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RVA 237324

January 29, 2024

City of Greater Sudbury
200 Brady Street
Sudbury Ontario, P3A 5P3

Attention: Linda Harnish, Subdivision/ Site Plan Control Officer

Dear Linda Harnish:

Re: Rockwood Townhomes Development
Draft Preliminary Stormwater Management Plan – Quality Control

R.V. Anderson Associates Limited (RVA) has been retained by Dalron to prepare a Stormwater management (SWM) Plan for the proposed 0.66 ha drainage area of the proposed Rockwood Townhomes subdivision along the existing Rockwood drive, which drains to the Countryside Stormwater Management Pond for quantity control.

OBJECTIVE

The objective of this report is to develop a stormwater management plan for the development by evaluating stormwater best management practices (BMP) to mitigate increased stormwater runoff due to the proposed development. The SWM plan will address the following:

1. Policies and requirements of local municipal and governing regulatory agencies,
2. External infrastructure and environmental constraints of the subject area, and
3. Pre-development and post-development conditions of the subject area.

BACKGROUND

The subject area is 0.66 ha of undeveloped lands, owned by Dalron. The proposed work includes the development of four (4) new R3 lots, with between six (6) and eight (8) townhomes on each lot. These lots are situated in the Panache watershed of the Panache Lake basin, identified as a Priority watershed in the Stormwater Background Study to the City's Official Plan (Earth Tech Canada Inc., January 2006).

CRITERIA

The Rockwood subdivision area is situated in the jurisdiction of the City of Greater Sudbury (City), Conservation Sudbury (CS) and the Ontario Ministry of Environment, Conservation and Parks (MECP). SWM planning is conducted in conformance with the City's Engineering Services

Division – CGS Supplemental Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains (December 2022), Stormwater Management Guide DRAFT (April 18, 2023), the Stormwater Background to the City's Official Plan (Earth Tech, January 2006) and the Stormwater Management Planning and Design Manual (MECP, 2003).

The Stormwater Background Study to the City's Official Plan refers to several issues related to stormwater in this area, as part of the Panache Watershed. The City notes the following Primary Stormwater Issues:

- Impact upon water quality due to uncontrolled stormwater discharges from existing urban areas;
- Poor water quality (high Nutrient Levels) in McFarlane Lake likely due to the use of lawn fertilizers in urban areas, wastewater treatment plant effluent, and the use of septic systems;
- Freeze on creating of new unserviced lots on McFarlane Lake due to poor water quality;
- Growth Potential will require stormwater quantity and quality control;
- Winter salting of roads; and
- High potential for flooding in urbanized portion of the watershed, due to development and existing stormwater infrastructure.

The City notes Alternative Stormwater Management Strategies, which include the following:

- Provide source control by reducing rate and volume of runoff on-site;
- Construct stormwater management facilities to provide storage for quantity and/or quality management;
- Undertake conveyance system modifications; and
- Implement stormwater quality management policies and outreach programs.

Based on a review of the above guidelines, applicable policies and discussions with the City, the SWM criteria that apply to this site are:

1. Promotion of opportunities to maximize onsite retention of storm through lot level controls and best management practices.
2. Enhanced (80% Total Suspended Solids (TSS) removal efficiency) quality protection.

Quantity control is not a requirement of this report as it was implemented by the Countryside Stormwater Management Pond constructed in 2018.

CATCHMENT AREAS

Under existing and proposed conditions, stormwater runoff from the Rockwood subdivision area will inlet to the Rockwood storm sewer and flow to the Countryside Stormwater Management Pond. For stormwater quality control purposes, the Rockwood subdivision was split into two separate catchment areas. A drainage area of 0.49 ha will flow via swales and driveway culverts

to MH 103, and a drainage area of 0.17 ha will flow to MH 101. Both sub-catchments have an estimated runoff coefficient of 0.75, based on the Ministry of Transportation (MTO) Drainage Management Manual. The quality control sub-catchments are shown in Figure 1 in Appendix A.

Table 1: Sub catchment Delineation Parameters

Sub-catchment	Area (ha)	Runoff Coefficient
101	0.17	0.75
103	0.49	0.75
	Total = 0.66 ha	Weighted Avg. = 0.75

STORMWATER QUALITY

Stormwater quality criteria will be satisfied using two Stormceptor oil/grit separator units. Proposed MH 101 and MH 103 will be Stormceptor units with grate inlets. PCSWMM for Stormceptors was used to determine the required stormceptor size to achieve 80% Total Suspended Solids (TSS) removal for each of the two drainage areas. The Stormceptor System model EF 4 was chosen for both areas to achieve this water quality control objective, and the Stormceptor Design Summaries are provided in Appendix B.

DISCUSSION AND CONCLUSIONS

A review of the local hydrologic conditions indicates that:

- Two (2) Stormceptor EF system models EF4 will provide quality control for the subject site.

We trust that the discussion above satisfies the City's requirements. If you have any questions or would like to discuss the above, please contact our office at your convenience.

Yours very truly,

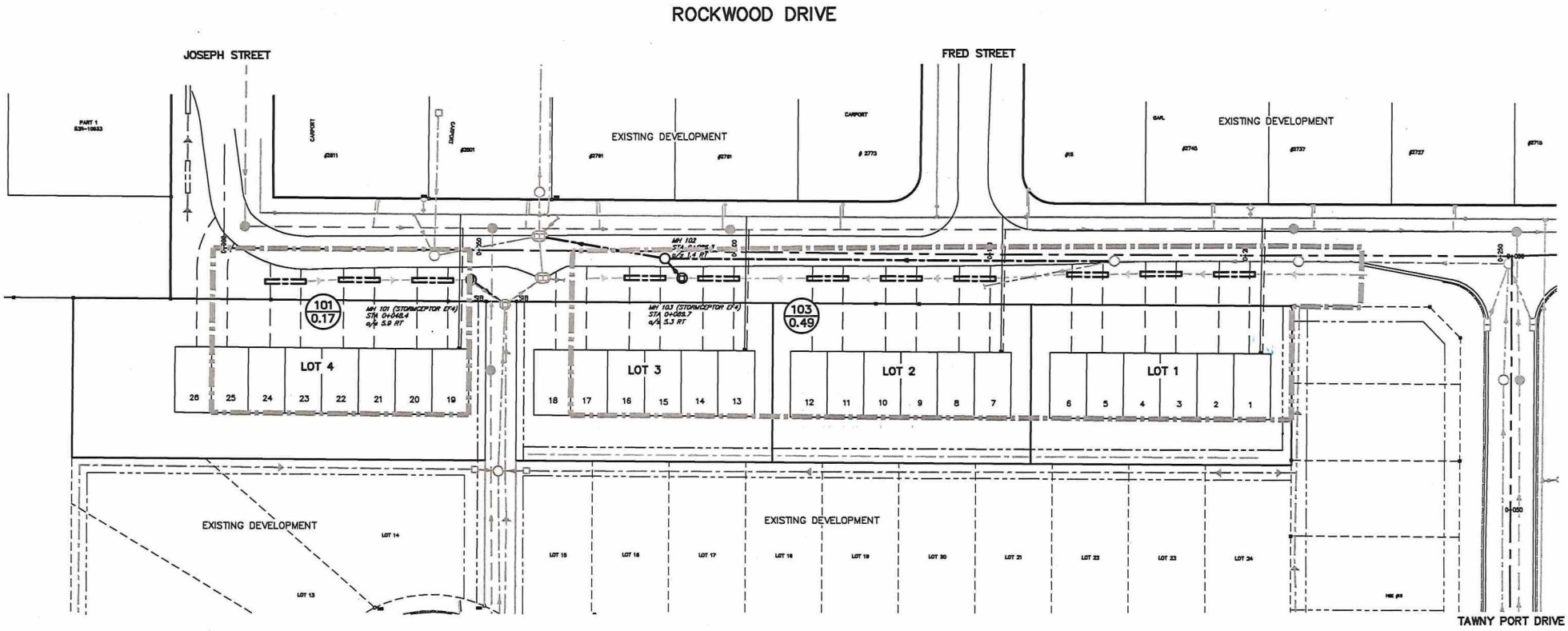
R.V. ANDERSON ASSOCIATES LIMITED

Digitally signed by Andrea Penny, P.Eng., M.A.Sc.
DN: cn=Andrea Penny, P.Eng., M.A.Sc., c=CA, o=R.V. Anderson Associates Limited, ou=Sudbury Office, email=apenny@rvanderson.com
Reason: I am the author of this document
Date: 2024.01.29 13:12:58 -05'00'

Andrea Penny, P.Eng., M.A.Sc., ENV SP
Associate, Project Manager

APPENDIX A

FIGURE 1



4.0m 0 8.0m 16m

1:400

REVISIONS		
DATE	DETAILS	BY

CAUTION

- ALL UTILITIES ARE NOT NECESSARILY SHOWN ON THIS DRAWING.
- WHERE UTILITIES ARE SHOWN, LOCATIONS ARE NOT GUARANTEED
- LOCATION & SIZE OF ALL UTILITIES MUST BE VERIFIED IN THE FIELD.

DATE:	2023-11-29
DRAWN:	LZ
DESIGNED:	
CHECKED:	
ENGINEER:	
APPROVED:	

Dalron

R.V. ANDERSON ASSOCIATES LIMITED
Innovative solutions for complex challenges

ROCKWOOD DRIVE
SWM QUALITY CATCHMENT AREAS
VINTAGE GREEN SUBDIVISION

SCALE:	1:400
CONTRACT NO.:	
CAD/FILE NUMBER:	237324
PAGE NO.:	

APPENDIX B

STORMCEPTOR DESIGN SUMMARY

Project Summary Report: Rockwood Stormceptor Sizing

Project Information & Location			
Project Name	Rockwood	**Project Number**	237324
City	Sudbury	**State/ Province**	Ontario
Country	Canada	**Date**	1/19/2024
Designer Information		**EOR Information (optional)**	
Name	Makenzy Arsenault	**Name**	
Company	R.V. Anderson Associates Limited	**Company**	
Phone #	905-442-2588	**Phone #**	
Email	marsenault@rvanderson.com	**Email**	

Stormwater Treatment Recommendation
The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Project Summary						
Site Name	**Drainage Area (ha)**	**Imperviousness %**	**PSD**	**Target TSS Removal (%)**	**TSS Removal (%) Provided**	**Recommended Model**
Rockwood OGS 1 - North	0.49	0.75		80	88	EF4

Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
- For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

Project Summary Report: Rockwood 2 Stormceptor Sizing

Project Information & Location			
Project Name	Rockwood 2	**Project Number**	237324
City	Sudbury	**State/ Province**	Ontario
Country	Canada	**Date**	1/22/2024
Designer Information		**EOR Information (optional)**	
Name	Makenzy Arsenault	**Name**	
Company	R.V. Anderson Associates Limited	**Company**	
Phone #	905-442-2588	**Phone #**	
Email	marsenault@rvanderson.com	**Email**	

Stormwater Treatment Recommendation
The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Project Summary						
Site Name	**Drainage Area (ha)**	**Imperviousness %**	**PSD**	**Target TSS Removal (%)**	**TSS Removal (%) Provided**	**Recommended Model**
Rockwood OGS 2 - South	0.17	0.75		80	97	EF4

Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
- For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.