

re: **Site Servicing Plan Review**
Proposed Multi-Storey Buildings
Greystone Village - Phase 3 - Scholastic Drive - Ottawa
to: Regional Group - Mr. Evan Garfinkel - egarfinkel@regionalgroup.com
date: June 6, 2022
file: PG5383-MEMO.03 Revision 1

Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to document our review of the site servicing plans, and to provide associated recommendations from a geotechnical perspective for the aforementioned project. The following memorandum should be read in conjunction with the current Geotechnical Investigation Report (Paterson Group Report PG5383-1 Revision 1, dated March 9, 2022).

Background Information

Based on the above noted geotechnical investigation, the subsurface profile across the subject site consists of topsoil underlain by fill, followed by a hard to very stiff grey/brown silty clay deposit which transitions to a stiff grey silty clay below approximate depths of 2.5 to 4.5 m. The silty clay is further underlain by a silty sand.

Site Servicing Plan Review

Paterson reviewed the following drawings prepared by Novatech for the aforementioned development as part of this review:

- ☐ General Plan of Servicing - Greystone Village Phase 3 - Project No. 114025-PH3 - Drawing No. 114025-GP(PH3) - Revision 8, dated June 3, 2022.

Based on our review of the site servicing plan, insufficient frost protection has been provided to sections of the storm and/or sanitary services which are noted to tie into the existing services located along Scholastic Drive and Deschatelets Avenue.

Specifically, the storm services located at the eastern portion of the site, tying into the services along Scholastic Drive, as well as the storm and sanitary services (invert elevation = 61.42 m) located within the southeast corner of the site and tying into the existing services along Deschatelets Avenue, will be founded within the frost zone (i.e. approximately 2.1 m below the finished grade). Refer to Figure 1, attached to the current memorandum, which illustrates these approximate locations. Frost protection of the site servicing is recommended where insufficient frost cover has been provided.

Geotechnical Recommendations

Any portion of the services installed at a depth of 2.1 m below finished grade or deeper is considered to have sufficient soil cover for frost protection. However, based on our review, the aforementioned sections of site servicing and their subgrades are anticipated to be founded within the frost zone. Where insufficient soil cover is present above the obvert of the pipe, the following frost protection criteria should be followed:

Table 1 - Rigid Insulation Recommendations for Sewer Pipes with Reduced Soil Cover			
Thermal Condition	Soil Cover Provided (mm)	Insulation Dimensions	
		Thickness (mm)	Extension (mm)
Unheated	1200 to 1500	50	Extend 900 mm horizontally beyond edge face of the sewer
	1500 to 1800	25	Extend 600 mm horizontally beyond edge face of the sewer
	1800 to <2100	25	Extend 300 mm horizontally beyond edge face of the sewer
Notes: All designs are based on a freezing index of 1000°C-days			

Table 2 - Rigid Insulation Recommendations for Water Service Pipes with Reduced Soil Cover			
Water Pipe	Soil Cover Provided (mm)	Insulation Dimensions	
		Thickness (mm)	Extension (mm)
Watermain	2000 to <2100	50	Boxed or Extend 500 mm horizontally beyond edge face of the water pipe
		Pipe Insulation Details	
Water Service Laterals	1800 to <2100	150 mm thick Foamular XPS Pipe Insulation	
Notes: All designs are based on a freezing index of 1000°C-days			

All rigid insulation should consist of either Dow Chemical High-Load 40 (HI-40), Styro Rail SR.P400, or equivalent approved by Paterson. The placement of all insulation within the service trenches must be reviewed and approved by Paterson personnel at the time of construction.

Further, to reduce long-term lowering of the groundwater level at, and in the vicinity of, the subject site, clay seals are recommended to be provided in the servicing trenches near the property boundaries.

The clay seals should be at least 1.5 m long (in the trench direction) and extend from trench wall to trench wall. Generally, the seals should extend from the frost line and fully penetrate the bedding, subbedding, and cover material. The barriers should consist of relatively dry and compactable brown silty clay placed in maximum 225 mm thick loose layers compacted to a minimum of 95% of the materials standard Proctor maximum dry density. The clay seals should be placed at the site boundaries and at strategic locations at no more than 50 m intervals in the service trenches.

We trust that this information satisfies your immediate requirements.

Best Regards,

Paterson Group Inc.



Kevin A. Pickard, EIT



Scott S. Dennis, P.Eng.

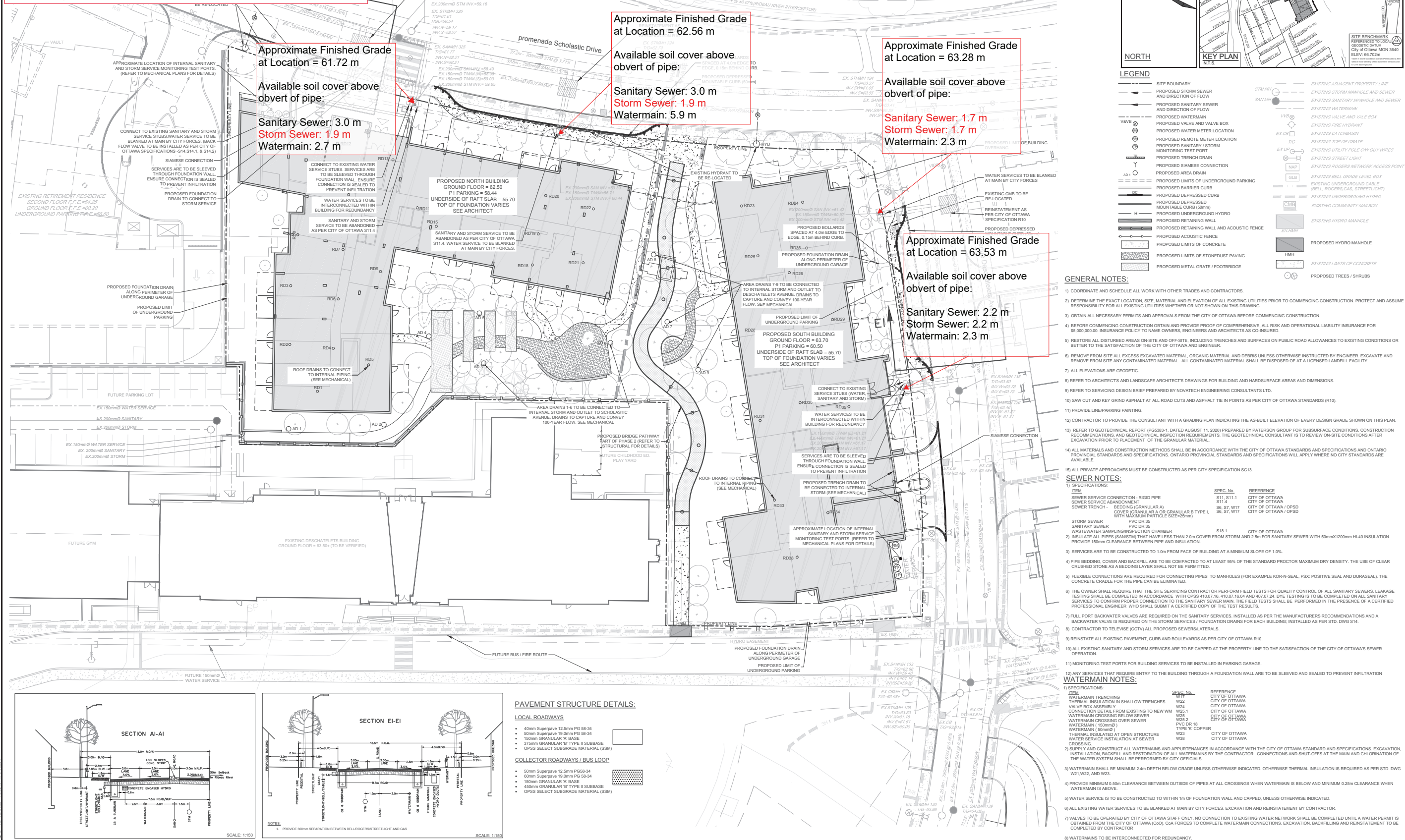
Paterson Group Inc.

Ottawa Head Office
154 Colonnade Road South
Ottawa – Ontario – K2E 7S8
Tel: (613) 226-7381

Ottawa Laboratory
28 Concourse Gate
Ottawa – Ontario – K2E 7T7
Tel: (613) 226-7381

Northern Office and Laboratory
63 Gibson Street
North Bay – Ontario – P1B 8Z4
Tel: (705) 472-5331

PG5383-MEMO.03 - FIGURE 1 Revision 1
SERVICES REQUIRING INSULATION
FOR FROST PROTECTION
June 6, 2022



NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS,
WATERMANS, SEWERS AND OTHER
UNDERGROUND AND OVERGROUND UTILITIES AND
STRUCTURES IS NOT NECESSARILY SHOWN ON
THE CONTRACT DRAWINGS, AND WHERE SHOWN,
THE ACCURACY OF THE POSITION OF SUCH
UTILITIES AND STRUCTURES IS NOT GUARANTEED.
BEFORE STARTING WORK, DETERMINE THE EXACT
LOCATION OF ALL SUCH UTILITIES AND
STRUCTURES AND ASSUME ALL LIABILITY FOR
DAMAGE TO THEM.

PRELIMINARY
NOT FOR
CONSTRUCTION

8	REVISED AS PER CITY OF OTTAWA COMMENTS	JUN 3/22	SAZ
7	ISSUED FOR COORDINATION	MAY 24/22	SAZ
6	ISSUED FOR COORDINATION	MAR 4/22	SAZ
5	ISSUED WITH SITE PLAN APPLICATION	JUL 22/21	JAG
4	ISSUED FOR INFORMATION	MAR 19/21	JAG
3	RE-ISSUED FOR COORDINATION	FEB 17/21	JAG
2	ISSUED FOR COORDINATION	DEC 4/20	JAG
1	ISSUED FOR DISCUSSION PURPOSES	DEC 2/20	JAG
No	REVISION	DATE	BY

SCALE	DESIGN
1:250	SAZ
0 2 4 6 8 10	MSP
	MTM
	SAZ
	MSP

FOR REVIEW ONLY



NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 2401 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone: (613) 254-9643
Facsimile: (613) 254-5867
Website: www.novatech-eng.com

LOCATION CITY OF OTTAWA GREYSTONE VILLAGE PHASE 3	DRAWING NAME GENERAL PLAN OF SERVICING
PROJECT NO. 114025-PH3	REV # 8 114025-GP(PH3)