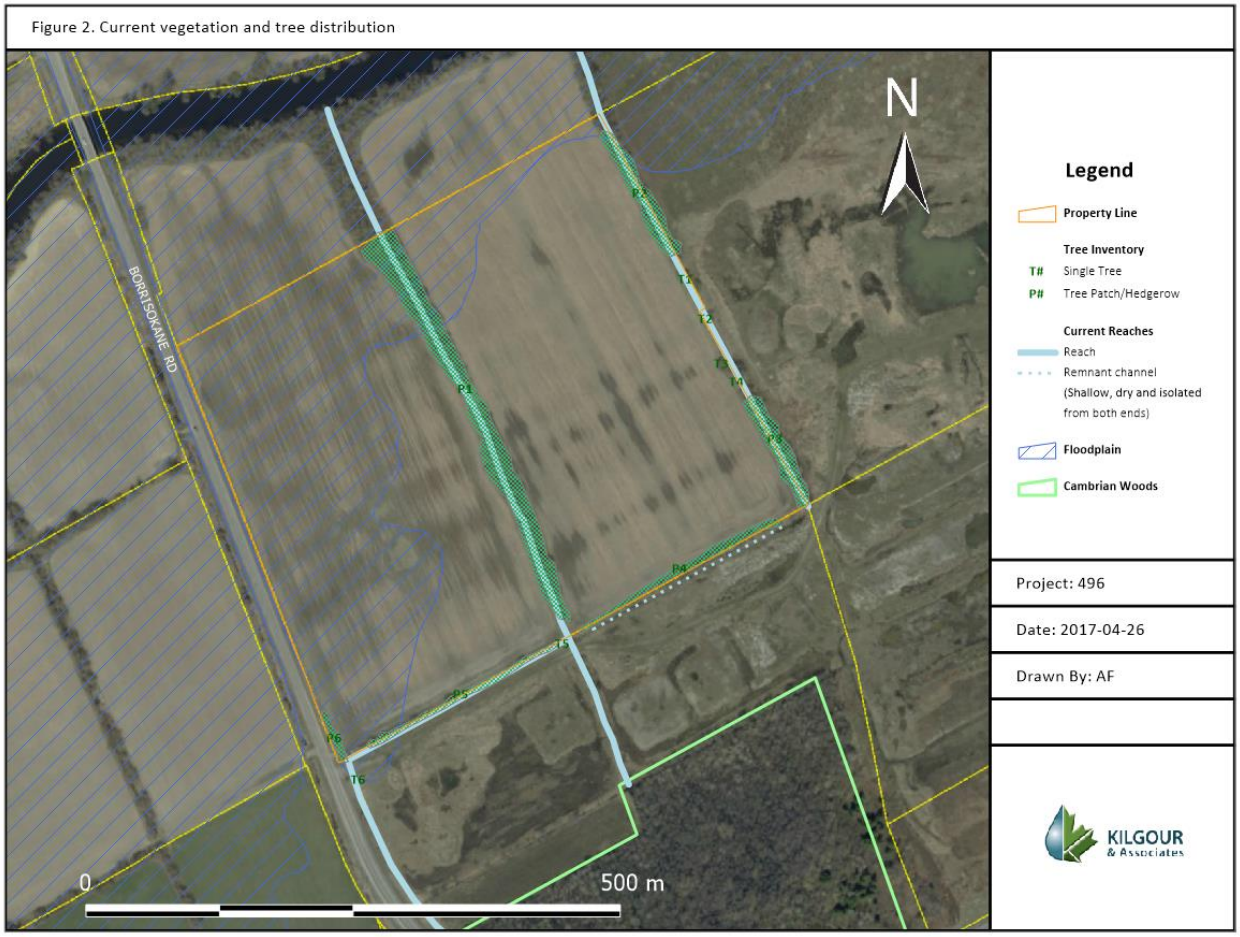
The Barrhaven Catchment SWS provides fish habitat to 40 fish species. Very few of these species however, are likely to be found within the drains on the property, and none are designated as SAR in Ontario. A Headwater Drain Features Assessment (HDFA) of the centre and east drain on site were completed in on April 27, 2016. Only one fish species, Brook Stickleback (*Culaea inconstans*), was observed on site during the HDFA in the Center Drain, near the Jock River and beyond the north property line. No fish were observed in the east drain during the HDFA or other surveys on site.

No Provincially Significant Wetlands or undesignated wetlands were indicated on the site by the City, RVCA, or MNRF mapping. However, the floodplain for the Jock River occurs on the west and north sections of the property (Figure 2). Although there were no wetlands observed on site, spring snow melt creates small wet depressions in the agricultural fields. These wet depressions are tilled annually and no wetland vegetation was present; however, they may be used by early spring breeding amphibians. These wet depressions were dry during site visits in late May and June. The drainage ditches were also dry during site visits in June, and are likely only inundated with water during spring freshet. Vegetation along the drainage channel is mainly composed of trees and shrubs.

2.7 Species at Risk

The only SAR found to occur adjacent to the site was Wood Thrush. The species was observed in riparian woodland near the Jock River to the north of the site. Though the limited amount of tree cover along the Centre and East Drains on site is unlikely to present adequate nesting habitat for this species.

Figure 2. Current Site.



3.0 PROPOSED UNDERTAKING

3.1 General Site Development

The development will include a 0.43 ha commercial block, a 2.4 ha school block, a 0.65 ha park, a 0.82 ha SWM pond and 5.50 ha of residential land. The unit count is 208 units (116 singles and 92 townhomes). The community will be build-out over three phases with the first phase expected to start in early 2019 to permit the first occupancy by homeowners in late 2019 and the last closing in late 2022. Watermain and sanitary service will be provided by extensions of trunk infrastructure through the road network of the neighbouring lands. Stormwater management is detailed below.

The East Drain will be removed within the development limits. The remainder of the channel, i.e. from the edge of the development to the Jock River, will remain. The Center Drain will be removed within the development limits, and relocated further west.

3.2 Proposed Stormwater Management Options

The subject property can be serviced by two alternative and feasible stormwater management schemes.

Under both proposals:

- The development blocks fronting onto Street 1 are to be picked up by the planned MSSA (Master Servicing Study Amendment -Stantec, 2014) storm sewer within the Street 1 ROW, which conveys flows to the Clarke Pond (per the design shown in the Half Moon Bay West Functional Servicing Report (DSEL, December 2016); and,

- The proposed commercial block at the intersection of Street No. 1 and Borrisokane Road is proposed to have its own enhanced protection quality control measures on site (e.g. a separate oil grit separator unit), and discharge to the eastern Borrisokane Road roadside ditch. This is a deviation from the MSSA, but is consistent with the Half Moon Bay Functional Servicing Report (DSEL, December 2016) that details the design of the Clarke Pond and the trunk storm sewer on Street No. 1. At the time of detailed design of the commercial block, a separate site plan application will be required, where detailed stormwater system and analysis would be presented, with consideration given to the capacity of the existing roadside ditch.

- All residential lots and blocks are proposed to be equipped with sump pumps that will discharge to the proposed storm sewer network on site.

- Rear yard catchbasins will capture drainage from backyards, except where the backyards drain to open space. Perforated catch basin leads will be provided - per current City standards - to promote infiltration.

- The subject lands are expected to be serviced by an internal gravity storm sewer system that is to follow the local road network. The preliminary design of the minor system captures drainage for storm events up to and including the 2-year event, assuming the use of inlet control devices (ICD) for all catchbasins within the subject property. The drainage will be conveyed within an

underground piped sewer system that will discharge to the proposed receiving treatment facility in Option 1 or 2.

Option 1 – Cedarview Pond

Consistent with the MSSA, stormwater runoff can be treated by a wet pond designed to provide enhanced quality treatment (long-term average removal of 80% of suspended solids). Per the MOECC Stormwater Management Planning and Design Manual (MOECC, 2008) requirements and MSSA requirements for the current development concept, enhanced quality treatment translates to a required permanent pool volume of 1986 m^3 (based on a required storage volume of 176 m^3/ha) and an extended detention volume of 478 m^3 (based on a required volume of 40 m^3/ha). The pond would be located near the Jock River, in approximately the same location as contemplated in the MSSA. A new pond outlet would be constructed adjacent to the East Drain to connect to the Jock River.

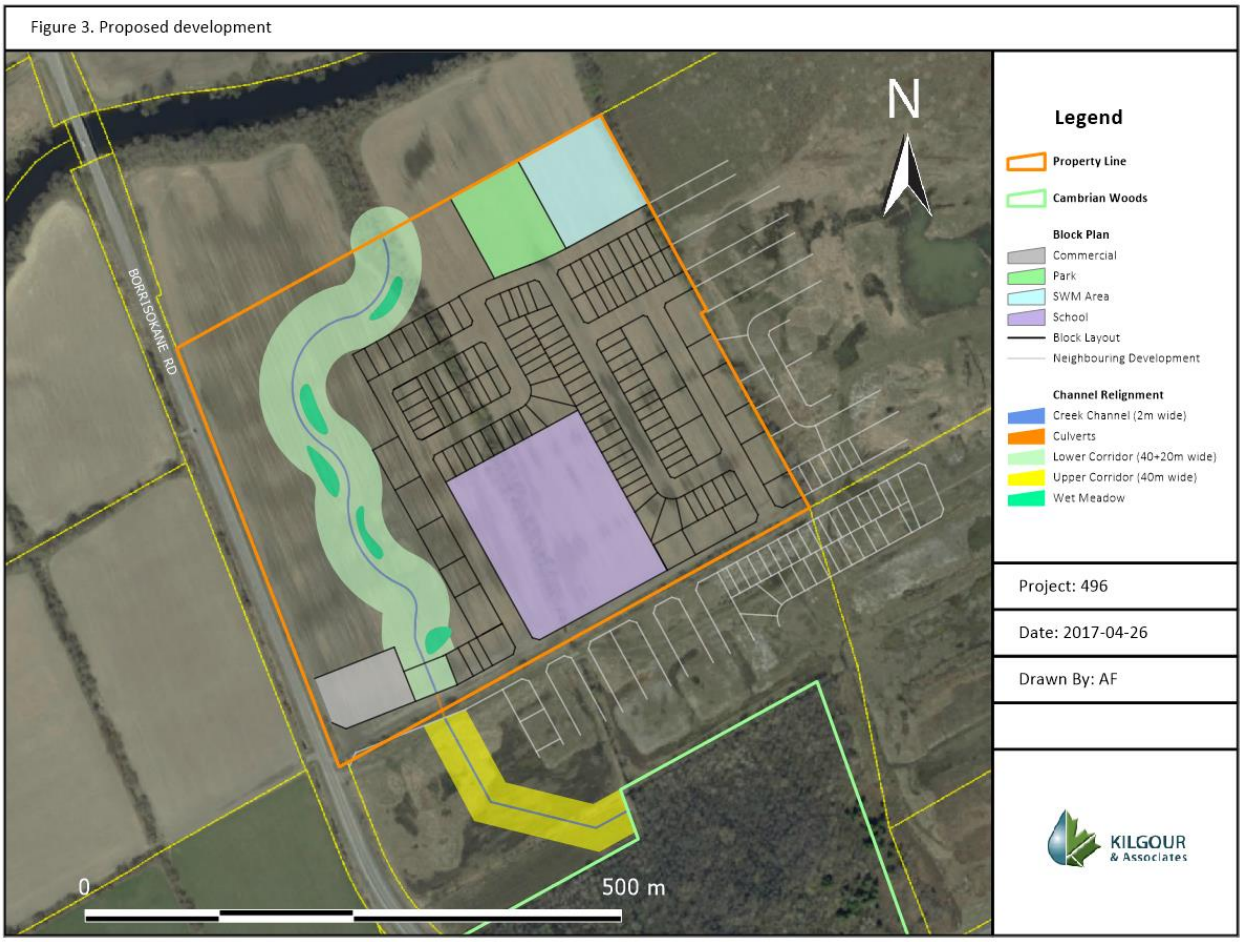
Option 2 – Oil/Grit Separator

Because quantity control is not required per the MSSA, the subject property can be treated by oil and grit separator units designed to:

- Treat 90% of the runoff volume that occurs for the site on a long-term average basis; and
- Provide long-term average removal of 80% of suspended solids, based on 100% of the runoff volume that occurs for the site on a long-term average basis.

Because of the size of the site, two separate oil and grit separator (OGS) units are proposed, both at the location of the existing headwater feature north of Street 6. The OGS system would discharge to the Jock River via a new outlet channel connecting into the Centre Drain, approximately 120m upstream of the outlet channel contemplated for Cedarview Pond in the MSSA.

Figure 3. Proposed Development.



4.0 POTENTIAL EFFECTS AND MITIGATIONS

4.1 Groundwater/Geotechnical/Stormwater

4.1.1 Anticipated Effects

The pre-construction groundwater depth on site is observed to range between 1.0 and 2.0 m. The long-term groundwater table, estimated based on soil colour and consistency, is expected to be between 2 and 2.5m across the site. Groundwater levels however are subject to seasonal fluctuations and therefore could vary during time of construction.

The site is deemed acceptable, from a geotechnical perspective, for the proposed residential development. However, due to the presence of a sensitive silty clay layer the proposed development will be subjected to grade raise restrictions. It is expected that the final grade raises could range between 1.0 m and 2.5 m, above existing grades, depending on the preferred site servicing strategy.

Stormwater management requirements for the proposed development have been adopted from the MSSA. The MSSA proposes that stormwater runoff from the subject lands be treated for enhanced quality control. Quantity control is not required for the Jock River (DSEL 2017).

4.1.2 Required Mitigations

Efforts will be made to reduce the impacts of the proposed development on the long term groundwater level and differential settlement by placing clay dykes in the service trenches, reducing the sizes of paved areas, leaving green spaces to allow for groundwater recharge or limiting planting of trees to areas away from the buildings.

Due to the relatively impervious nature of the silty clay material, it is anticipated that groundwater infiltration into the excavations should be low and controllable using open sumps. A perched groundwater condition may be encountered within the shallow silty sand which may produce significant temporary groundwater infiltration levels. Pumping from open sumps should be sufficient to control the groundwater influx through the sides of shallow excavations.

The subsoil conditions at this site mostly consist of frost susceptible materials. In presence of water and freezing conditions ice could form within the soil mass. Heaving and settlement upon thawing could occur. Precautions should be taken if winter construction is considered for this project.

Only low-water-demand trees, with shallow root systems that extend less than 1.5m below ground surface, should be placed within 4.5 m of the foundation walls. However, it is well documented in the literature, and is our experience, that fast-growing trees located near buildings founded on cohesive soils that shrink on drying can result in long-term differential settlements of the structures. Tree varieties that have the most pronounced effect on foundations are seen to consist of poplars, willows and some maples (i.e. Manitoba Maples) and, as such, they should not be considered in the landscaping design.

Given the sensitive clays within the site, grade raise restrictions are in effect for the subject property. Even with a surcharge program, grade raises cannot exceed 2 m – 2.5m within the subject property (Paterson Group, February 2017). As such, to minimize grade raise, sump pumps are proposed within the subdivision

to be connected to the proposed storm sewer system – but nonetheless, a surcharge program is still required to accommodate the proposed grade raise restriction exceedances.

Select stormwater runoff from the proposed development is to be captured and treated for enhanced quality control then discharged to the Jock River. All overland flows above those captured by the storm sewer system are to be released unattenuated to the Jock River. This is all in accordance with requirements set out by the City of Ottawa, MOECC, RVCA, and background servicing studies

The proposed development requires surcharging and filling the site, as well as require sump pumps for all residential blocks and lots. Sump pumps are proposed to be connected to the storm sewer system, with flood protection provided by a gooseneck internal to the residences, in accordance with requirements being set out by the City of Ottawa.

Low Impact Development techniques will be implemented, to promote infiltration of stormwater.

4.2 Site Trees

4.2.1 Anticipated Effects

Trees on site are only located along the drains, the majority of which are non-native (i.e., Manitoba Maple and Crack Willow). Some large native trees were observed in the drains, such as Green Ash and Black Cherry, but these trees were either dead or suffering from large amounts of dieback. All trees outside of the floodplain will be removed during development of the site. During creation of the project, trees will be planted on site at a quantity equivalent to at least one per lot and shall be native provincial species. No SAR tree or plant species were observed on site or are predicted to be impacted by the project.

The Cambrian Forest is designated as Significant Woodland and is approximately 150 m south of the site. This area is a large mature Red Maple forest that is connected with larger forest to the south across Cambrian Road. Riparian Woodlands exist within the floodplain of the Jock River and will be protected from development. Overall the impact to trees and Significant Woodlands is negligible, and therefore shall not be impacted by the project.

4.2.2 Required Mitigations

To minimize impact to the remaining trees on the property, the following protection measures are indicated as necessary during construction:

- Tree removal on site 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;

- 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; and
- Ensure that exhaust fumes from all equipment are NOT directed towards any tree's canopy.

- The *Migratory Bird Convention Act* (Canada, 1994) protects the nests and young of migratory breeding birds in Canada. The 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 (Ottawa, 2016d).

Specific trees to be planted on site will be identified in the landscape plan for the development. Trees species identified in this plan must be non-invasive and should be both native to the Ottawa area and tolerant of the site's sensitive soils and generally urban setting. Recommended tree species to consider in the landscaping plan include Red Maple, which is currently present on site, with White Spruce, Pin Cherry, White Birch, Black Cherry, White Cedar, and Serviceberry as other suitable candidate species. Burr Oak may be considered where spacing allows for future showcase trees. Common Juniper, Maple-leaf Viburnum, Nannyberry, and Northern Bush-honeysuckle may be considered as appropriate shrub species.

4.3 Aquatic Habitat

4.3.1 Anticipated Effects

The East Drain will be removed within the development limits. The channel and its associated treed riparian buffer will be maintained from the edge of the development to the Jock River. The HDFA for the site (Kilgour, 2016) found the only significant ecological function of the East Drain to be its contribution of early spring meltwater runoff to downstream features (i.e. to the Jock River). Except for the downstream most end, which is subject to back water from the Jock River, the existing feature is dry for the remainder of the year. Under the proposed development, water levels in the retained section will remain the same. Area runoff from the spring freshet will still be supplied to Jock System via the area's stormwater management systems. Removal of the upstream portion of this channel is thus not anticipated to have any negative impacts on the water balance in the catchment.

A total of 559 m of the existing Center Drain will be similarly removed, but will be relocated further westward. The realignment will be comprised of three reaches, which are described below and illustrated in Appendix 2.

The upstream reach includes a channel 227m in length and 2.0 m in width that extends from Street 1 to the Cambrian Woods, through Mattamy's development. A 20m setback from the channel's normal high water mark (NHWM) to the edge of development is proposed per City staff recommendations. The setback is consistent with City of Ottawa Official Plan Policy (OPP) 4.7.3.1, which permits deviations from the setbacks identified in OPP 4.7.3.2, where a council approved watershed, subwatershed or environmental management plans exists. The approved subwatershed study governing the development area is the Jock River Reach 1 Subwatershed Study (JRR1SS) (Stantec 2007). The JRR1SS recommends a 20m setback from new drainage channels in the catchment area.

The middle reach includes twin 800mm dia. culverts, 24m in length, under Street 1 designed to safely permit amphibian passage, which transitions to a 30m long 2.0m wide open channel through Block 143 to the downstream reach.

The downstream reach includes a naturalized channel 485m in length and 2.2m in width located within the floodplain. A 20m development limit setback from the channel's normal high water mark (NHWM) is proposed- consistent with the setback for the upstream reach - according to City of Ottawa staff's interpretation of the setback recommendations set out in the JRR1SS. Specifically, City of Ottawa staff have indicated that a 20m setback from NHWM is appropriate for the proposed realigned Centre Drain headwater feature under the City of Ottawa Official Plan Policy (OPP) 4.7.3.1 that states that setbacks will be established in watershed, subwatershed and environmental management plans (i.e. the JRR1SS). The channel corridor will include strategic vegetation and will include pond/wet meadow areas within the setback area, to provide increased frog habitat.

To meet City of Ottawa staff requests, an additional 10m buffer of unvegetated but undevelopable land is proposed to be applied on both sides of the channel corridor – measured from the required 20m development limit setback - only where the channel corridor is directly adjacent to undevelopable floodplain land. It is understood that City staff are only requesting the 10m buffer in this unique circumstance because of the floodplain designation of the surrounding lands. The function of the vegetation proposed for the realigned channel – with plantings at strategic locations in the 20m development limit setback – is anticipated to exceed the function provided by the existing vegetation that totals ~10m width, centred around the existing headwater feature.

The natural buffer associated with the current existing channel is only 5m wide for much of the length. The downstream reach of the realigned channel thus represents a significant increase in amphibian habitat. The upstream reach of the realigned channel will be vegetated but will not include wet pond areas as it is not intended to provide additional amphibian habitat per se. It will however, provide an improved corridor encouraging movement of frogs between the woodlot and the Jock River through the new habitat provided in the downstream reach.

No portion of the East or Center channel were found to provide fish habitat within the development limits. Not withstanding the above, to prevent fish from migrating into the upstream reach, a rock check dam 30m north of Street 1 is proposed. The rock check dam will prevent fish from accessing the upstream reach and the woodlot thereby maintaining its fish free status (important for some species of frogs).

The project, described above, is not anticipated to have any negative impacts to the ecological health of the catchment.

4.3.2 Required Mitigations

The section of the East Drain to be removed currently only supplies water to the lower retained section during the spring freshet. The HDFA for the site (Kilgour, 2016) provides a management directive to maintain the equivalent recharge provide by this drain. Accordingly, there is no requirement to either maintain or replace the current form of this channels. Only the general contribution to the maintenance of the overall water balance within the watershed must be preserved through the provision of mitigation measures to convey clean storm water to downstream features. Under the new configuration, water levels in the retained section will be supplied by the new adjacent storm water management pond.

For the Center Drain, the HDFA recommended a management directive of *Mitigation*. Under this directive, the drain and its existing riparian corridor may be maintained, relocated and/or enhanced. Where catchment drainage will be removed due to diversion of storm water flows, lost functions must be restored. The maintenance of on site and external flows will be accomplished through natural channel design techniques within the floodplain where a wider corridor is more readily achievable. The proposed channel realignment is described in Section 4.3.1 and an illustration provided in Appendix 2.

The proposed channel alterations will require permits to alter a waterway from the RVCA. Specific mitigations associated with the proposed alterations will be included in the detailed design and RVCA permit application and may include, but will not necessarily be limited to: the use of appropriate timing windows, the implementation of erosion sediment controls, revegetation standards, and oversite of works by fisheries biologists. Glenview will comply with all such directives to ensure the proposed channel work will not negatively impact the subwatershed.

4.4 Species at Risk

4.4.1 Anticipated Effects

Wood Thrush was observed in riparian woodland near the Jock River to the north of the site. This area will not be impacted and no effects are anticipated on the species.

4.4.2 Required Mitigations

As no negative impacts are anticipated for species at risk, no specific mitigations beyond those for standard wildlife protection are required.

4.5 Wildlife

4.5.1 Anticipated Effects

The agricultural composition of the site makes it unlikely to support a large and diverse wildlife community. Moreover, the linear nature of the treed drains does not provide cover for wildlife species equal to that found in the riparian woodlands along the Jock River and in the Cambrian Forest. Standard construction mitigations are anticipated to prevent impacts to any wildlife that occur on the site; therefore, no impacts to wildlife are predicted from the project.

4.5.2 Required Mitigations

Common wildlife species were observed on site during the field visit. The following mitigation measures shall be implemented during construction of the project on site:

- Areas shall not be cleared during sensitive time of the year for wildlife, unless mitigation measures are implemented and/or the habitat has been inspected for a qualified biologist.
- Site clearing should begin at the north end of the site and proceed southward to drive any wildlife towards the large forest.
- Do not harm, feed, or unnecessarily harass wildlife.
- Food wastes and other garbage – effective mitigation measures include waste control (prevent littering); keeping all trash secured in wildlife-proof containers, and prompt removal from the site (especially in warm weather).
- Drive slowly and avoid hitting wildlife where possible.
- Shelter – effective mitigation measures include covering or containing piles of soil, fill, brush, rocks and other loose materials; capping ends of pipes where necessary to keep wildlife out; ensuring that trailers, bins, boxes, and vacant buildings are secured at the end of each work day to prevent access by wildlife.
- Checking the work site (including previously cleared areas) for wildlife, prior to beginning work each day;
- Inspecting protective fencing or other installed measures daily and after each rain event to ensure their integrity and continued function; and,
- Monitoring construction activities to ensure compliance with the project-specific protocol (where applicable) or any other requirements.

5.0 COMPLIANCE WITH POLICY 4.7 – ENVIRONMENTAL PROTECTION

5.1 Study Requirements

The following table indicates where studies and/or assessments have been required by the City of Ottawa in the completion of an Integrated Environmental Review, depending on characteristics of the site, to assess a development application. The study requirements and their status for the development area are indicated in the Table 1.

Table 1. Demonstrated compliance with Policy 4.7 Environmental Protection

OP 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	This document	

OP Section	Studies/Assessment Required	Where Required	Relevant Study and Status	Summary of Issue
		development application		
4.7.2	Tree retention and planting	All plans of subdivision and site plans	Kilgour & Associates (2017). EIS & TCR 3387 Borrisokane Road	No significant trees occur on site. All trees will be removed with significant replanting within the new drain corridor and the equivalent of one tree per lot in the residential areas.
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	Kilgour & Associates (2017). EIS & TCR 3387 Borrisokane Road	No high quality specimen trees, valued woodlands, urban natural areas, rare communities, wetlands, steep slopes or valleys were observed on or adjacent to 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	Kilgour & Associates (2017). EIS & TCR 3387 Borrisokane Road	There is no fish habitat on site. Fish habitat areas downstream will be maintained.
4.7.3	Erosion and sediment control plan	All development proposals	DSEL (2017) Functional Servicing Report for Glenview Homes (Cedarview) Ltd. 3387 Borrisokane Rd. Rev.1 (April 17, 2017)	The functional servicing report provides the required elements of the ESC plan. (See Section 5.2)
4.7.3	Determine appropriate setback from rivers, lakes and streams	Development proposals adjacent to rivers, lakes and streams	Kilgour & Associates (2017). EIS & TCR 3387 Borrisokane Road	The realigned feature will be located within a 42-62 m wide corridor.
4.7.5	Hydrogeology/terrain analysis	Subdivisions based on private services	Study not required	
4.7.5	Groundwater impact assessment	Groundwater resources areas	Study not required	Phase I lands are not a groundwater resource area.
4.7.5	Wellhead protection study	Wellhead Protection Area designated on Schedule K	Study not required	Subdivision based on public services. Area is not a wellhead protection area.
4.7.6	Stormwater site management plans	Site plan and subdivision and zoning amendment applications	DSEL (2017) Functional Servicing Report for Glenview Homes (Cedarview) Ltd. 3387 Borrisokane Rd.	The stormwater management plan was developed and presented as part of the overall design brief.

OP Section	Studies/Assessment Required	Where Required	Relevant Study and Status	Summary of Issue
			Rev.1 (April 17, 2017)	
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 Features as identified on Schedule K of the City of Ottawa Official Plan

5.2 Erosion and Sediment Control

Soil erosion occurs naturally and is a function of soil type, climate and topography. The extent of erosion losses is exaggerated during construction where vegetation has been removed and the top layer of soil becomes agitated. Prior to topsoil stripping, earthworks or underground construction, erosion and sediment controls will be implemented and will be maintained throughout construction. Silt fence will be installed around the perimeter of the active part of the site and will be cleaned and maintained throughout construction. Silt fence will remain in place until the working areas have been stabilized and re-vegetated. Catchbasins will have catchbasin inserts installed during construction to protect from silt entering the storm sewer system.

The following specific recommendations to the contractor will be included in contract documents.

- Limit 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 fence to prevent sediment from leaving the site and entering existing ditches.
- Install mud mat in order to prevent mud tracking onto adjacent roads.
- No refueling or cleaning of equipment near existing watercourses.
- No material stockpiles within the Jock River floodplain.
- Provide sediment traps and basins during dewatering.
- Install catchbasin inserts.
- Plan construction at proper time to avoid flooding.

The contractor will, at every rainfall, complete inspections and guarantee proper performance. The inspection is to include:

- Verification that water is not flowing under silt barriers.
- Clean and change inserts at catch basins.

6.0 DESIGN WITH NATURE AND ENERGY EFFICIENCY

6.1 Incorporation of Design-With-Nature Principles

Section 4.7 – Environmental Protection of the City of Ottawa Official Plan identifies planning objectives to support natural features and functions in the development of lands within the City. 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 compliance with the design with nature principles.

In support of the Glenview development, various studies have been completed to identify what, if any, significant natural resources are present on the site.

The only significant environmental feature identified on the property that would implore the design with nature approach is the realignment of the Center Drain. The realigned channel will be constructed following principals of natural channel design and will incorporate features designed to increase the presence of frog habitat. The new, wider corridor will provide additional areas of natural tree growth. Moreover, the development application supports environmental initiatives identified by the City of Ottawa, as demonstrated above in Section 6. Additional other measures include:

- Much of the area currently has no trees. While the residential development cannot produce new forest areas, canopy cover will be enhanced through tree planting;
- Surface water drainage will be routed through City approved stormwater management systems so that objectives for stormwater quality will be met during and post construction;
- 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; and
- The development will have easy access to schools, transit and recreation (within walking distance).

6.2 Integration of Energy Efficiency and Sustainable Design

Section 4.7 – Environmental Protection of the City of Ottawa Official Plan requires the incorporation of energy efficient and sustainable design principles into new developments following a Sustainable Design Checklist (now known as the Green Checklist).

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.

EIS - Natural Environment, Aquatic Habitat, Tree Conservation Kilgour & Associates Ltd. Anthony Francis, PhD	**Phase 1 Environmental Site Assessment** Paterson Group for: Mark S. D'Arcy, P.Eng.
Stormwater Management DSEL Laura Maxwell, B.Sc. (Civil Eng), M.Pl., RPP, MCIP	**Geotechnical Investigation** Paterson Group David J. Gilbert, P.Eng.

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Appendix 1: Detailed Analysis of Compliance of the GLENVIEW development at 3387 Borrisokane Rd. with Section 4.2.7 of the City of Ottawa Official Plan

Appendix 1: Detailed Analysis of Compliance with Section 4.2.7 of the City of Ottawa Official Plan

This appendix provides a detailed examination of the requirements of Policy 4.7.1 of the City of Ottawa Official Plan as it pertains to the Glenview development. Each of the policy requirements is provided verbatim, with a short discussion of the approach taken by Glenview to comply with the specific policy, where relevant. The City Policy statements are *italicized*, while the Glenview approach to compliance is in regular font.

Policy 4.7.1 – Integrated Environmental Review to Assess Development Applications

A comprehensive understanding of the relationship between the natural environment and the built environment is the foundation of site design and subdivision planning, as well as planning for the larger areas subject to community design plans. The integrated environmental review considers as a whole the significant findings from individual support studies (i.e., tree preservation and protection plans, environmental impact statements, stormwater site management plans, Phase 1 Environmental Site Assessments). It also ensures that development proceeds in keeping with the analysis and recommendations of any watershed and subwatershed studies and federal or provincial environmental assessments documents, where applicable. The integrated environmental review ensures that development design complies with the environmental policies contained in Section 4, and that the principles of design with nature have been applied. [Amendment 13, September 8, 2004]

4.7.1(1)Subdivisions, and major site plans and major rezoning applications, will be accompanied by an integrated environmental review statement demonstrating how all the studies in support of the application influence the design of the development with respect to effects on the environment and compliance with the appropriate policies of Section 4. The appropriate policies and studies will be identified through pre-consultation at the beginning of the design and review process.

4.7.1(2) The integrated environmental review statement will provide:

a. A brief overview of the results of individual technical studies and other relevant environmental background material;

b. A graphic illustration, such as an air photo, summarizing the spatial features and functions (e.g. natural vegetation, watercourses, significant slopes or landform features, recharge/infiltration areas) as identified in the individual studies;

c. 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;

d. 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;

e. *An indication that the statement has been reviewed and concurred with by the individual sub consultants involved in the design team and technical studies.*

f. A description of how the principles of Design Objective 7 (Section 2.5.1) to maximize the energy-efficiency of development and to promote sustainable design that reduces consumption, energy use and carbon footprint of the built environment have been considered. A sustainable design checklist will be prepared to assist in this description. [Amendment #76, OMB File # PL100206, Ministerial Modification # 49, April 26, 2012.]

Glenview Approach to Compliance

This document, i.e., the Integrated Environmental Review, satisfies this requirement. Note that the sustainable design checklist referred to in 4.7.1(2f) is now referred to as the green checklist.

4.7.2 – Protection of Vegetation Cover

Preserving vegetation on sites subject to development not only contributes to the urban and rural forest and the overall environmental health of the area, but also helps improve the visual appeal of newly developed areas. However, development proposals may necessitate removal of existing vegetative cover in some instances. Development proposals will be required to preserve vegetative cover or propose compensation measures, through the following policies. [OMB decision #1754, May 10, 2006]

***Policy 4.7.2 (1)** In order to support the Official Plan objective for 30% tree cover, applications for subdivision or site plan approval will be supported by a tree preservation and protection plan and a landscape planting plan. [Amendment #76, OMB File # PL100206, April 26, 2012.]*

Glenview Approach to Compliance 4.7.2 (1)

An EIS that includes the TCR has been prepared by Kilgour & Associates (2017) following City of Ottawa Guidelines and has been submitted to the City for review. A detailed landscape plan will be developed for the community following the recommendations of that report. The landscape plan will include plantings along the realigned channel, as well as through the residential development (equivalent to at least one tree per lot).

***Policy 4.7.2 (2)** The Tree Conservation Report constitutes part of a complete application and may be submitted early in the design and development review process. It should be submitted before any tree removal occurs on development lands. The report will be completed in keeping with the Tree Conservation Report guidelines and in summary will: [Amendment #76, August 04, 2010]*

a. Retain as much natural vegetation as feasible, especially along surface water features, on steep slopes, in valued woodlots and in areas linking green spaces, with a particular emphasis on high quality or rare vegetative communities; [OMB decision #1754, May 10, 2006] [Amendment #76, OMB File # PL100206, April 26, 2012.]
b. Identify the presence of endangered or threatened species or their habitat as identified in the Endangered Species Act, 2007 and provide recommendations for protection measures to be used. [Amendment #76, OMB File # PL100206, April 26, 2012.]
c. Demonstrate how components of the proposed development, such as grading plans and the location of buildings, roads, and infrastructure, support tree conservation. [Amendment #76, OMB File # PL100206, April 26, 2012.]

d. *Determine which stands of trees or individual trees warrant retention based on a preliminary assessment;*
e. *For those trees or stands of trees being retained, outline measures for their protection during construction and over the long term;*

Glenview Approach to Compliance 4.7.2 (2a,b,c,d,e)

The EIS (including TCR – Kilgour & Associates, 2017) confirmed that there were limited trees, and no rare vegetation, no Areas of Natural and Scientific Interest, no significant wetlands, no natural areas, and no woodlands greater than 50 years old on or adjacent to the site. No endangered or threatened species or their habitats were present or within 120 m of the property.

Policy 4.7.2 (2,f)

f. *Describe the area and nature of tree loss and compensation measures proposed;*

Glenview Approach to Compliance on Policy 4.7.2 (2f)

Kilgour & Associates (2017) surveyed the property and found trees only along the existing drains. The detailed landscape plan will include a larger number trees to provide canopy coverage within the new community along the new drain corridor.

Policy 4.7.2 (2g)

g. *Where there is substantial alteration of the natural vegetation cover on the site, the impact on fauna or rare species during and after construction will be considered and mitigation measures proposed.*

Glenview Approach to Compliance on Policy 4.7.2 (2g)

There are no significant specimen trees on site. The site does not provide significant habitat for species listed as at risk under the Ontario ESA (Kilgour & Associates 2017). Most of site is an active agricultural area. There is no net negative impact on fauna or rare species during or after construction, and no requirement for mitigation measures.

Policy 4.7.2 (2h)

h. *Provide strategic recommendations to guide the landscape plan. [Amendment #76, June 24, 2009] [Amendment #76, August 04, 2010]*

Glenview Approach to Compliance on Policy 4.7.2 (2h)

Paterson Group (2017) provides limits for tree size and water requirement base on potential planting locations. Low water demand trees are recommended on the site. A minimum permissible distance of 4 m from foundation walls is recommended for tree planting setback. Fast growing trees, which dry soil and cause deferential settlement of structures, should not be used in landscape design and includes

willows, poplars, and some maples (i.e., Manitoba Maple). Trees placed greater than 4 m from the foundation wall may consist of typical street trees. Kilgour & Associates (2017) provided suggestion for suitable tree species and indicated on native species be used.

Policy 4.7.2 (3) *The landscape plan will:*

f. Indicate tree planting or vegetation cover required to provide protection for surface water features or steep slopes;
g. Investigate the appropriateness of the use of native species in tree planting strategies;
h. Provide a reference document for future residents on the importance and care of trees on their property.

Glenview Approach to Policy 4.7.2 (3)

The streetscape plan has yet to be developed but will incorporate these directives into the overall landscape plan. Glenview will provide or make available to future residents material on the importance and care of trees on their property.

Policy 4.7.3 – Erosion Prevention and Protection of Surface Water

Protecting stream corridors and the surface water environment serves the dual purpose of preserving and enhancing the environmental quality of stream and river corridors and their aquatic habitat, as well as reducing risks from natural hazards associated with watercourses. Ensuring that development is set back an appropriate distance from watercourses helps serve these purposes by ensuring a healthy, natural riparian zone and providing a margin of safety from hazards associated with flooding and unstable slopes.

Council has adopted Slope Stability Guidelines for Development Applications in the City of Ottawa, 2004, to guide slope stability assessments and requirements for setbacks. Slope stability assessments identify the geotechnical limit of the hazard lands, which includes the stable slope allowance plus, where appropriate, an allowance for future erosion and in some cases, an additional allowance to permit access in the event of future slope failure. Sites where slope stability issues are a concern were identified in the report, Slope Stability Study of the Regional Municipality of Ottawa-Carleton, 1976 (Ontario Misc. Paper MP 68) and are shown on Schedule K. Schedule K provides for early identification of slope stability concerns but is not sufficiently detailed to assess constraints on specific sites. [OMB decision #1754, May 10, 2006] [Amendment #76, OMB File # PL100206, July 21, 2011.]

Glenview Approach to Policy 4.7.3

There are no steep slopes on the site requiring vegetative protection and no trees requiring a tree retention strategy (Kilgour & Associates, 2017). There are no other features on the property that require special consideration for erosion prevention and protection of surface waters as described in Section 4.7.3 of the City of Ottawa Official Plan.

Policy 4.7.3 (1)

1. *Except as otherwise provided for in this section, Council will establish minimum setbacks from rivers, lakes, streams and other surface water features in watershed, subwatershed and environmental management plans and in these plans identify any additional studies needed to refine the setback through the development review process as well as any site-specific measures needed to protect the setback. [OMB decision #1754, May 10, 2006] [Amendment #76, OMB File # PL100206, July 21, 2011.]*

Glenview Approach to Policy 4.7.3 (1)

The current drains have a <5m setback from active agricultural areas on site. Reaches on site will be removed or realigned westward under agreement with the RVCA. The realigned feature will be located within a 42-62 m wide vegetated corridor, consistent with the Jock River Reach 1 Subwatershed Study, the approved subwatershed study governing the development area.

Policy 4.7.3 (2)

2. *Where a Council-approved watershed, subwatershed, or environmental management plan does not exist, the minimum setback will be the greater of the following:*

    a. *Development limits as established by the regulatory flood line (see Section 4.8.1);*

    b. *Development limits as established by the geotechnical limit of the hazard lands;*

    c. *30 metres from the normal high water mark of rivers, lakes and streams, as determined in consultation with the Conservation Authority; or*
    d. *15 metres from the existing top of bank, where there is a defined bank. [OMB decision #1754, May 10, 2006]*

Glenview Approach to Policy 4.7.3 (2)

The realigned feature will be located within a 42-62 m wide vegetated corridor, consistent with the Jock River Reach 1 Subwatershed Study.

Policy 4.7.3 (3)

2. *The setback provided for in policies 1 and 2 will be implemented through the zoning by-law and any change in the setback will require a zoning by-law amendment or variance that is consistent with the policies in this section of the Plan. [Amendment #76, OMB File # PL100206, April 26, 2012.]*

Glenview Approach to Policy 4.7.3 (3)

The realigned feature will be located within a 42-62 m wide vegetated corridor, consistent with the Jock River Reach 1 Subwatershed Study.

Policy 4.7.3 (4)

3. *No site alteration or development is permitted within the minimum setback, except as otherwise provided for in this section. Site alteration is defined as activities, such as fill, grading and excavation that would change the landform and natural vegetative characteristics of a site. Development is defined as the creation of a new lot or the construction of buildings and structures requiring approval under the Planning Act or the issuance of a Building Permit under the Building Code Act. Exceptions to this policy are:*

    a. *Activities that create or maintain infrastructure within the requirements of the environmental assessment process or works subject to the Drainage Act;*
    b. *Alterations necessary for recreation, environmental restoration, or slope stability works that are approved by the City and the Conservation Authority. [OMB decision #1754, May 10, 2006]*

Glenview' Approach to 4.7.3 (4)

The current drains have a <5m setback from active agricultural areas on site. Reaches on site will be removed or realigned westward under agreement with the RVCA. The realigned feature will be located within a 42-62 m wide vegetated corridor.

Policy 4.7.3 (5)

4. *The geotechnical limit of hazard will be determined in keeping with the Slope Stability Guidelines for Development Applications in the City of Ottawa 2004. Sites where slope stability issues are a concern were identified in the report, Slope Stability Study of the Regional Municipality of Ottawa-Carleton, 1976 (Ontario Misc. Paper MP 68) and are shown on Schedule K. Schedule K provides for early identification of slope stability concerns but is not sufficiently detailed to assess constraints on specific sites. [Amendment #76, OMB File # PL100206, July 21, 2011.]*

Glenview Approach to 4.7.3 (5)

Paterson Group (2017) completed a geotechnical investigation of the property. Their report describes the property as generally flat with a very gradual slope to the Jock River to the north. Based on the EIS and the geotechnical investigation, the site does not have any features that would be related to slope instability on the property or adjacent to the property.

Policy 4.7.3 (6)

5. *Exceptions to the setbacks in policy 2 will be considered by the City in consultation with the Conservation Authority in situations where development is proposed:*

    a. *On existing lots where, due to the historical development in the area, it is unreasonable to demand or impossible to achieve minimum setback distances because of the size or location of the lot, approved or existing use on the lot, or other physical constraint;*

    b. *Adjacent to a minor tributary that serves primarily a surface water function and that may have only an intermittent flow. This provision includes situations where a*

watershed, subwatershed or environmental management plan exists but does not provide guidance on a minor tributary;

c. *Adjacent to an existing top of bank where the regulatory flood line and the geotechnical limit of the hazard lands are within 15 metres from the existing top of bank [OMB decision #1754, May 10, 2006]*

Glenview Approach to Policy 4.7.3 (6)

The current drains have a <5m setback from active agricultural areas on site. Reaches on site will be removed or realigned westward under agreement with the RVCA. The realigned feature will be located within a 42-62 m wide vegetated corridor.

Policy 4.7.3 (7)

6. *Where an exception to the setback is requested, an alternate setback will be considered by the City in consultation with the Conservation Authority on the basis of a study that addresses the following criteria:*

    a. *Slope of the bank and geotechnical considerations related to unstable slopes, as addressed in Council's Slope Stability Guidelines for Development Applications in the City of Ottawa, 2004;*

    b. *Natural vegetation and the ecological function of the setback area;*

    c. *The nature of the abutting water body, including the presence of a flood plain;*
    d. *The need to demonstrate that there will be no negative impacts on adjacent fish habitat. [OMB decision #1754, May 10, 2006]*

Glenview Approach to Policy 4.7.3 (7)

The current drains have a <5m setback from active agricultural areas on site. Reaches on site will be removed or realigned westward. The realigned feature will be located within a 42-62 m wide vegetated corridor. The realigned drain will connect to the swamps of the Cambrian Woods UNA to the south providing an effective wildlife corridor for frogs (the only species requiring a corridor).

Policy 4.7.3 (8)

7. *Notwithstanding policy 3, lot creation by subdivision may be considered which includes land within the required setback in Villages adjacent to a minor tributary that serves primarily a surface water function and that may have only an intermittent flow, subject to the following criteria:*

    a. *Where slope stability is an issue, the lot area outside the geotechnical limit of hazard is sufficient to meet the required minimum lot size and Council's Slope Stability Guidelines for Development Applications in the City of Ottawa, 2004 are satisfied; and*
    b. *The lot area outside the setback is sufficient to accommodate all structures and water and wastewater services. [OMB decision #1754, May 10, 2006]*

Glenview Approach to Policy 4.7.3 (8)

The current drains have a <5m setback from active agricultural areas on site. Reaches on site will be removed or realigned westward. The realigned feature will be located within a 42-62 m wide vegetated corridor.

Policy 4.7.3 (9)

8. *Notwithstanding policy 3, lot creation by subdivision may be considered which includes land within the required setback in the rural area outside Villages, subject to the following criteria:*

    a. *Where slope stability is an issue, the lot area outside the geotechnical limit of hazard is sufficient to meet the required minimum lot size and Council's Slope Stability Guidelines for Development Applications in the City of Ottawa, 2004 are satisfied; and*
    b. *The lot area outside the setback is sufficient to accommodate all structures and water and wastewater services. [OMB decision #1754, May 10, 2006]*

Glenview Approach to Policy 4.7.3 (9)

The current drains have a <5m setback from active agricultural areas on site. Reaches on site will be removed or realigned westward. The realigned feature will be located within a 42-62 m wide vegetated corridor.

Policy 4.7.3 (10)

9. *Notwithstanding policy 3, a lot created by severance in the rural area may include land within the required setback provided the criteria in policy 7 are satisfied. The new lot created by severance in the rural area should be located outside the setback to the extent possible. [OMB decision #1754, May 10, 2006]*

Glenview Approach to Policy 4.7.3 (10)

The current drains have a <5m setback from active agricultural areas on site. Reaches on site will be removed or realigned westward. The realigned feature will be located within a 42-62 m wide vegetated corridor.

Policy 4.7.3 (11)

10. *Under the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation, pursuant to the Conservation Authorities Act of Ontario, the approval of the Conservation Authority is required for works such as site grading, the placement of fill, the alteration of existing channels of watercourses, and certain construction projects. The Conservation Authority should be consulted for any project near a lake, river, stream or wetland regarding the need for a permit. The Rideau Canal is a federal waterway and as such all shoreline and in-water works along the canal system will also require approval of Parks Canada. [Amendment #76, OMB File # PL100206, July 21, 2011.]*

Glenview Approach to Policy 4.7.3 (11)

There are no natural wetland areas on or within 120 m of the property.

Policy 4.7.3 (12)

11. *Where development is proposed on private services, no septic tank or distribution piping may be located closer than 30 m from the normal high water mark of a river, lake or stream or other watercourse unless an alternative setback has been permitted by the City in consultation with the Conservation Authority, for example, as may be required for existing lots in the rural area. [OMB decision #1754, May 10, 2006]*

Glenview Approach to Policy 4.7.3 (12)

No development as part of the property residential construction will include servicing on private services.

Policy 4.7.3 (13)

12. *An erosion and sediment control plan will be provided that shows how erosion on the site will be minimized during construction through application of established standards and procedures. Measures to maintain vegetative cover along the slope during and after construction will be addressed.*

Glenview Approach to Policy 4.7.3 (10)

The Functional Servicing Report (DSEL 2017) identifies the required elements for the site Erosion and Sediment Control (ESC) Plan. The final Erosion and Sediment Control Plan will address these requirements and will be implemented during site construction to ensure that surrounding areas are protected from potential site runoff.

Policy 4.7.3 (14)

13. *Natural watercourses should be maintained in their natural condition. Where an alteration is assessed as being environmentally appropriate and consistent with an approved subwatershed plan, environmental management plan or a storm water site management plan or, in the case of public projects, through a Class Environmental Assessment, watercourse alterations must follow natural channel design. Watercourse alterations must also meet any other applicable provincial and federal regulations, as amended from time to time, such as the Lakes and Rivers Improvement Act, Public Lands Act and Fisheries Act and may require written approval from the appropriate Conservation Authority under the Fill, Construction and Alteration to Waterways regulations.*

Glenview Approach to Policy 4.7.3 (14)

The current drains will be removed or realigned westward under agreement with the RVCA.

Policy 4.7.3 (15)

14. *Development and site alteration will not be permitted in fish habitat except in accordance with federal and provincial requirements. Development applications near or adjacent to water bodies that provide fish habitat will be required to demonstrate that the proposed development will not have a negative impact on fish habitat. Fish habitat is defined as those areas on which fish depend directly or indirectly to carry out their life processes. Fish habitat includes spawning grounds, nursery and rearing areas, areas that supply food, and features that allow migration. In the event that a negative impact is unavoidable, the proposal must be reviewed and authorized by the federal Department of Fisheries and Oceans, or its designate, which may or may not, under the federal Fisheries Act, authorize the work depending on development circumstances and type of habitat. [Ministerial Modification 45, November 10, 2003] [Amendment #76, OMB File # PL100206, July 21, 2011.]*

Glenview Approach to Policy 4.7.3 (15)

No fish bearing water courses or any other type of fish habitat are present on or near the site. The current drains will be removed or realigned westward under agreement with the RVCA and downstream areas will continue to receive water to support fish communities there.

Policy 4.7.3 (16)

15. *In addition to the provisions for setbacks described in this section, development proposals adjacent to municipal drains and other works under the Drainage Act must also maintain clear access to the legal working space adjacent to the drain. This working space is defined in the Engineer's Report adopted through a By-law approved by Council under the Drainage Act for the construction and future maintenance of drainage works. Many drains also provide fish habitat. [Amendment #76, OMB File # PL100206, July 21, 2011.]*

Glenview Approach to Policy 4.7.3 (16)

No municipal drains occur on the property.

Policy 4.7.3 (17)

16. *In support of the policies of this Plan, the City will:*

    a. *Support initiatives of the Ministry of Agriculture and Food, other provincial ministries, farming organizations, Conservation Authorities and others, which encourage sound agricultural land management and soil conservation practices and other measures that minimize or eliminate the amount of pesticides, nutrients, silt and other contaminants that can enter the ground and surface water systems of Ottawa; [Ministerial Modification 46, November 10, 2003]*

b. *Investigate means to control land alteration in significant wetlands and natural areas, and the removal of top soil and peat extraction, by applying the provisions of the Conservation Authority Act, or the Municipal Act as amended from time to time, in partnership with the Conservation Authorities;*

c. *When reviewing its own practices, serve as a model and ensure that the development of its properties and the provision of its infrastructure take advantage of opportunities to design with nature;*

d. *Initiate an annual recognition program to recognize innovative projects that design with nature.*

Glenview Approach to Policy 4.7.3 (17)

No response required.

4.7.4 – Protection of Endangered Species

Endangered and threatened species are those species either listed under the regulations of the Ontario Endangered Species Act *or are considered by the provincial government to be at risk of becoming endangered through all or a portion of its Ontario range. The habitat of these species is identified and protected by the Ministry of Natural Resources. Wildlife habitat generally is protected through environmental designations in this Plan.*

Butternut (Juglans cinerea) is an endangered tree whose main threat is a fungal disease that kills the infected trees. Butternut trees have special policies under the Ontario Regulation 242/08 of the Endangered Species Act 2007, administered by the Ministry of Natural Resources. The identification of butternut (and other trees) on a site will be required under the policies in Section 4.7.2 of this Plan. Where butternut is identified, the health of the tree(s) will be assessed by a certified Butternut Health Assessor and a permit from the Ministry of Natural Resources is required to remove a healthy tree.

Policy 4.7.4 (1)

1. *Endangered and threatened species are those listed under Ontario Regulation 230/08 of the Endangered Species Act, 2007.*
2. *Significant habitat of endangered and threatened species is defined as the habitat, as approved by the Ontario Ministry of Natural Resources, that is necessary for the maintenance, survival, and/or recovery of naturally occurring or reintroduced populations of endangered species or threatened species, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part of its life cycle. Significant habitat of endangered and threatened species will be identified by:*
    a. *Regulations made under the Endangered Species Act, 2007;*
    b. *An Environmental Impact Statement in areas where there is potential for significant habitat to exist; or,*
    c. *Other studies as approved by the City and Ministry of Natural Resources (e.g., subwatershed studies or environmental management plans).*

3. *The Ministry of Natural Resources has mapped areas with potential for significant habitat, based on known occurrences of endangered and threatened species. These maps will be consulted during pre-consultation to determine the need for an EIS and its scope as described in Section 4.7.8. The requirements of the Environmental Impact Statement will vary depending on such matters as the scale of proposed development, the nature of the site, the availability of comprehensive studies for the area and other matters identified in Section 4.7.8.*
4. *Environmental Impact Statements that address the potential for significant habitat of endangered or threatened species will be reviewed by the Ministry of Natural Resources. The Ministry of Natural Resources will approve the extent of significant habitat for endangered and threatened species.*
5. *No development or site alteration, as defined in Section 4.7.8, will be permitted in significant habitat of endangered and threatened species. [Ministerial modification #50, December 24, 2009]*
6. *Development and site alteration will not be permitted within 120m of the boundary of identified significant habitat of endangered and threatened species unless the ecological function of the adjacent lands has been evaluated and the Environmental Impact Statement demonstrates that there will be no negative impact (as defined in Section 4.7.8) on the significant habitat of endangered and threatened species or on its ecological functions. [Ministerial modification #50, December 24, 2009]*

Glenview Approach to Policy 4.7.4

The EIS by Kilgour & Associates (2017) provided an assessment of present flora and fauna for the entire property. The site does not support any vegetation Species-At-Risk (including butternut), nor does it provide any significant habitat for provincially listed Species-At-Risk. Adjacent neighbouring areas are subject to development in the near future as and thus will do not/will not support endangered species. The Jock River corridor, which may support some SAR will not be impacted.

4.7.5 – Protection of Groundwater Resources

In order to safeguard the integrity of groundwater resources, the City will ensure that new development can be accommodated within the system without affecting supplies available to other users. Some uses however, are not appropriate in areas where residents rely on groundwater and are more appropriately located in a fully serviced industrial park probably within the urban area. [Amendment #76, August 04, 2010]

Policy 4.7.5 (1)

1. *When reviewing development applications, the City will consider the potential for impact on groundwater resources.*
    a. *A groundwater impact assessment may be required where the City has identified that the lands play a role in the management of the groundwater resource or the need is indicated in other available information such as subwatershed plans or local knowledge, and*
    b. *A groundwater impact assessment may be required where the proposed use has the potential to negatively impact the groundwater resource. [Amendment #76, August 04, 2010*

In either case, the proposed use will not be permitted without a favourable impact assessment.

Glenview Approach to Policy 4.7.5 (1)

Glenview retained Paterson Group (2017) to complete the Geotechnical Investigation, which identifies groundwater levels. No negative impacts were identified.

The City has not identified the need for a Groundwater Impact Assessment to be completed.

Policy 4.7.5 (2)

2. *When evaluating a non-residential land-use in a rural land-use designation reliant on private, individual services, Council will consider whether or not it would be better located in a fully serviced part of the City because of its potential impact on groundwater quality and quantity. [Amendment #76, August 04, 2010]*

Glenview Approach to Policy 4.7.5 (2)

No development in the property will include servicing on private services.

Policy 4.7.5 (3)

3. *Regardless of the provisions in policies 1 and 2 above, an application to amend the zoning by-law to permit a high risk industrial use will not be permitted in the rural area. In this regard, high risk means an industrial use;*
    a. *Which requires the use of water in an processing operation and;*
    b. *Which has as a by-product water-borne wastes requiring municipal waste treatment.*

[Amendment #76, August 04, 2010]

Glenview Approach to Policy 4.7.5 (3)

The proposed development is not high risk industrial land use.

Policy 4.7.5 (4)

4. *Where wellhead protection areas have been identified, the policies in Section 4.8.2 will apply.*

Glenview Approach to Policy 4.7.5 (4)

No wellhead protection area has been identified by the City of Ottawa.

4.7.6 – Stormwater Management

The City's commitment to plan on a watershed and subwatershed basis is outlined in Section 2.4.3. The City will implement the recommendations of the watershed, subwatershed and environmental management plans through the implementation mechanisms of this Plan or other appropriate

mechanisms. In reviewing applications, the City will require that stormwater site management plans be submitted in accordance with the guidance set out in the environmental management, subwatershed and watershed plans.

Policies

Policy 4.7.6 (1)

1. *A stormwater site management plan will be required to support subdivision and site-plan applications.*

Glenview Approach to Policy 4.7.6 (1)

The stormwater management plan was developed and presented as part of the Functional Servicing Report (DSEL 2017) with appropriate permits and approvals obtained from the City of Ottawa, SNC, and Ontario Ministry of the Environment.

Policy 4.7.6 (2)

2. *Stormwater site management plans will be prepared in accordance with the guidance set out in a subwatershed or watershed plans (see Section 2.4.3). Generally, stormwater site management plans will include details on subdivision management, specific best management practices for stormwater, erosion and sediment control, and details for enhancement and rehabilitation of natural features. Where no subwatershed plan or environmental management plan exists, the City will review stormwater site management plans to ensure that:*

    a. *Watercourse flows are not altered in a way that would increase the risk of downstream flooding or channel erosion;*

    b. *Base flow in the watercourse is not reduced;*

    c. *The quality of water that supports aquatic life and fish habitat is not adversely affected;*

    d. *The quality of water that supports water-based recreational uses is not affected;*

    e. *Natural habitat linkages that are located in or traverse the site are maintained or enhanced;*

    f. *Groundwater is not negatively impacted;*

    g. *Any other impacts on the existing infrastructure or natural environment are addressed in a manner consistent with established standards and procedures;*

    h. *Objectives related to the optimization of wet weather infrastructure management are realized.*

Glenview Approach to Policy 4.7.6 (2)

The stormwater management plan was developed and presented as part of the Functional Servicing Report (DSEL 2017) and addresses the points above.

4.7.7 – Landform Features

Landform features are geomorphic, geological and other landform features that are distinctive to Ottawa. Many of these features were described in a 1975 study Geological Sites and Features in the Regional Municipality of Ottawa-Carleton, undertaken in partnership with the Ministry of Natural Resources. The MNR has identified some of these features, such as Hog's Back Falls as provincially significant Earth Science Areas of Natural and Scientific Interest that are part of the City's natural heritage system. Geomorphic, Geological and Landform Features are shown on Schedule K. [Amendment #76, August 04, 2010]

Policy 4.7.7 (1)

1. *When reviewing development proposals or when designing or reviewing public works, the City will ensure that the educational, scientific and landscape value of the Geomorphic, Geological and Landform Features, as shown on Scheduled K, will not be impaired. Only permitted development that is sympathetic to the unique characteristic of the resource, its setting and its interpretation value will be considered. Earth Science ANSIs are subject to the policies of Section 2.4.2 [Amendment #76, August 04, 2010]*

Glenview Approach to Policy 4.7.7 (1)

On the basis of the various studies commissioned by Glenview, there are no significant natural features on, or on lands adjacent to, the property.

Policy 4.7.7 (2)

2. *Development and site alteration within provincially significant Earth Science Areas of Natural and Scientific Interest or on land within 50m of these features will not be permitted unless it is demonstrated through an Environmental Impact Statement that there will be no negative impact on the feature or its ecological functions. These features are shown on Schedule K. Definitions of these terms and the policies regarding Environmental Impact Statements are provided in Section 4.7.8. [Amendment #76, OMB File # PL100206, Ministerial Modification # 51, July 21, 2011.]*

Glenview Approach to Policy 4.7.7 (2)

On the basis of the various studies commissioned by Glenview, there are no significant natural features on, or on lands adjacent to, the property.

Policy 4.7.7 (3)

3. *The City will encourage the protection of other significant landform features, such as rock outcrops, escarpments, knolls, valley or other features identified in such studies as provincial ANSI studies, or municipal subwatershed studies and community design plans.*

Glenview Approach to Policy 4.7.7 (3)

On the basis of the various studies commissioned by Glenview, there are no significant natural features on, or on lands adjacent to, the property.

Policy 4.7.7 (4)

4. *When considering subdivision or site plan applications, the City will ensure the protection of landform features by encouraging owners or developers to implement such measures as:*

    a. *Selective grading to minimize topographic change;*

    b. *Orienting buildings and roads parallel to topographic contours;*

    c. *Setting back development from the bottom and top of steep slopes;*

    d. *Flexible setbacks;*

    e. *Providing flexibility for road layouts and right-of-way requirements.*

Glenview Approach to Policy 4.7.7 (4)

No landform features have been identified for protection on the property.

4.7.8 – Environmental Impact Statement

Development within or adjacent to woodlands, wetlands, and other natural features has potential to impact the feature and its functions by removing vegetation, increasing the amount of paved or other impermeable surfaces, changing the grading of the site, or making other changes. The Environmental Impact Statement serves to identify the natural features of a site early in the development process and consider ways to avoid or mitigate these impacts, and enhance natural functions. [Amendment #76, OMB File # PL100206, April 26, 2012.]

Almost all of the city's natural heritage system, defined in Section 2, is contained within areas designated as Rural Natural Features, Urban Natural Features, Significant Wetland, and Natural Environment Areas. The requirements for an Environmental Impact Statement for development proposed within Rural Natural Features or on lands adjacent to these designated areas are described in Section 3. An Environmental Impact Statement is also required for development proposed within or adjacent to significant woodlands, significant valleylands, significant wildlife habitat and other components of the natural heritage system, regardless of their designation in the Plan. [Amendment #76, OMB File # PL100206, Ministerial Modification #52, April 26, 2012.]

Policy 4.7.8 (1 & 2)

0. *An Environmental Impact Statement is required for development and site alteration proposed within and adjacent to natural heritage features designated as Rural Natural Features and adjacent to land designated as Urban Natural Feature, Significant Wetland, and Natural*

Environment Area. It is also required for development and site alteration within or adjacent to other elements of the natural heritage system, as required in Section 2, that are not designated on Schedule A or B. [Amendment #76, OMB File # PL100206, April 26, 2012]

1. *No development or site alteration will be permitted within the natural features described in policy 1 above, where permitted by the policies of this Plan, or on adjacent lands unless an Environmental Impact Statement indicates it will have no negative impact, defined as degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities. [Amendment #76, OMB File # PL100206, April 26, 2012]*

Glenview Approach to Policy 4.7.8 (1 & 2)

No Rural Natural Features or Urban Natural Features as designated or identified in the City's Urban Natural Areas Environmental Evaluation framework are present on or adjacent to the property**.** The Cambrian Woods UNA is 150 m to the south of the site and will not be impacted by the development. Drain realignment will preserve and enhance the UNA's connection to the Jock River while maintaining its internal water levels and the exclusion of fish to the site (which would otherwise alter its ecology).

Policy 4.7.8 (3, 4, 5, 6)

2. *Development is defined as creation of a new lot, a change in land use, or the construction of buildings and structures, requiring approval under the Planning Act, but does not include activities that create or maintain infrastructure authorized under an environmental assessment process; or works subject to the Drainage Act. [Amendment #76, OMB File # PL100206, April 26, 2012]*
3. *Site alteration is defined as activities, such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of a site. [Amendment #76, OMB File # PL100206, April 26, 2012]*
4. *Ecological function are defined as: the natural processes, products or services that living and nonliving environments provide or perform within or between species, ecosystems and landscapes, including biological physical and socio-economic interactions. [Amendment #76, OMB File # PL100206, Ministerial Modification #53, April 26, 2012]*
5. *The requirements for an EIS adjacent to natural heritage features designated on Schedule A and B in this Plan are described in Section 3. The requirements for an EIS adjacent to the significant habitat of endangered and threatened species and Earth Science Areas of Natural and Scientific Interest are described in Section 4. [Amendment #76, OMB File # PL100206, April 26, 2012]*

Glenview Approach to Policy 4.7.8 (3, 4, 5, 6)

No response required.

Policy 4.7.8 (7)

6. *Where significant woodlands, significant wildlife habitat, significant valleylands or other natural heritage features are not designated, development and site alteration will not be permitted for:*
    a. *any development permitted under the policies of this Plan within the feature;*

b. *any development permitted under the policies of this Plan within 120 metres of the feature in the rural area;*
c. *any development permitted under the policies of this Plan within 30 metres of the feature in the urban area;*

Glenview Approach to Policy 4.7.8 (7)

No significant woodlands, significant wildlife habitat, significant valleylands or other natural heritage features occur on or adjacent to the property.

Policy 4.7.8 (8 & 9)

7. *The need for an Environmental Impact Statement and its scope will be confirmed through preconsultation with the City early in the development review process, based on a preliminary screening for natural environment features within and adjacent to the study area. Aerial photographs, watershed and sub-watershed studies, field investigations and other information sources such as the Natural Heritage Information Centre may be consulted. The screening should consider the potential for endangered or threatened species habitat, significant woodlands, valley lands, wetlands and wildlife habitat that are not designated in the plan, in accordance with the Provincial Policy Statement definition of significant and the relevant identification and evaluation factors specified in the Natural Heritage Reference Manual for the Provincial Policy Statement. [Amendment #76, OMB File # PL100206, Ministerial Modification #53, April 26, 2012]*
8. *There are different types of Environmental Impact Statements:*
    a. *Full site-impact statements to assess the effects of large-scale development proposals, such as a subdivision proposal. They are prepared by a qualified professional with expertise in assessing impacts on the natural environment, but reviewed and approved by the municipality;*
    b. *Impact statements for lands adjacent to Urban Natural Features where the emphasis will be on managing the interface or transition zone between urban developments and natural features in an urban context. This would include such concerns as surface drainage adjacent to the feature; natural infiltration and soft edges adjacent to features such as wetlands, wet meadows and moist forests; protection of woodland edges (drip-line setbacks, soil compaction, removal and stock-piling); and management of access and other potential issues related to uses along the edge of the feature;*
    c. *Scoped site-impact statements to assess the potential impacts of smaller development proposals, such as single-lot severances, where impacts would be minor. A scoped impact study can be as simple as a checklist of matters to be addressed as part of the application process, and can be completed by the applicant. Scoped site-impact studies may also be appropriate to address the potential impacts of larger proposals if more detailed studies, such as a comprehensive impact study, are available.*

Glenview Approach to Policy 4.7.8 (8 & 9)

No response required.

Policy 4.7.8 (10)

9. *No development or site alteration will be permitted within the natural features described in policy 1 above, where permitted by the policies of this Plan, or on adjacent lands unless an Environmental Impact Statement indicates it will have no negative impact, defined as degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities. [Amendment #76, OMB File # PL100206, July 21, 2011.]*

Glenview Approach to Policy 4.7.8 (10)

The EIS found no impact of the development to SAR.

Policy 4.7.8 (11)

10. *Environmental Impact Statements will include:*
    a. *A map drawn to scale identifying the location and extent of the feature, a description of the environmental values within the environmental feature or designation which could potentially be adversely affected by the proposed development, a description of the terrain/topography, vegetative cover and types, soil type and depth, and surface water movement patterns;*
    b. *Where the potential for significant habitat of endangered and threatened species has been identified, a description of the habitat present on the site and its suitability for the specific endangered and threatened species that potentially may use the area, as required in Section 4.7.4. [Amendment #76, August 04, 2010]*
    c. *A description of the proposed development;*
    d. *A description of the impacts on the environmental feature that might reasonably be expected to result from the proposed development;*
    e. *A description of the actions that may be reasonably required to prevent, change, minimize or mitigate impacts on the environmental feature as a result of the proposed development, including the identification of opportunities for ecological restoration, enhancement and long-term conservation of the feature;*
    f. *A description of the flora and fauna present on the site and how the development may impact on the flora and fauna within the site or natural feature and proposed mitigation measures to be taken during and after construction;*
    g. *An evaluation of the cumulative effects of the proposed development and other existing or proposed activities or development within or adjacent to the study area. For the purpose of this policy 'proposed activities or development' refers to applications that have been lodged with and which are waiting or have received City approval. The evaluation will assess residual effects following mitigation on the natural features and ecological functions identified in the area; [Amendment #76, OMB File # PL100206, April 26, 2012]*
    h. *A professional opinion on whether negative effects on the natural features and ecological functions will occur, and the significance of these impacts in the context of the evaluation of the natural area (i.e., the natural features and functions for which the area was originally identified as significant and the residual impact of the proposed development on the general significance rating of the larger natural area);*
    i. *Identification of monitoring needs and recognition of parties to be responsible for assessing and reporting on these needs over a prescribed period of time.*

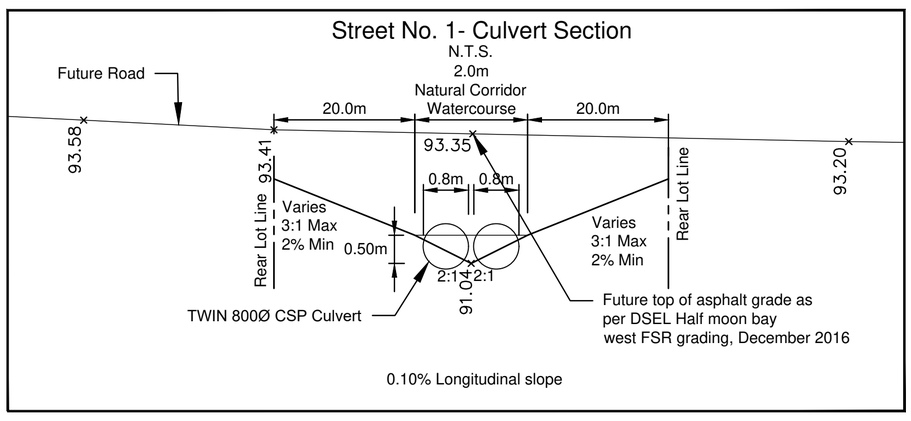
Glenview Approach to Policy 4.7.8 (11)

No response required.

Appendix 2: New Center Channel Alignment

Street No. 1- Culvert Section

N.T.S.



NOTE: Culverts to be perched if possible, based on detail design and hydraulic review

NOTE: Landscaping to be proposed for natural corridor (by others)

NOTE: Alignment and Cross Section of watercourse subject to change at detail design

Twin 800Ø CSP Culvert @ 0.10% (sunken 10cm)
(Culvert oversized to limit backwater impacts to 100yr WL on upstream lands.
Culvert details to be confirmed
as part of detailed hydraulic analysis of Channel)

Proposed New
Temporary Access Road
(Location TBD)

Potential Rock Check Dam
as Fish Barrier,if required
(Location TBD @ Detailed Design)

Twin 800Ø CSP Culvert @ 0.10% (sunken 10cm)
(Culvert oversized to limit backwater impacts to 100yr WL on upstream lands.
Culvert details to be confirmed
as part of future detailed hydraulic analysis)

Existing Outlet to
Borrisokane Roadside Ditch

Station 5737 W.S. Elevation (m)
100yr - 91.77
50yr - 91.65
25yr - 91.46
10yr - 91.28
5yr - 91.08
2yr - 90.68
Per Appendix D - Jock River Flood Risk Mapping (within the City OF Ottawa)
Hydraulics Report - November 2004

Proposed Connection
to Existing Ditch

Existing Outlet ≈ 91.35

6.19ha

5.3ha

Drainage can be directed
to Natural Corridor

JOCK RIVER

PARK 0.65 Ha

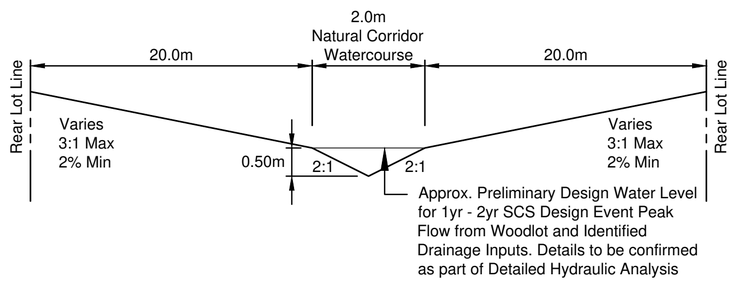
SWMP 0.82 Ha

SCHOOL 2.40 Ha 5.93 ac

Wet Meadow

Urban - Typical Corridor Cross Section

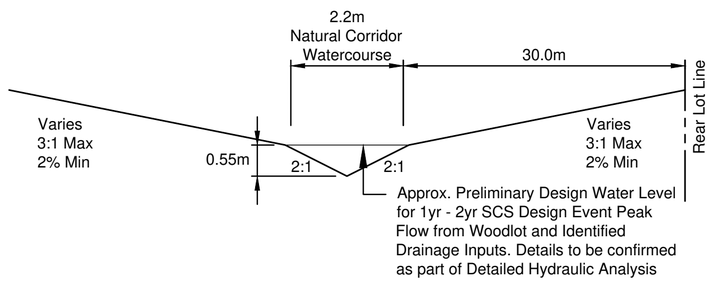
N.T.S.



0.10% longitudinal slope

Floodplain - Typical Corridor Cross Section

N.T.S.



0.10% longitudinal slope

LEGEND

- ×91.12 — ESTIMATED GRADE OF NATURAL CORRIDOR
- 0.1% → — PROPOSED SLOPE AND DIRECTION OF CORRIDOR
- NATURAL CORRIDOR WATERCOURSE
- POTENTIAL REAR YARD DRAINAGE TO NATURAL CORRIDOR
- EXISTING DRAINAGE AREA
- WET MEADOW

david schaeffer engineering ltd
SMART SUBDIVISIONS™
120 Iber Road Unit 103
Stittsville, Ontario, K2S 1E9
Tel. (613) 836-0856
Fax. (613) 836-7183
www.DSEL.ca

Natural Channel Corridor
Per JFSA and Kilgour Recommendations

PROJECT No. :	15-809
SCALE:	1:1500
DATE:	2017-03-28
DRAWING No.	1

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