

HALIFAX

P.O. Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

Item No. 14.1.3
Halifax Regional Council
February 13, 2018

TO: Mayor Savage and Members of Halifax Regional Council

SUBMITTED BY: Original Signed by 
Jacques Dubé, Chief Administrative Officer

DATE: January 11, 2018

SUBJECT: **Options to Protect Properties at 75,79, and 85 Sackville Cross Road from Further Erosion by the Little Sackville River**

ORIGIN

At the May 10, 2016 meeting of Regional Council, the following motion regarding Item 15.3 was put and passed:

MOVED by Councillor Johns, seconded by Councillor Outhit THAT Halifax Regional Council request a staff report that recommends options to protect the properties at 75,79, and 85 Sackville Crossroads from further erosion by the Little Sackville River.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter, Part VIII, Planning and Development, including:

Statements of policy in planning strategy

- 229 (1)** A municipal planning strategy may include statements of policy with respect to any or all of the following:
- (c) the protection, use and development of lands within the Municipality, including the identification, protection, use and development of lands subject to flooding, steep slopes, lands susceptible to subsidence, erosion or other geological hazards, swamps, marshes or other environmentally sensitive areas;
 - (d) stormwater management and erosion control;
 - (e) in connection with a development, the excavation or filling in of land, the placement of fill or the removal of soil, unless these matters are subject to another enactment of the Province;
 - (f) in connection with a development, retention of trees and vegetation for the purposes of landscaping, buffering, sedimentation or erosion control;

Content of land use by-law

- 235 (5)** Where a municipal planning strategy so provides, a land-use by-law may:

- (d) in connection with a development, regulate, or require the planting or retention of, trees and vegetation for the purposes of landscaping, buffering, sedimentation or erosion control;
- (m) regulate or prohibit excavation, filling in, placement of fill or reclamation of land on floodplains identified in the land-use by-law;
- (n) Prohibit development on land that
 - i. Is subject to flooding or subsidence,
 - ii. Has steep slopes,
 - iii. Is low-lying, marshy, or unstable

RECOMMENDATION

It is recommended that Regional Council direct staff to share this report with affected property owners to provide guidance and awareness of options and responsibilities for erosion control measures on their properties.

BACKGROUND

This report addresses three privately owned properties at 75, 79, and 85 Sackville Cross Road immediately adjacent to the Little Sackville River (Attachment A). The buildings on these properties range between 30 to 60 years in age and contain a range of residential, commercial, and mixed uses. All properties are located within 50 feet of the river.

These properties are experiencing bank erosion, which has resulted in river waters moving closer to the existing structures on the sites. The effects of erosion are different from flooding; rather than the structures being infiltrated by water, their foundations may eventually be undercut by the encroaching river bank.

Table 1 below provides detail on the size and use of each of these properties. The table also outlines the erosion issues observed at each property during a site visit on April 7, 2017. Photographs from the site visit are presented in Attachment B.

Table 1: Description of Properties

Address	Lot Size (sq. ft.)	River Frontage (ft., approx.)	Setback from River (ft., approx.)	Current Use	Erosion Effects Observed
75 Sackville Cross Road	56,070	360	45	36-unit dwelling	<ul style="list-style-type: none"> • Fence alongside parking lot falling into river • Gradually losing area for parking
79 Sackville Cross Road	8,913	100	25	Commercial (Hair Salon)	<ul style="list-style-type: none"> • River edging closer to building • Gradually losing rear yard
85 Sackville Cross Road	16,900	285	15	Funeral home and office on main floors, residential on upper floors	<ul style="list-style-type: none"> • Concrete pad in rear is close to being undercut • River edging closer to building

					<ul style="list-style-type: none"> • Potential threat to supporting beams of second storey deck
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Erosion can happen slowly through receding shorelines, or can happen suddenly, for instance when heavy rainfall sends large volumes of water into a river. The Little Sackville River watershed is heavily urbanized, with a large portion of the ground covered by hard surfaces. When it rains in this watershed, the water reaches the river very quickly, resulting in rapid and substantial increase in the amount of water and its speed of travel. High volume and flow conditions hasten the effects of erosion, speeding up the loss of soil weakening banks – particularly on the outside bend of a stream. Rivers and streams are naturally dynamic, constantly eroding and depositing material along their course. Property owners bear the risks of erosion to their properties when they abut a river channel.

Built History and Watercourse Setback Regulations

The buildings on these properties were constructed in the late 1950's and mid 1980's before regulations existed to control development near watercourses. Although the original permits are not available, it appears that the buildings met the regulations of the day relative to their site location. The 1982 Sackville Land Use Bylaw limited development using a newly established floodplain zone and contained a clause that all new residential uses within 100 feet of the Sackville River must be considered through a development agreement. The three properties on Sackville Cross Road were not within the floodplain zone at that time.

DISCUSSION

The buildings on each of the properties are located within 100 feet of the watercourse. By today's standards, permission to construct this close to the river would not be possible. The property at 85 Sackville Cross Road predates these regulations based on its construction in the 1950s. However, the properties at 75 and 79 Sackville Cross Road were developed through development agreements in the mid-1980s.

Provincial Mandate

The principal provincial agency responsible for protecting the environment is the Nova Scotia Department of Environment (NSE). NSE's mandate, as defined by its primary guiding legislation, the Environment Act, excludes any reference to erosion. The Department is designated as the lead agency of the provincial government to promote the sustainable management of water resources, which includes the responsibility for ownership and protection of watercourses. Any watercourse alterations (alterations to the bank, bed, or flow of a watercourse) requires either Provincial approval or notification in accordance with the Activities Designation Regulations (2014).

The NSE advises that watercourse intervention should be minimized to protect aquatic habitat, drinking water supplies, and recreational, agricultural and industrial uses. The Watercourse Alterations Standard (2015) regulates how to most sustainably alter a watercourse and must be followed for all projects. An excerpt of the standard is provided as Attachment C.

Municipal Mandate

Flooding and erosion are often related. The municipality has authority to regulate development to minimize impacts of flooding, avoid lands that are hazardous to development, such as steep slopes, and to manage the impacts of erosion associated with development. After development takes place, however, the Municipality does not have the authority or tools to address natural shoreline erosion that may impact

existing development. Such erosion issues typically fall under the responsibility of private property owners and the Province, which is responsible for watercourse protection.

The role of the Municipality is to organize development away from watercourses, which reduces the need for costly erosion control measures, minimizes disturbance of natural shorelines, and helps to protect the public from property damage. Recent municipal efforts include conducting a floodplain study of the Sackville and Little Sackville Rivers to update the 25-year and 100-year flood risk maps, minimizing risk to people and property through regulating development in these areas. Additionally, HRM is in the process of conducting risk assessments for 30 flood-prone sites across the municipality with funding granted through the National Disaster Mitigation Program (NDMP).

Current land use regulations require riparian buffers along watercourses for all new development. In most cases, the required buffer ranges from 65 to 100 feet as measured from the ordinary high water mark of the watercourse. The development of new main buildings within this watercourse buffer is not permitted. Regulations for watercourse setbacks have been implemented consistently across all land use bylaws in HRM since 2006. However, some structures constructed before 2006 may be within the watercourse buffer as they were not subject to the same requirements at the time of their construction.

While planning policy and development regulations can be an effective means of helping to protect development from the effects of the environment, they need to be monitored and updated on a frequent basis to keep current with climate changes. The Municipality strives to monitor and revise watercourse buffer regulations to reflect improved data and, with the help of federal NDMP funding, new remotely sensed (LiDAR) digital elevation data has been purchased for the entire municipality. This data will be used to generate high resolution digital elevation models, for use in floodplain mapping and land use vulnerability assessments to more accurately plan for the consequences of extreme weather. Municipal watercourse buffer regulations may be adjusted accordingly through future MPS amendment exercises.

Property Owner Responsibility

The responsibility for mitigating erosion issues ultimately falls to the private property owner, while the Province is the regulatory body for watercourses in Nova Scotia. The Municipality does not have the mandate nor the authority to expend money on erosion control measures on private property. There are currently no municipal, provincial, or federal funding programs to assist private property owners experiencing erosion issues.

An April 7, 2017 inspection by staff found no immediate safety hazards or apparent Minimum Standards violations under HRM By-law M-100. However, this may not remain constant and the property owners should be advised to act if they wish to protect their properties and prevent further erosion.

The owners have two options:

1. Take preventative measures to firm up the existing riverbank – what land is lost cannot be recovered; or,
2. Do nothing to mitigate erosion and prepare for eventual abandonment of these buildings.

The Province does provide information on best practices for watercourse alteration design along with a list of qualified contractors to do this work. However, the property owner must initiate the process through NSE. The Province has provided Disaster Relief Funding to affected property owners following significant flooding events, such as those in Sydney during October 2016, however no such funding programs exist to address erosion.

The property owners must secure approvals from NSE before installing any erosion control measures. If the project spans less than 5m (16.4ft) of the riverbank and does not disturb the river bed, a straightforward notification form must be submitted. However, if a riverbank length greater than 5m (16.4ft) will be disturbed

or the erosion control measures impact the river bed, the formal approval process must be followed.¹ This application is subject to review and approval by NSE.

The solutions to protecting properties from erosion are as follows:

1. vegetative measures as the roots will help stabilize the bank;
2. structural measures such as rip rap (rock or stone), wire baskets, timber crib, and/or retaining walls;
and
3. a combination of structural and vegetative measures.

The NS Watercourse Alterations Standard (2015) outlines the best practices regulations for altering watercourses for different purposes. Section 10 directly relates to erosion protection on the bank of a watercourse. Requirements for grading, materials, rip rap stone size and installation are detailed in Attachment C.

Conclusion

The municipality does not have a legislated mandate to protect existing development from the on-going effects of shoreline erosion. This matter is the responsibility of private property owners and the Province, which is responsible for watercourse protection. As such, staff recommend that this report be provided to the affected property owners to provide them with guidance and awareness of options and responsibilities for erosion control measures on their properties.

FINANCIAL IMPLICATIONS

There are no financial implications associated with the recommendation contained within this report.

RISK CONSIDERATION

There is no risk associated with the recommendation contained within this report.

COMMUNITY ENGAGEMENT

Staff contacted each of the property owners at 75, 79, and 85 Sackville Cross Road to discuss the impact of erosion on each site. Staff also asked them if any preventative measures had been installed to mitigate the erosion. Two property owners indicated that the erosion was not an issue and they had not installed preventative measures.

The third property owner acknowledged that erosion was a large issue on the site (75 Sackville Cross Road). This property has lost approximately 10 to 15 feet of grassy picnic area alongside the river, and erosion now threatens the parking area for the apartment building. No preventative measures had been installed to reduce erosion. The high cost of installing erosion prevention measures on this site has been prohibitive to the property owner.

ENVIRONMENTAL IMPLICATIONS

There are no environmental implications associated with the recommendation contained within this report.

ALTERNATIVES

¹ Nova Scotia Environment -- Activities Designation Regulations, 2014

Regional Council could direct that staff report to the Environment and Sustainability Standing Committee on measures to enhance the municipal role for erosion control. This is not recommended as the Municipality does not have the mandate or the authority to expend money on erosion control on private property. Whereas the issue of shoreline erosion and the risk to existing development along watercourses is broader than just the three subject properties, a unilateral municipal solution is not recommended.

ATTACHMENTS

Attachment A: Map 1 - Context

Attachment B: Photos from Site Visit April 7/17

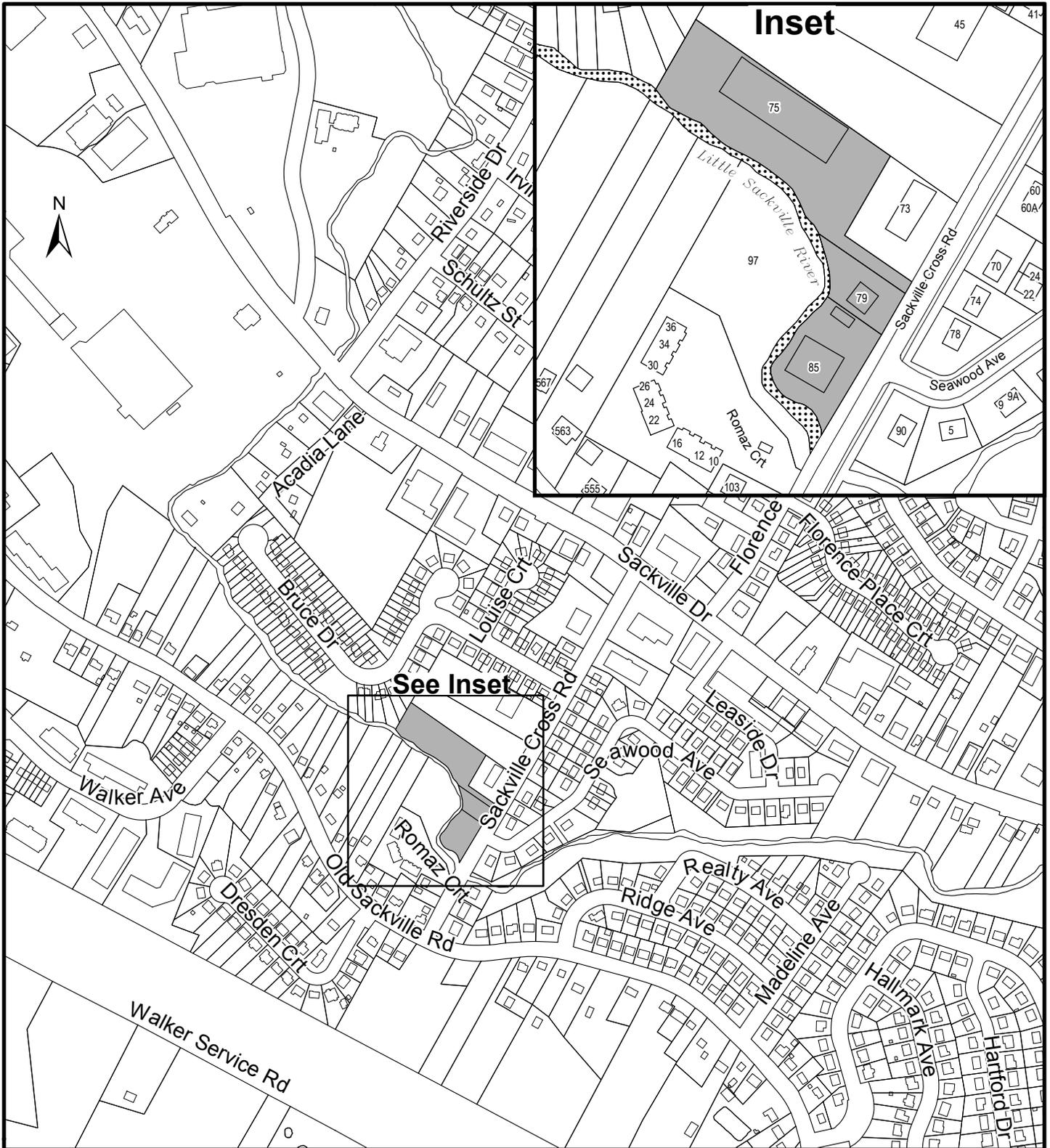
Attachment C: Excerpt of Watercourse Alternation Requirements from NS Environment

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Siobhan Witherbee, Planner I, Regional and Community Policy

Report Approved by: Shannon Miedema, Energy & Environment Program Manager, 902.490.3665

Report Approved by: Kelly Denty, Acting Director Planning and Development, 902.490.4800



Map 1

75, 79 and 85 Sackville Cross Road
Sackville

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 Subject Properties



Sackville
Plan Area

The accuracy of any representation on this plan is not guaranteed.

Attachment B: Building Official Site Visit Photos April 7, 2017



Figure 1: 75 Sackville Cross Rd



Figure 2: 75 Sackville Cross Rd



Figure 3: 79 Sackville Cross Rd



Figure 4: 85 Sackville Cross Rd



Figure 5: 85 Sackville Cross Rd



Figure 6: 85 Sackville Cross Rd



Figure 7: 85 Sackville Cross Rd

Attachment C: Nova Scotia Watercourse Alterations Standard (2015) Excerpt

10.0 Erosion protection of bank of watercourse

- a) Prior to the placement of erosion protection material (rip rap), banks are to be graded to a uniform slope not to exceed a 2:1 horizontal to vertical slope. Erosion protection materials must be installed, after preparation of the bank, below the thalweg of the watercourse, sized based on the calculated velocity of the stream (see table 1), and installed to minimum thickness of 1.5 times the maximum stone size.
- b) Erosion protection material (rip rap) must not encroach upon the channel or be placed on the bed of the watercourse beyond the thickness of the largest rip-rap size required.
- c) The placement of the erosion protection material shall be carried out starting at the upstream end.
- d) Rip-rap must be placed by hand or by machinery that is positioned outside the watercourse or in isolation of stream flow. Rip-rap shall be carefully fitted along the watercourse to prevent scouring and bank failure.

Table 1: Rip rap stone size chart

Class 1	1:100 year flow velocity up to and including 3 m per second	At least 70% of the rip-rap must be between 0.3 m and 0.45 m
Class 2	1:100 year flow velocity greater than 3 m per second and up to 4 m per second	At least 70% of the rip-rap must be between 0.3 m and 0.75m
Class 3	1:100 year flow velocity above and including 4 m per second	At least 70% of the rip-rap must be between 0.5m and 1.2m

Full document is available at the following address:

<https://novascotia.ca/nse/watercourse-alteration/docs/Watercourse-Alterations-Standard.pdf>