



Via E-mail (wvankeulen@twpec.ca)

January 27, 2022

Ms. Wendy Van Keulen
Community Development Coordinator
18 Centre St, Spencerville, ON K0E 1X0

Subject: Zoning Bylaw Amendment Review
Lot 8, Concession 1 (Edwardsburgh)
Roll Number: 070170101008901
Applicant: Laura Roberta Leeder

Dear Ms. Van Keulen,

South Nation Conservation (SNC) has reviewed the following documents concerning a Zoning Bylaw Amendment for the above-noted property. The Amendment will lift a holding provision to permit the construction of a single-family dwelling on private services. The following documents were included in the review.

- i. Zoning Bylaw Amendment Application. Prepared by Richard Van Veldhuisen. Dated November 19, 2021.
- ii. Topographic Survey Plan. Prepared by IN Engineering and Surveying. Dated December 22, 2020.
- iii. Environmental Impact Study. Prepared by The Greer Galloway Group Inc. Dated November 2021.
- iv. Geotechnical Subsurface Investigation. Prepared by St. Lawrence Testing and Inspection Co. Ltd. Dated January 31, 2021. Signed and stamped.
- v. Additional Geotechnical Data. Letter from G.G. McIntee, P. Eng., St. Lawrence Testing and Inspection Co. Ltd. Dated January 7, 2022. Signed and stamped.

In addition, an application has been received by South Nation Conservation under O. Reg. 170/06 to construct a dwelling and septic system on the property.

We have considered the environmental impacts of the application, as outlined under Sections 2.1 (Natural Heritage), 2.2 (Water) and 3.1 (Natural Hazards) of the Provincial Policy Statement (May 1, 2020) issued under Section 3 of the *Planning Act*. Our review also considers the Source Water Protection Agreement between the Township of Edwardsburgh-Cardinal and SNC.



Natural Heritage Features

The property is situated along the St. Lawrence River and contains several intermittent watercourses. A natural wooded area is present at the west end, and a small marsh is present where the west watercourse meets the St. Lawrence River.

The EIS provides mitigation for potential impacts, including vegetation removal windows to protect breeding birds, sediment and erosion control recommendations, wildlife exclusion fencing, minimal disturbance to riparian vegetation and the shoreline, and others. The EIS notes that the residence will be located 18.4 m inland from the river edge / top-of-bank of the St. Lawrence River and 20 m east of the closest intermittent watercourse. We offer the following comments on the proposed mitigation:

1. The EIS requires a figure that illustrates the following:
 - a. The area on the property that is to be cleared of natural vegetation for construction of the residence (i.e., the building envelope). No site disturbance should take place outside this area, and natural vegetation should remain along the shoreline as recommended by the EIS.
 - b. The figure should clearly show measurable setbacks to natural heritage features, riparian buffers where vegetation is to be retained or improved, and distances to any other features to be retained/protected. Riparian buffers and setback widths must be of appropriate width to protect the natural heritage features identified on site and/or those with the potential to be on site.
2. The EIS discusses mitigation measures for working in water and the installation of docks and boathouses. Any in-water work or work along the shoreline may require a permit from South Nation Conservation and may require review by Fisheries and Oceans Canada (DFO).
3. The mitigation requirements should be communicated to future landowners and implemented using planning and/or legal mechanisms.

Natural Hazards

Floodplain

In cooperation with local municipalities and the Province, Conservation Authorities operate flood control programs to minimize flood risk to residents, homes and businesses.



In eastern Ontario, the regulatory flood level is the 100-year flood, calculated as having a 1% chance of being equalled or exceeded in any given year, or having an annual return period of 100 years on average.

Specifically, the 100-year flood level at the Property has been determined to be 75.4 metres above sea level.

Slope Stability

The engineering consultant's letter states that "the soil conditions of the site are not suitable to build a building with standard foundations." The letter does not include an analysis of the erosion rates or slope stability, and consequently, the factor of safety for the slope along the property is unknown. Instead, the consultant provides an engineering recommendation that could be pursued at the detail design stage. The feasibility and cost of this approach could not be confirmed with the information provided.

O. Reg. 170/06

SNC implements Ontario Regulation 170/06, Development Interference with Wetlands and Alterations to Shorelines and Watercourses, developed under Section 28 of the Conservation Authorities Act.

Currently, the area within and 20 m adjacent to the 1:100-year floodplain is regulated under Ontario Regulation 170/06. Based on a site visit by SNC staff and the geotechnical brief provided, it has been confirmed that the regulation limit is 15-30m from the top-of-slope rather than the 100-year floodplain limit as the regulation limit is based on the greatest of all applicable hazards.

As the site does not have significant depth the whole property is regulated under O. Reg. 170/06 for any development activity as defined under Section 28 of the CA Act. Therefore, any proposed development within the property boundary will require a permit from SNC and restrictions may apply.

An application was received by South Nation Conservation under O. Reg. 170/06 to construct a dwelling and septic system on the property. The application did not provide sufficient detail to be considered a complete application (i.e., necessary plans and reports etc. were not provided) to issue the permit and is currently on hold.



To obtain a permit, the submission must include a geotechnical report that describes the factor of safety of the slope related to the entire development proposal location and dimensions. The report should also provide proposed remedial measures to allow for development if feasible. Once the geotechnical report is completed and accepted by SNC a detailed structural design for the dwelling foundation and septic system including remedial measures as appropriate, prepared and stamped by a qualified professional will also be required for SNC to issue a permit for development. The MNRF guidelines and comments from SNC engineering team are paraphrased below:

It is important that a Geotech include the following to ensure that a property and proposed project is protected from any potential failures. Specifically, it is important that all three factors (Toe Erosion Allowance, Stable Slope Allowance, and Access Allowance) are considered with respect to riverine erosion hazards and apparent slopes, as defined by Erosion Hazard Limit (MNRF 2002).

- Identify the active erosion interface
- Identify the valley toe/toe of slope
- Identify the top of slope
- Factor 1: Define the Toe Erosion Allowance,
- Factor 2: Define the Stable Slope Allowance (Geotechnical Study and Modeling or assumed 5:1 (assumed leda clay or sand) or assumed 3:1 Slope (Other consolidated soils, till etc.)
 - This should be defined in saturated conditions
 - Static having a factor of safety of 1.5 or greater (drained and potentially undrained depending on soil conditions) and
 - Dynamic having a factor of safety of 1.1 or greater (seismic)
- Factor 3: Define the Access Allowance.

It is also important that the report provide site specific instructions for construction procedures so that the proposed project is protected over the long-term. As well, the report should define any setback from the “Top of slope”, since this is the most verifiable and identifiable setback reference point.

Recommendations

It is recommended that the Geotechnical Investigation and subsequent report be completed and reviewed by SNC before the Zoning Bylaw Amendment is approved. The study should include a full slope stability analysis, as per the notes above.



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Further, should the municipality wish to lift the holding provision, it is recommended that a development agreement be registered on title that notifies transferees of the environmental constraints and approval process associated with the property.

Please note that this review has not confirmed that a permit can be issued for the property.
Kind regards,

James Holland, MSc RPP
Watershed Planner
South Nation Conservation

SNC-2463-2022