



re: Groundwater Monitoring Program
Proposed Commercial Development
5505 & 5545 Albion Road – Ottawa

to: W.O Stinson & Sons Ltd – Keith Oster – KOster@wostinson.com

date: June 18, 2024 – Updated April 1, 2025

file: PH3645-MEMO.02 – Rev.01

Further to your request and authorization, Paterson Group (Paterson) conducted a groundwater monitoring program at the aforementioned site. This report should be read in conjunction with Paterson Report PG5485-1.

1.0 Background Information

A field program was carried out in September 2020 and April 2024, where ten (10) and five (5) boreholes were advanced to a maximum depth of 5.2 m and 9.75 m below existing ground surface (bgs). Of those ten boreholes from 2020, four had monitoring well installations (BH1, BH2, BH6 and BH9). On March 7, 2024 data loggers were installed in the monitoring wells to measure the groundwater levels including during the spring freshet. Paterson returned on June 4, 2024 to retrieve the groundwater level data. The monitoring wells were distributed in a manner to provide general coverage of the study area, taking into consideration existing site features.

Field Survey

The relevant borehole locations and ground surface elevations from the geotechnical investigation were measured using a high precision GPS. These boreholes are referenced to a geodetic datum. The location and ground surface elevation at each monitoring well location is presented on Drawing PG5485-1 – REV.03 - Test Hole Location Plan attached to the current memorandum.

Subsurface Profile

The subsurface profile at the borehole locations generally consisted of granular fill with topsoil followed by silty sand underlain by silty clay to clayey silt. The above noted layers are underlain by a glacial till with a silty sand to sandy silt matrix. Details of the subsurface profile can be found in the Soil Profile and Test Data Sheets attached to the current memo.



Monitoring Well Installation

Typical monitoring well construction details are described below:

- ☐ 1.5 to 3 m of slotted 51 mm diameter PVC screen at the base of the aforementioned boreholes.
- ☐ 51 mm diameter PVC riser pipe from the top of the screen to ground surface.
- ☐ No.3 silica sand backfill within annular space around screen.
- ☐ Bentonite hole plug placed directly above PVC slotted screen extending to the existing ground surface.
- ☐ The 51 mm diameter PVC riser extended above the ground surface was covered with a protective steel monitoring well casing.

Specific details of the installation of each monitoring well are further included in the Soil Profile and Test Data Sheets attached to the current report.

2.0 Groundwater Monitoring Program

The monitoring wells were equipped with a Van Essen Instrument Mini-Diver Water Level Logger on March 7, 2024, to accurately monitor fluctuations in the groundwater levels. In addition, a Van Essen Instruments Baro-Diver was installed in BH1 to monitor changes in atmospheric pressure. The Mini-Divers were programmed to continuously measure and record groundwater levels throughout the subject site at a rate of 1 reading every 6 hours.

The results of the groundwater fluctuations and correlated precipitation events for each monitoring well location between March 7 and June 4, 2024, have been summarized in Figure 1 through Figure 4 attached to the current report.

3.0 Groundwater Monitoring Results

The data presented in Figure 1 through Figure 4 illustrate the collected groundwater elevations between March 7 and June 4, 2024. The groundwater readings measured within the monitoring wells across the subject site varied from an elevation of 102.35 m asl to a maximum elevation of 103.58 m asl. The low and high groundwater elevation measurements at each monitoring well location is summarized in Table 1 below.



Based on our analysis of the data logger groundwater readings, seasonal groundwater fluctuations can be observed at each monitoring well location with a difference in elevation between the low and high readings ranging from 0.40 to 0.72 m. The low groundwater level across the site was noted at an average elevation of 102.61 m asl throughout the monitoring period. The high groundwater table across the site during this monitoring period was found to be at an average elevation of 103.15 m asl.

Table 1: Groundwater Monitoring Summary				
Monitoring Well ID	Ground Surface Elevation (m asl)	Low Groundwater Elevation (m asl)	High Groundwater Elevation (m asl)	Difference in Groundwater Elevation (m asl)
BH1	103.53	102.45	103.17	0.72
BH2	103.45	102.35	102.79	0.44
BH6	103.80	102.64	103.04	0.40
BH9	103.85	102.99	103.58	0.59

We trust that this information satisfies your requirements.

Best Regards,

Paterson Group Inc.

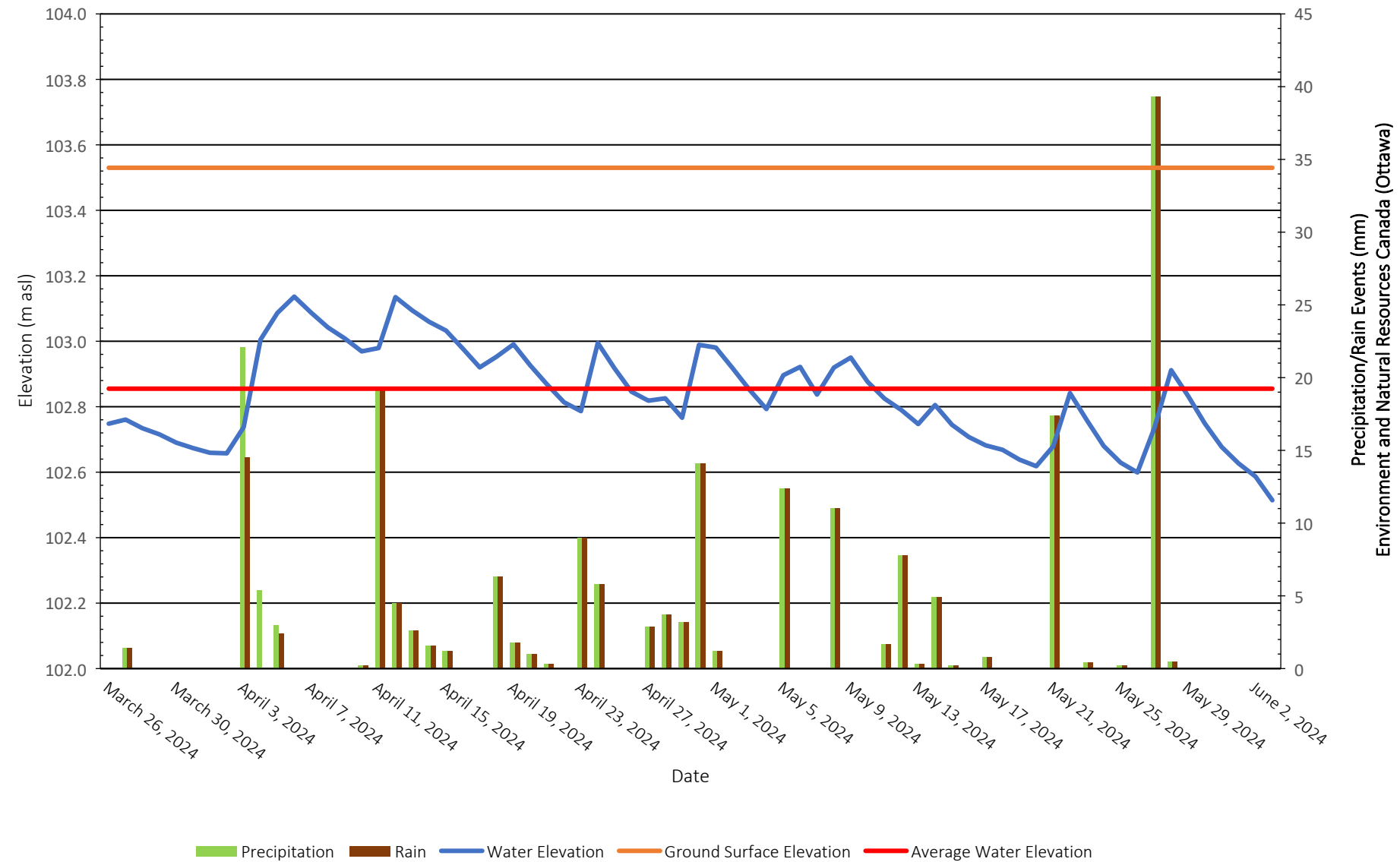
Michael Killam, P.Eng.

Attachments

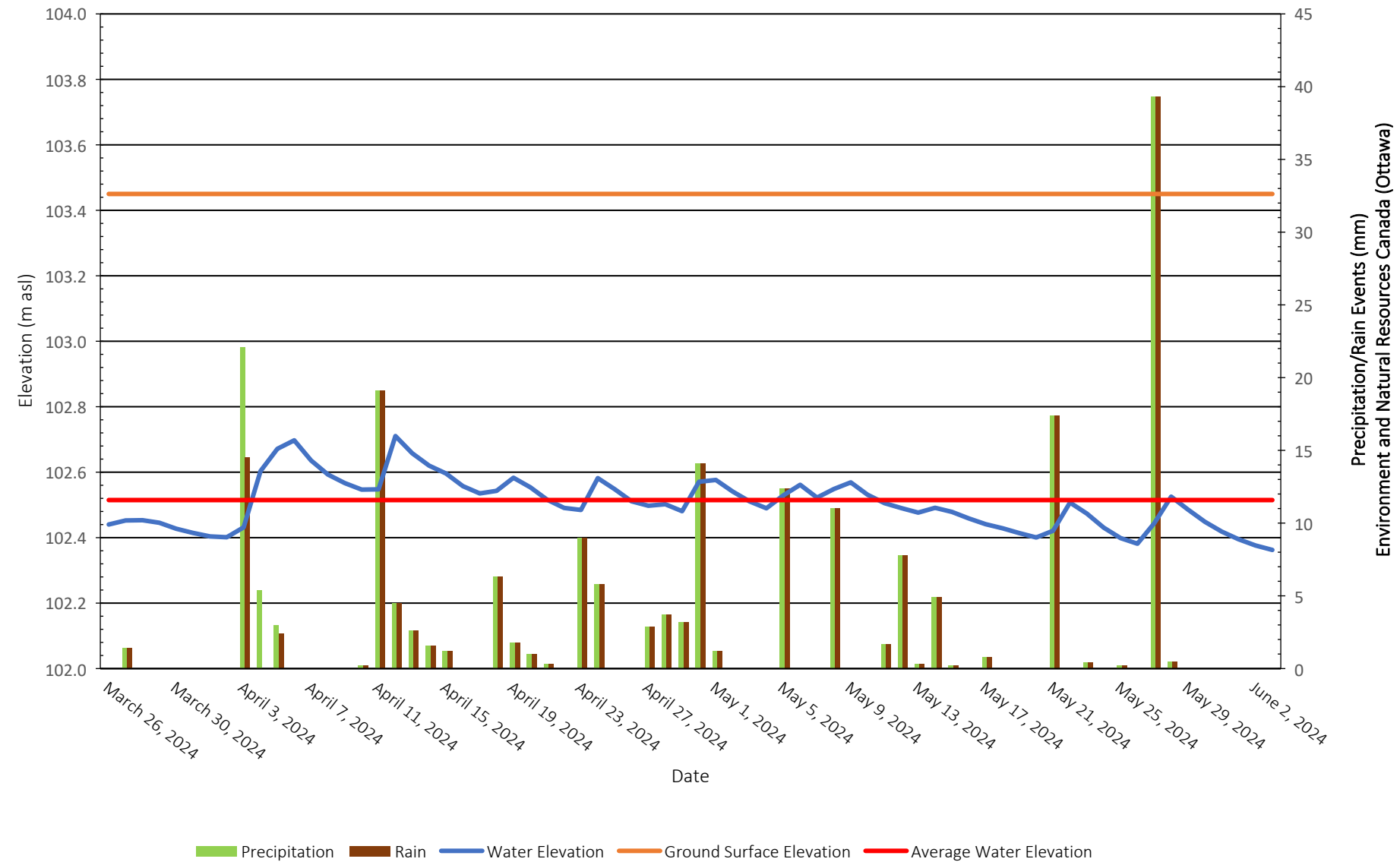
- ☐ Figure 1 to Figure 4 –Monitoring Well Water Elevations
- ☐ Monitoring Well Soil Profile and Test Data Sheets
- ☐ Drawing PG5485-1 – Test Hole Location Plan



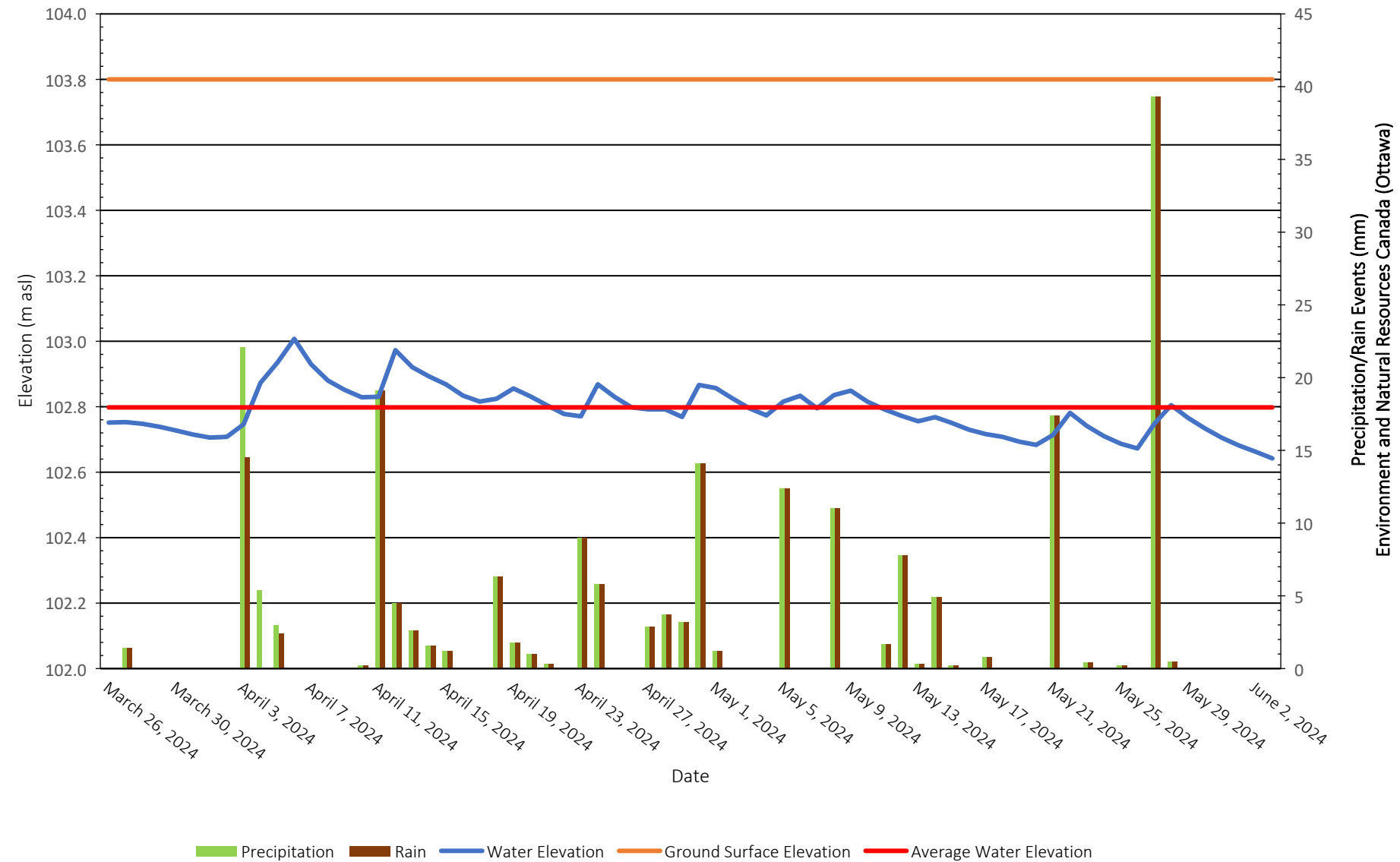
BH1 - Monitoring Well Water Elevations



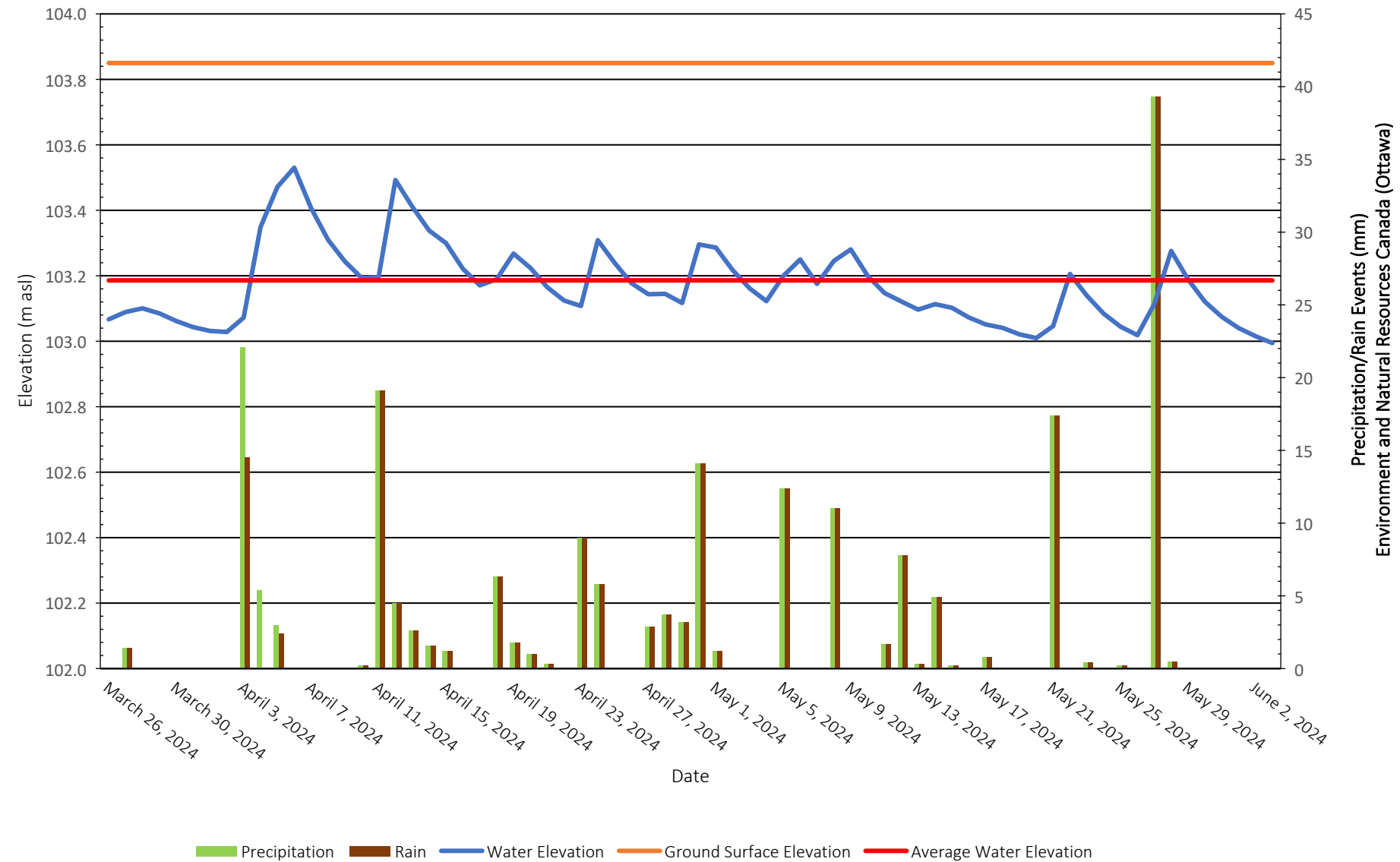
BH2 - Monitoring Well Water Elevations

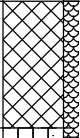
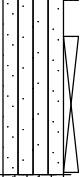
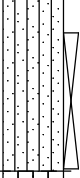
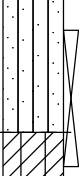
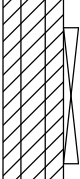




BH6 - Monitoring Well Water Elevations



BH9 - Monitoring Well Water Elevations



SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction	
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %					
								20	40	60	80		
GROUND SURFACE						0	103.53						
FILL: Brown silty sand, some crushed stone, trace organics		AU	1										
0.56													
Compact, light brown SILTY SAND		SS	2	46	12	1	102.53						
1.37													
Loose, grey SANDY SILT		SS	3	42	4								
2.13						2	101.53						
Loose, grey SILTY SAND		SS	4	96	6								
2.74													
Firm, grey SILTY CLAY		SS	5	33	2	3	100.53						
3.81													
End of Borehole													
								Shear Strength (kPa)					
								20	40	60	80	100	
								▲ Undisturbed △ Remoulded					

SOIL PROFILE AND TEST DATA

Geotechnical Investigation

Prop. Commercial Dev. - Albion Rd. at Mitch Owens Rd.
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE September 1, 2020

FILE NO.

PG5485

HOLE NO.

BH 2

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
FILL: Dark brown silty sand with crushed stone		AU	1			0	103.45					
0.60												
FILL: Brown silty sand, trace asphalt		SS	2	33	8	1	102.45					
		SS	3	29	5	2	101.45					
2.29												
Very loose, grey SILTY SAND		SS	4	54	2							
3.05						3	100.45					
Stiff, grey SILTY CLAY		SS	5	58	2							
4.11						4	99.45	△		▲		
Loose, grey SILTY SAND		SS	6	54	P							
4.42												
End of Borehole												
(GWL @ 1.17m - Sept. 11, 2020)												

SOIL PROFILE AND TEST DATA

**Prop. Commercial Dev. - Albion Rd. at Mitch Owens Rd.
Ottawa, Ontario**

FILE NO.

PG5485

HOLE NO.

BH 6

DATE September 1, 2020

[illegible]

SOIL PROFILE AND TEST DATA

**Prop. Commercial Dev. - Albion Rd. at Mitch Owens Rd.
Ottawa, Ontario**

FILE NO.

PG5485

HOLE NO.

BH 9

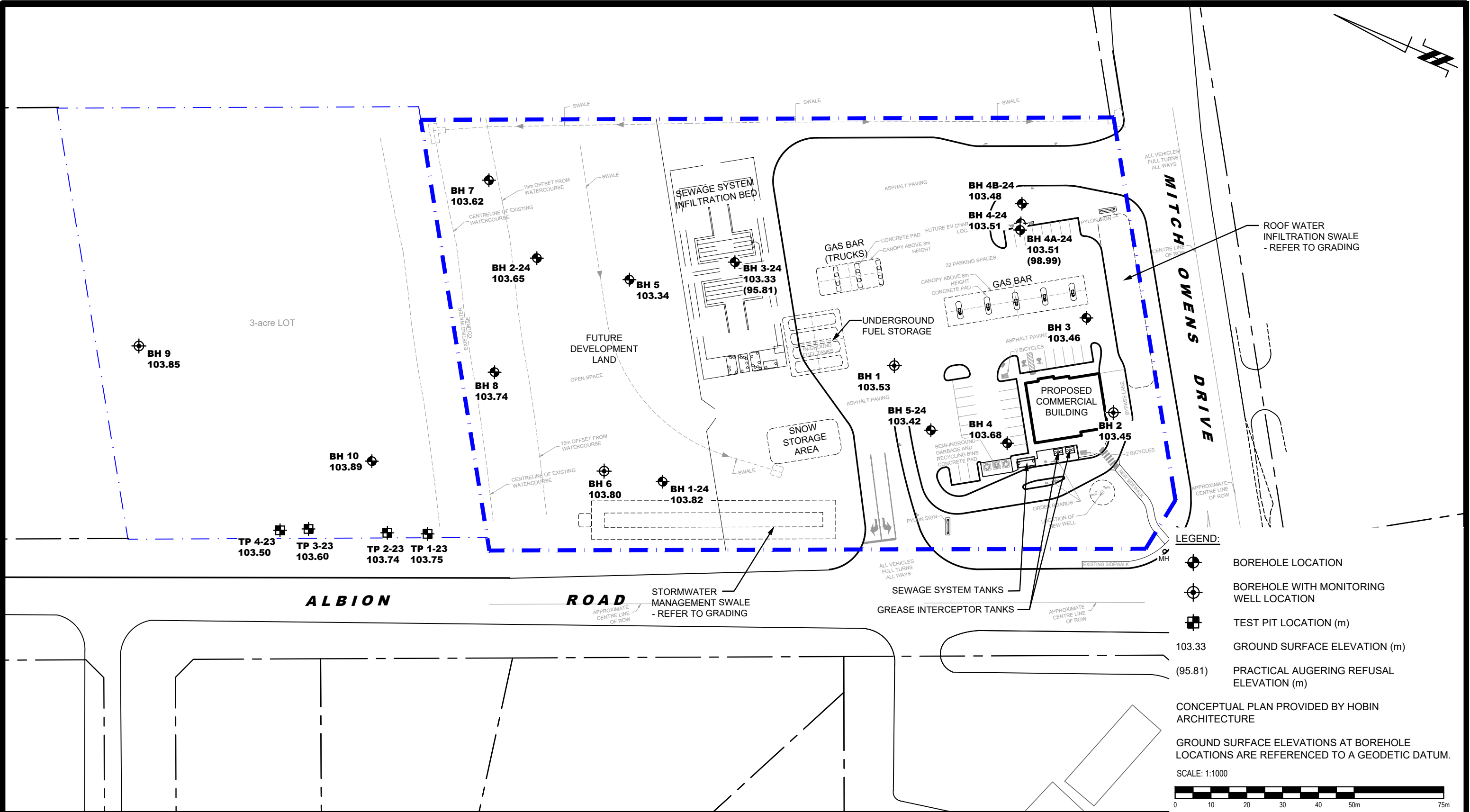
DATE September 3, 2020

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
		TYPE	NUMBER	% RECOVERY	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE						0	103.85					
FILL: Black silty sand with crushed stone, some boulders		AU	1									
0.66												
FILL: Brown/black silty sand with grey clay, trace gravel		SS	2	46	6	1	102.85					
1.52												
FILL: Grey/black silty clay with grey sand		SS	3	42	6	2	101.85					
		SS	4	46	2							
3.05						3	100.85					
Stiff, grey SILTY CLAY		SS	5	83	2							
		SS	6	100	P	4	99.85	△	▲			
4.57												
End of Borehole												
(GWL @ 1.52m - Sept. 11, 2020)												

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded





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3	UPDATED TO NEW CONCEPTUAL PLAN	31/03/2025	KP
2	UPDATED TO NEW CONCEPTUAL PLAN	27/01/2025	KP
1	UPDATED TO NEW CONCEPTUAL PLAN ADDED 2023 TEST PITS / 2024 BOREHOLES	26/07/2024	KP
NO.	REVISIONS	DATE	INITIAL

W.O. STINSON AND SON LIMITED
GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL DEVELOPMENT
5545 ALBION ROAD

ONTARIO

OTTAWA,
Title:

TEST HOLE LOCATION PLAN

Scale:	1:1000	Date:	09/2020
Drawn by:	RCG	Report No.:	PG5485-1
Checked by:	KP	Dwg. No.:	PG5485-1
Approved by:	DJG	Revision No.:	3