

MEMO

DATE	December 15, 2023	PROJECT NO.	2217-6286
RE	Salt Management Plan 109, 115, & 133 Bridgeport Road East & 30 Weber Street North, City of Waterloo		
TO	Region of Waterloo 150 Frederick Street Kitchener, ON N2G 4J3		
FROM	Jurgen Koehler, P.Eng. C.F. Crozier & Associates Inc.		
CC	Trevor Hawkins, M.PL, MCIP, RPP MHBC Planning, Urban Design & Landscape Architecture		

1.0 Introduction

C.F. Crozier & Associated Inc. (Crozier) was retained by Schembri Group of Companies to prepare a Salt Management Plan in support of the Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) for the site located at 109, 115, and 133 Bridgeport Road East and 30 Weber Street North in the City of Waterloo. The subject lands cover an area of approximately 1.25 ha and currently consists of two commercial buildings, one residential dwelling, internal at-grade parking lot, landscaped areas, and paved access to Bridgeport Road East, Weber Street North, and Royal Street. The site, located in a mixed-use commercial area in the City of Waterloo, is bounded by Bridgeport Road East to the north, Weber Street North to the west, Royal Street to the south, and residential lands to the east.

According to the Site Plan prepared by ABA Architects Inc. dated November 27, 2023, the proposed development will consist of the following elements:

- Three residential towers atop a shared podium rising to 35 (Building A), 24 (Building B), and 19 (Building C) storeys, respectively. The residential building will consist of commercial area (645 sq.m.), residential units (706 units), and above-ground parking spaces (619 spaces).
- An 8-storey parking structure (Building D).
- Three (3) site access points; two from Bridgeport Road East and one from Royal Street.
- A 6.1 m internal roadway complete with parking and loading areas.
- Amenity and associated landscaped areas.

The existing commercial buildings, residential dwelling, at-grade parking, and site access points will be demolished to accommodate the proposed mixed-use development.

This plan has been prepared to review the site design, considering the impact of road salt application on the local environment. This plan suggests practical methods of winter maintenance that will help limit sodium and chloride concentrations in the water supply.

2.0 Identification of Traffic Areas and Sensitive Features

The proposed development consists of a mixed-use residential building, parking garage, 6.1 m wide internal roadway, and associated parking and loading areas. The site is accessed by two entrances from Bridgeport Road East and one entrance from Royal Street. The internal roadways are proposed to be paved surfaces with adequate storm drainage infrastructure, directing drainage to the existing storm sewers on Royal Street. It should be noted that a portion of the central roadway is covered by the proposed building. All sidewalks and entrances to the site are anticipated to experience high pedestrian and vehicles usage, respectively.

Existing fire hydrants are located along the development property limits. Hydrants should remain free of obstructions (i.e., snow) for a minimum of 1-meter radius. The Owner shall ensure snowfall from the entrances and sidewalks does not accumulate around the existing fire hydrants and snow is removed around the hydrants on an as needed basis. The same applies for stop signs located at site entrances.

Special snow removal considerations will be applied to the sensitive areas described above to ensure snow removal and salt management are complete in accordance with this plan. Please refer to the attached Winter Maintenance Plan (Figure 1) for the proposed site layout.

3.0 Identification of Snow-Storage/Disposal Areas

Based on the Site Plan (ABA Architects Inc. dated November 27, 2023), most of the site is covered by building rooftops and a minimal volume of snow will fall onto internal roadways and sidewalks. The snow management operations for the site propose that snow be stored within the landscaped areas during minor snowfall events and removed off-site during major snowfall events. The potential locations for snow storage are indicated on the Winter Maintenance Plan (Figure 1). Snow storage will primarily take place along the landscaped areas of the property where meltwater can be directed towards the internal drainage swales and storm sewer system, ultimately discharging to the existing storm sewer on Royal Street. The areas designated for snow storage removal are anticipated to have sufficient space to store minor snow events.

4.0 Use of Alternative Products

Numerous ice control/winter maintenance products are currently available as alternatives to road salts. These do not utilize chloride dissolution to melt ice and therefore, minimize the potential release of sodium and chloride in meltwater. These alternative products are manufactured from bio-degradable sources and use ionization principles to inhibit ice and snow bonding to asphalt.

However, since these technologies are relatively new, they are more expensive than rock salt. It is also difficult to compare product performance since some of these products have not been used consistently for long periods of time.

A winter maintenance contractor that is "Smart about Salt" certified could help compare and assess the effectiveness of each alternative product available. This individual would be familiar with the various options as well as the maintenance measures required for each of them. The Owner will be able to decide if the use of an alternative product is feasible within the project budget. Recommendations for a maintenance contractor will be made available to the Owner upon request.

5.0 Engineered Measures

Site grading has been designed to ensure all runoff from the site is directed towards the catch basins and captured in the internal storm sewer system. Effective drainage will reduce ice formation and subsequent salt application. All catch basins shall be inspected and maintained regularly to ensure that runoff can be captured.

Roof runoff will drain through connected roof leaders to the internal storm sewer system prior to discharging to the existing storm sewer on Royal Street. Building downspouts will not outlet to sidewalks, pedestrian areas, or towards vehicular traffic. Ice formation and subsequent salt application is expected to reduce with the direction of rooftop runoff towards the internal stormwater system.

6.0 Operational Measures

Snow Removal/Disposal

As indicated on the Winter Maintenance Plan (Figure 1), there are designated areas on site for bulk snow storage during the minor snowfall event. The primary snow control method to be implemented is the timely removal of snow and ice from the internal roadway and pedestrian walkways. This snow is to be stored at the identified locations during minor snowfall events and trucked off-site during major snowfall events. Entrances to the site and the commercial pedestrian accesses will be permitted for road salt use to ensure safe vehicle and pedestrian access, respectively. It is imperative that the snow be removed from the site in a timely manner to prevent uncontrolled snow melt from occurring and reducing the opportunity for emergency salt application. Timing for snow removal/disposal should be discussed with the certified salt maintenance contractor prior to implementation.

De-icing Agents

Private site developments are significant sources of increased chloride levels in runoff during winter and spring due to the overuse of road salts. Road salt, or sodium chloride, has an effective temperature range for melting ice between +4°C and -1°C. Application of road salt outside this temperature range should be avoided. Salt application rates usually range from 15 to 39 grams per square meter. This application rate will not be exceeded in areas that require salting. Proper road salt application machinery will be required and calibrated to apply the ice control products at a specified, controlled application rate. Application tracking worksheets should be used to track the overall de-icing agent usage on site particularly for those products that may release sodium and chloride.

Road salt will be limited on the site's internal roadways and sidewalks except for the three roadway entrances located off Bridgeport Road East and Royal Street, and commercial pedestrian access off Weber Street. Shoveling walkways, ploughing roadways, and the use of

salt alternatives are the suggested methods for ice control within the internal roadway, parking areas, and walkways on site. It is recommended to hire a winter maintenance contractor who is familiar with various application methods, rates, and salt management reduction practices. Contractors should be aware of the appropriate guidelines and the potential impacts of excessive salt application.

Monitoring Program

Implementing a winter operation monitoring program is essential to ensure the effectiveness of this Salt Management Plan. It is recommended that both the Owner and maintenance contractor review winter operations annually to maintain efforts to reduce salt application on site and demonstrate adherence to the operations plan. The Owner and maintenance contractor should also monitor and evaluate the usage of road salt and alternative products during the winter season. Monitoring results should be reviewed after each season to identify deficiencies with current operations and opportunities to make improvements for more effective winter operations.

7.0 Summary

The proposed Salt Management Plan aims to reduce the use of road salt on the property to minimize infiltration of the salt into the subsurface. The site has been designed to drain runoff into the internal storm sewer system and outlet to the storm sewers located within Royal Street. Snow removal/disposal methods shall be implemented accordingly. De-icing agents should be used at appropriate application rates and tracked on a regular basis during the winter season. Although this plan is an attempt to limit the application of road salt, it should be noted that individual safety takes priority. During extreme weather events, the winter maintenance contractor should use their best judgement to ensure that sufficient ice/snow control is provided for the safety of all individuals at the site.

The Owner and maintenance contractor should be aware of this report and of the various salt management practices for winter maintenance. The implementation of this plan will help prevent the environmental impacts of excessive salt application and identify opportunities for more effective winter maintenance to ensure long term chlorine reduction for this site.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.



Amanda Pinto, P.Eng.
Project Manager

AP/MM/rl

C.F. CROZIER & ASSOCIATES INC.



Jurgen Koehler, P.Eng.
Associate, Land Development

Encl. Winter Maintenance Plan (Figure 1)

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LEGEND

- Winter Maintenance - Proposed Snow Storage Areas
- Privately Maintained - Parking Areas, Roadways, and Sidewalks (Limited Salt Use Permitted)
- Privately Maintained - Site Entrances (Salt Use Permitted)

Note: This figure is based on the Site Plan prepared by ABA Architects Inc. dated November 27, 2023 and is for schematic purposes only.



CFCA Project No.
2217-6286
Date: 12/15/2023
Drawn By: MM
Checked By: AP/JRK

109, 115, & 133 Bridgeport Road
East & 30 Weber Street North
Winter Maintenance Plan

SCALE
N.T.S.
SHEET SIZE
11 X 17
PROJECT NUMBER
2217-6286
DRAWING NUMBER
FIGURE 1

