



Technical Memorandum for 1004 Maplevue Drive East (Block 211) Site-Specific Phosphorus Budget

Date: July 5, 2023 **Project No.:** 300039296.0010

Project Name: Maplevue Park - Block 211

Client Name: 970 Maplevue Inc.
Michele Freethy (City of Barrie)

Submitted To: Shawn Filson (LSRCA)
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Submitted By: Melissa Haw

Reviewed By: Sam Webb, P.Eng

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by 970 Maplevue Inc. to prepare a Phosphorus Budget in support of a proposed residential and commercial development on Block 211 at 1004 Maplevue Drive East in the city of Barrie. The subject site is approximately 1.73 ha and is located on the northeast side of the intersection at Terry Fox Drive and Maplevue Drive East in the city of Barrie. The site is located within the Hewitt's Creek Secondary Plan Area, and within the Sandy Cove Creek Sub-Watershed.

The proposed project includes a total of 11 buildings with a total of 127 townhouse units with entrances on Terry Fox Drive. It should be noted that all proposed storm infrastructure will connect to the existing infrastructure along Terry Fox Drive constructed with the subdivision works.

This memo has been prepared to support the site plan application for the subject development by demonstrating that the site achieves a minimum 80% reduction of total annual phosphorus loadings in accordance with the Lake Simcoe Conservation Authority (LSRCA) Stormwater (SWM) Technical Guidelines as well as having post- to pre-development phosphorus loading control in accordance with the LSRCA Phosphorus Offsetting Policy.

2.0 Phosphorus Control

Subject site criteria for stormwater phosphorus treatment follows Section 3.3.2 of the LSRCA SWM Guidelines, which requires the removal of 80% of the annual Total Phosphorus (TP) load from all major development areas.

An initial analysis was conducted as part of the 970 Mapleview – SWM Facility 14 Stormwater Management Report (SWMR14), completed by Burnside in 2021. In this initial analysis, Block 211 was assumed to be high-density commercial land use with an area of 1.73 ha. This site-specific analysis has been prepared in support of the Site Plan Application for the subject block. The Ministry of Environment, Conservation and Parks (MECP) Phosphorus Budget Tool developed by Hutchinson Environmental Sciences Limited (V2.0 Release Update – March 30, 2012) was utilized to remain consistent with the previously approved SWMR14.

The pre-development loading for Block 211 itself was determined to be 0.33 kg/yr utilizing the cropland land-use consistent with the SWMR14 and the Hewitt's Subwatershed Impact Study (SIS). The post-development unmitigated loading was found to be 2.28 kg/yr utilizing the high-density residential land-use. It should be noted that the high-density residential has a lower phosphorus loading coefficient than the previously assumed high-density commercial land-use.

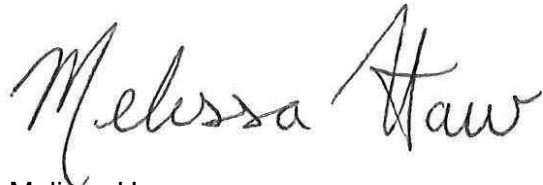
Since this site plan area was accounted for within SWM Facility 14, and under the proposed conditions is still tributary to SWM Facility 14, the same treatment train was utilized. The treatment train consists of a Jellyfish Unit with 59% TP removal, the wet pond itself with 60% TP removal, and then the infiltration component of the facility with 99% TP removal. This treatment train results in a total of 99.8% TP removal. Therefore, the mitigated post-development phosphorus loading is 0.00 kg/yr, which meets our pre-development target of 0.33 kg/yr. Please refer to the attached phosphorus loading calculations for more details.

Due to the fact that the post-development mitigated loading is less than the pre-development loading, the Phosphorus Offsetting Policy does not apply.

3.0 Conclusion

This Site-Specific Phosphorus Budget was prepared to demonstrate that the site plan located at 1004 Mapleview Drive East meets the requirements of the LSRCA and the City of Barrie.

R.J. Burnside & Associates Limited



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Sam Webb
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Enclosure(s) Phosphorus Budget – Project Development Summary

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Project DEVELOPMENT Summary

DEVELOPMENT: Block 211 - 970 Mapleview
Subwatershed: Innisfil Creeks

Total Pre-Development Area (ha): **1.7300** Total Pre-Development Phosphorus Load (kg/yr): **0.33**

Pre-Development Land Use	Area (ha)	P coeff. (kg/ha)	P Load (kg/yr)
Cropland	1.73	0.19	0.33

POST-DEVELOPMENT LOAD

Post-Development Land Use	Area (ha)	P coeff. (kg/ha)	Best Management Practice applied with P Removal Efficiency	P Load (kg/yr)
High Intensity - Residential	1.73	1.32	Other 100%	0.00

Treatment train product of residual calculation Jelyfish Unit @ 59%, Wetpond @ 60% then infiltration @ 99%

Post-Development Area Altered:	1.73		P Load (kg/yr)
Total Pre-Development Area:	1.73		
Unaffected Area:	0		
		Pre-Development:	0.33
		Post-Development:	2.28
		Change (Pre - Post):	-1.95
		595% Net Increase in Load	
		Post-Development (with BMPs):	0.00
		Change (Pre - Post):	0.33
		100% Net Reduction in Load	

DEVELOPMENT: Block 211 - 970 Mapleview

Subwatershed: Innisfil Creeks

CONSTRUCTION PHASE LOAD

	P Load (kg/yr)
SUMMARY WITH IMPLEMENTATION OF BMPs	
Pre-Development:	0.33
Construction Phase Amortized Over 8 Years :	to be determined
Post-Development:	0.00
Post-Development + Amortized Construction:	to be determined
Pre-Development Load - Post-Development Load:	0.33
Conclusion:	100% Reduction in Load
Pre-Development Load - (Post-Development + Amortized Construction Load):	to be determined
Conclusion:	to be determined
Based on a comparison of Pre-Development and Post-Development loads, and in consideration of Construction Phase loads, the Ministry would encourage the Municipality to:	