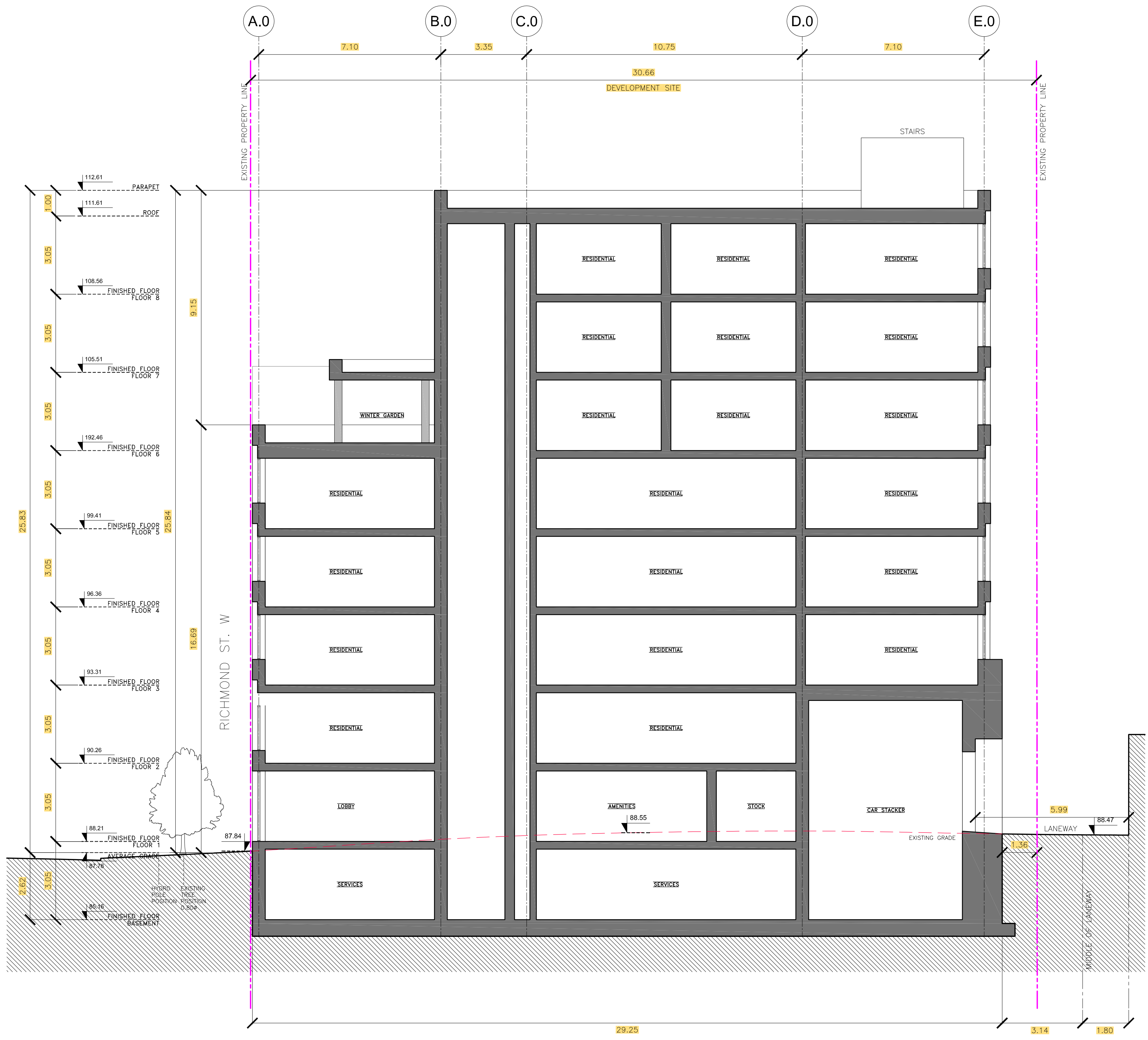
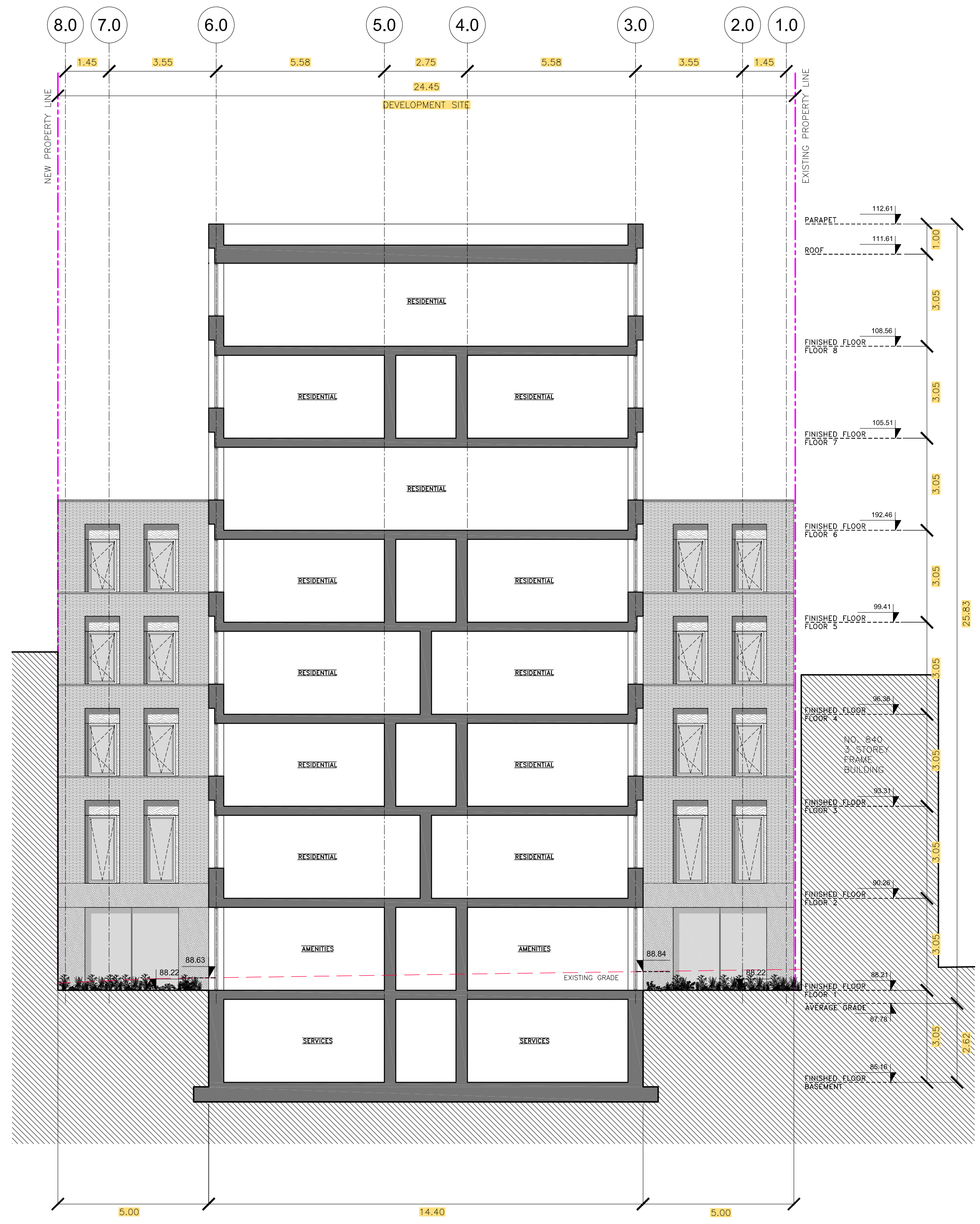


Appendix A

Site Plan (Atelier Baroda, 2022)

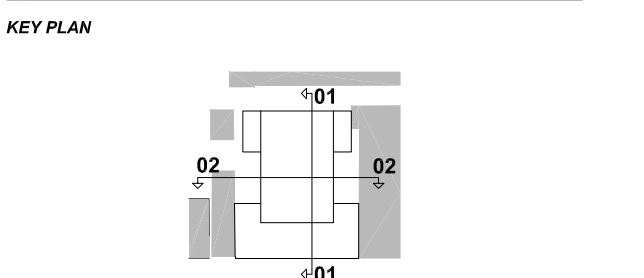


01 LONGITUDINAL SECTION 01
 A300 1:100



02 CROSS SECTION 02
 A300 1:100

GENERAL NOTES
 IT IS THE CONTRACTOR'S AND/OR CLIENT'S RESPONSIBILITY TO RETAIN THE PROFESSIONAL SERVICES OF AN ENGINEER IN ACCORDANCE WITH LOCAL LAWS GOVERNING THE PRACTICE.
 ANY COORDINATION BETWEEN THE VARIOUS SUBCONTRACTORS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
 BEFORE UNDERTAKING THE WORK, THE CONTRACTOR SHALL VERIFY ALL THE DIMENSIONS AND DIMENSIONS INDICATED ON THE PLANS, AS WELL AS THE DIMENSIONS OF THE EXISTING BUILDING OR BUILDINGS IN THE EVENT OF RENOVATION OR RESTORATION. THE CONTRACTOR MUST NOTIFY THE ARCHITECT OF ANY ERRORS OR OMISSIONS IN THE PLANS.
 NO DIMENSIONS SHALL BE MEASURED DIRECTLY TO SCALE ON THESE DRAWINGS.
 THE CONSTRUCTION MUST BE EXECUTED ACCORDING TO LOCAL RULES OF ART AND IN COMPLIANCE WITH GOVERNMENT STANDARDS AND LOCAL BUILDING CODES.
 ANY ERROR OR OMISSION REPORTED TO THE ARCHITECT MUST BE SUBMITTED TO THEM IN WRITING, WITHOUT EXCEPTION, BEFORE THE BEGINNING OF ANY WORK.



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SCALE

STATUS

**SUBMITTED FOR INFORMATION
 DO NOT USE FOR CONSTRUCTION**

NO.	DESCRIPTION	BY	DATE
01	ISSUED FOR COORDINATION	KJ	05-23-2022

PROJECT
 2114-TOR
 822-838 RICHMOND STREET WEST
 822-838 RICHMOND STREET W. TORONTO, ON M6G 1C9

PHASE
 SCHEMATIC DESIGN

DESCRIPTION
 BUILDING SECTIONS
 LATERAL & LONGITUDINAL SECTIONS

SCALE: 1:100 Timestamp: 23/05/2022
 PROJECT CODE: 2114-TOR PAGE: 1
 FILE NAME: 2114-TOR_A300.dwg
 DESIGNED BY: ADB
 DRAFTED BY: KJ
 VERIFIED BY: ADB

Appendix B

Borehole Logs (Watters, 2021)



**WATTERS
ENVIRONMENTAL
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9135 Keele Street, Unit A1
Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: MW101

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

Project Manager: JR

Total Depth: 6.71 m

Logged By: TA & AW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data	
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted		Moisture (%)
0		Ground Surface	0.00								<p>Concrete Bentonite Steel Casing Silica Sand W.L. 2018-08-23 Slot 3.05 m Screen</p>
0		60 mm Asphalt		1	SS	9	30	0,0	X		
2		damp to moist silt, sand, gravel, cinder brick, silty clay FILL		2	SS	5	30	0,0			
4		loose		3	SS	3	30	0,0			
6		very loose		4A	SS	1	50	0,0			
8			-2.60	4B	SS			0,0			
10		very soft to soft grey SILTY CLAY, organic inclusions		5	SS	3	100	0,0			
12		SILTY CLAY trace sand, trace gravel	-3.51	6	SS	18	100	0,0	X		
14		blocky structure brown to grey		7	SS	19	100	0,0			
16		brown with rust brown patches faintly layered		8	SS	16	100	0,0			
18				9	SS	13	100	0,0			
20		grey fissured with oxidized faces									
22		End of Borehole	-6.71								
24											
26											
28											

Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21

Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 1



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416-361-2407

Borehole No: BH102

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

Project Manager: JR

Total Depth: 5.18 m

Logged By: TA & AW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	
0		Ground Surface	0.00							
0		60 mm Asphalt								
2		60 mm Sandy Silt, some gravel		1	SS	34	50	0,0		
4		loose to very loose moist		2	SS	4	50	0,0		
6		silt, fine sand, trace gravel, trace cinder		3	SS	7	30	0,0		
8		trace brick, frequent clay lumps		4	SS	2	25	0,0	X	
10		FILL		5	SS	1	25	0,0		
12			-3.81							
14		SILTY CLAY, trace sand, trace gravel		6	SS	5	100	0,0		
16		brownish grey								
16		brownfissured								
16		grey fissured faces								
16		firm to stiff		7	SS	17	100	0,0	X	
16		very stiff	-5.18							
18		End of Borehole								
20										
22										
24										
26										
28										

Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21

Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 1



**WATTERS
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416-361-2407

Borehole No: MW103

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

Project Manager: JR

Total Depth: 12.25 m

Logged By: TA & AW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data	
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted		Moisture (%)
0		Ground Surface	0.00								
0		70 mm Asphalt		1	SS	12	75	0,0	X		
2		70 mm Silty Sand some gravel		2	SS	7	100	0,0			
4		loose to very loose damp to moist		3	SS	3	40	0,0			
6		silt, sand, trace gravel, trace cinders trace brick, trace clay lumps and seams FILL		4	SS	4	100	0,0			
8				5	SS	2	75	0,0			
10				6	SS	4	75	0,0	X		
12				7	SS	21	40	0,0			
14		grey mottled brown blocky structure	-4.11	8	SS	20	100	0,0			
16		brown fissured fissure faces grey		9A	SS	18	100	0,0			
18		SILTY CLAY trace sand, trace gravel		9B	SS			0,0			
20			-6.40	10	SS	4	100	0,0			
22		grey SILTY CLAY trace sand trace gravel faintly layered		SV		150 +kPa					
24											
26											
28											

Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21

Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 2



**WATTERS
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416-361-2407

Borehole No: MW103

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

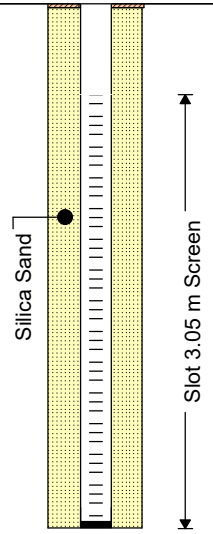
Project Manager: JR

Total Depth: 12.25 m

Logged By: TA & AW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data	
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted		Moisture (%)
30	10	firm	-10.67	11	SS	20	100	0,0			
		-----									very stiff
32		grey SILTY CLAY trace sand, trace gravel faintly layered									
34											
36	12	weatherd grey SHALY CLAY	-11.58	12	SS	92 for 250 mm	75	0,0			
38											
40		hard grey CLAYEY SHALE	-12.25	13	SS	50 for 50 mm	75	0,0			
42		End of Borehole									
44											
46	14										
48											
50											
52	16										
54											



Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21

Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 2 of 2



**WATTERS
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416-361-2407

Borehole No: MW104

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

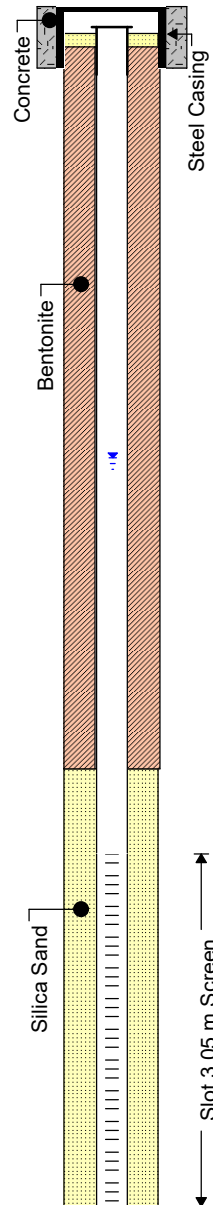
Project Manager: JR

Total Depth: 12.25 m

Logged By: TA & AW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	
0		Ground Surface	0.00							
0		70 mm Asphalt								
0		70 mm Sand and Gravel								
2		40 mm Asphalt		1	SS	4	60	0,0	X	
2		40 mm Sandy Silt and Gravel								
4		loose brown silty clay trace brick, trace gravel FILL		2	SS	5	30	0,0		
4			-1.52							
6		brown veined grey blocky structure		3	SS	4	100	0,0		
6										
8				4	SS	19	100	0,0		
8										
10		brown fissured		5	SS	22	75	0,0		
10										
12		brownish grey oxidized fissure faces		6	SS	27	75	0,0		
12										
14		SILTY CLAY trace sand, trace gravel		7	SS	20	100	15,0	X	
14										
16				8	SS	18	100	0,0		
16										
18				9	SS	13	100	25,0		
18										
20		brown veined grey								
20										
22										
22										
24										
24										
26		stiff grey SILTY CLAY trace sand, trace gravel faintly layered		10	SS	10	100	0,0		
26										
28										
28										



Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21

Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 1 of 2



**WATTERS
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416-361-2407

Borehole No: MW104

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

Project Manager: JR

Total Depth: 12.25 m

Logged By: TA & AW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data	
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted		Moisture (%)
30		stiff grey SILTY CLAY trace sand, trace gravel faintly layered		11	SS	12	100	0,0	X		
32				10							
34											
36		weatherd grey SHALY CLAY		12	SS	58	80	0,0			
38											
40		hard grey CLAYEY SHALE		13	SS	50 for 70 mm	75	0,0			
42											
44		End of Borehole									
46											
48											14
50											
52											
54											16

Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-21

Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 2 of 2



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Borehole No: BH105

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

Project Manager: JR

Total Depth: 3.81 m

Logged By: TA & MW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	
0		Ground Surface	0.00							
0		60 mm Asphalt		1	SS		75	0,0		
2		300 mm Sand and Gravel								
2		loose, moist		2	SS		90	0,0		
4		silt, clay, trace gravel, trace brick								
4		FILL		3	SS		75	0,0		
6			-1.83							
6		brown to grey, silt and clay		4	SS		75	0,0		
8		trace gravel								
8		FILL		5	SS		75	0,0	X	
10										
10		equipment refusal at 3.81 m		6	SS		75	5,0	X	
12			-3.81							
12		End of Borehole								
14										
16										
18										
20										
20										
22										
24										
24										
26										
26										
28										
28										

Drilled By: TriPhase Group, Hilti TE1500-AVR

Drill Method: Split Spoon Sampling

Drill Date: 2021-07-09

Hole Size: 64 mm

Screening Tool: Eagle II

Sheet: 1 of 1



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416-361-2407

Borehole No: MW106D

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

Project Manager: JR

Total Depth: 9.75 m

Logged By: TA & AW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data	
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted		Moisture (%)
0		Ground Surface	0.00								
0		50 mm Asphalt 50 mm Sand and Gravel		1	SS	12	50	0,0	X		
2		loose damp sand, silt trace gravel, trace brick FILL		2	SS	4	10	0,0			
4			-1.37								
6		lightly compacted brown silty clay trace sand, trace gravel, trace cinder FILL		3	SS	7	100	0,0			
8			-2.29								
10		loose sand, silt gravel trace cinders, trace asphalt, trace wood fragments frequent clay lumps FILL		4	SS	4	30	0,0			
12			-3.81								
14		brown veined grey stiff		6	SS	11	75	0,0			
16		brown with rust brown patches very stiff		7	SS	23	75	15,0	X		
18		brown veined grey		8	SS	21	100	0,0			
20		SILTY CLAY trace sand, trace gravel		9	SS	20	100	0,0			
22											
24		grey to brown occasional closed fissure firm		10	SS	7	100	0,0	X		
26					SV	110 kPa R - 50 kPa					
28		grey		11	SS	6	100	0,0			

Drilled By: Pontil Drilling, CME 75

Drill Method: Split Spoon Sampling and Hollow Augers

Drill Date: 2021-06-22

Hole Size: 200 mm

Screening Tool: Eagle II

Sheet: 1 of 2



**WATTERS
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Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: MW106D

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

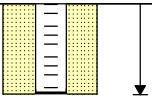
Project Manager: JR

Total Depth: 9.75 m

Logged By: TA & AW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted	
30		grey SILTY CLAY trace sand, trace gravel	-9.75	12	SS	18	60	0,0	X	
32				13	SS	12	50	0,0		
32		End of Borehole								
10										
34										
36										
38										
12										
40										
42										
44										
14										
46										
48										
50										
52										
16										
54										



Drilled By: Pontil Drilling, CME 75
Drill Method: Split Spoon Sampling and Hollow Augers
Drill Date: 2021-06-22

Hole Size: 200 mm
Screening Tool: Eagle II
Sheet: 2 of 2



**WATTERS
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Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: MW106S

Project No.: 21-0082.03

Client: Community

Location: 822,828, 834 & 838 Richmond St. W., Toronto, ON

Project Manager: JR

Total Depth: 9.75 m

Logged By: TA & AW

Ground Elevation: 0

SUBSURFACE PROFILE				SAMPLE						Well Completion Data	
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted		Moisture (%)
0		Ground Surface	0.00								
0 to 2		50 mm Asphalt 50 mm Sand and Gravel loose damp sand, silt trace gravel, trace brick FILL									
2 to 4			-1.37								
4 to 6		lightly compacted brown silty clay trace sand, trace gravel, trace cinder FILL	-2.29								
6 to 12		loose sand, silt gravel trace cinders, trace asphalt, trace wood fragments frequent clay lumps FILL	-3.81								
12 to 14		SILTY CLAY trace sand trace gravel	-4.27								
14 to 28		End of Borehole									

Drilled By: Pontil Drilling, CME 75

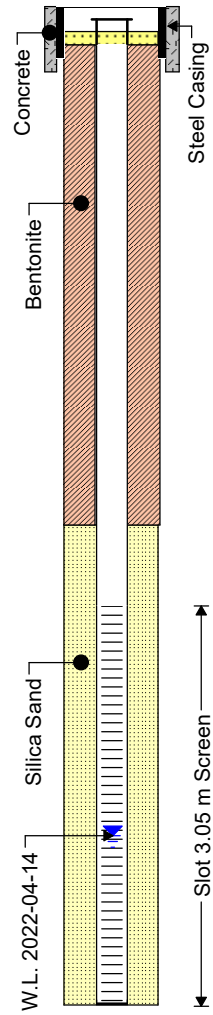
Drill Method: Split Spoon Sampling and Hollow Augers

Drill Date: 2021-06-22

Hole Size: 200 mm

Screening Tool: Eagle II

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE						Well Completion Data	
Depth	Symbol	Description	Depth/Elev. (m)	Number	Type	N-Value	Recovery %	T.O.V. CGD/PID	Lab Submitted		Moisture (%)
0		Ground Surface									
0		50 mm Asphalt									
2		loose, moist, dark grey silt, some clay, some sand trace gravel, trace cinders trace brick fragments		1	SS	8	70	0,0	X		
4		FILL no stains or odours		2	SS	4	60	0,0			
6		SILTY CLAY trace sand, trace gravel faintly layered no stains or odours		3	SS	5	70	0,0			
8				4	SS	19	60	0,0	X		
10				5	SS	56	40	0,0			
14				6	SS	25	60	0,0			
16				7	SS	22	75	0,0			
18		brown veined grey		8	SS	17	60	0,0			
20		grey		9	SS	15	60	0,0	X		
22			very stiff		10	SS	8	100	0,0		
24				11	SS	12	100	5,0	X		
26											
28		End of Borehole									

Drilled By: Pontil Drilling Services Inc.

Drill Method: CME 75, Split Spoon Sampling and Hollow Augers

Drill Date: 2022-04-04

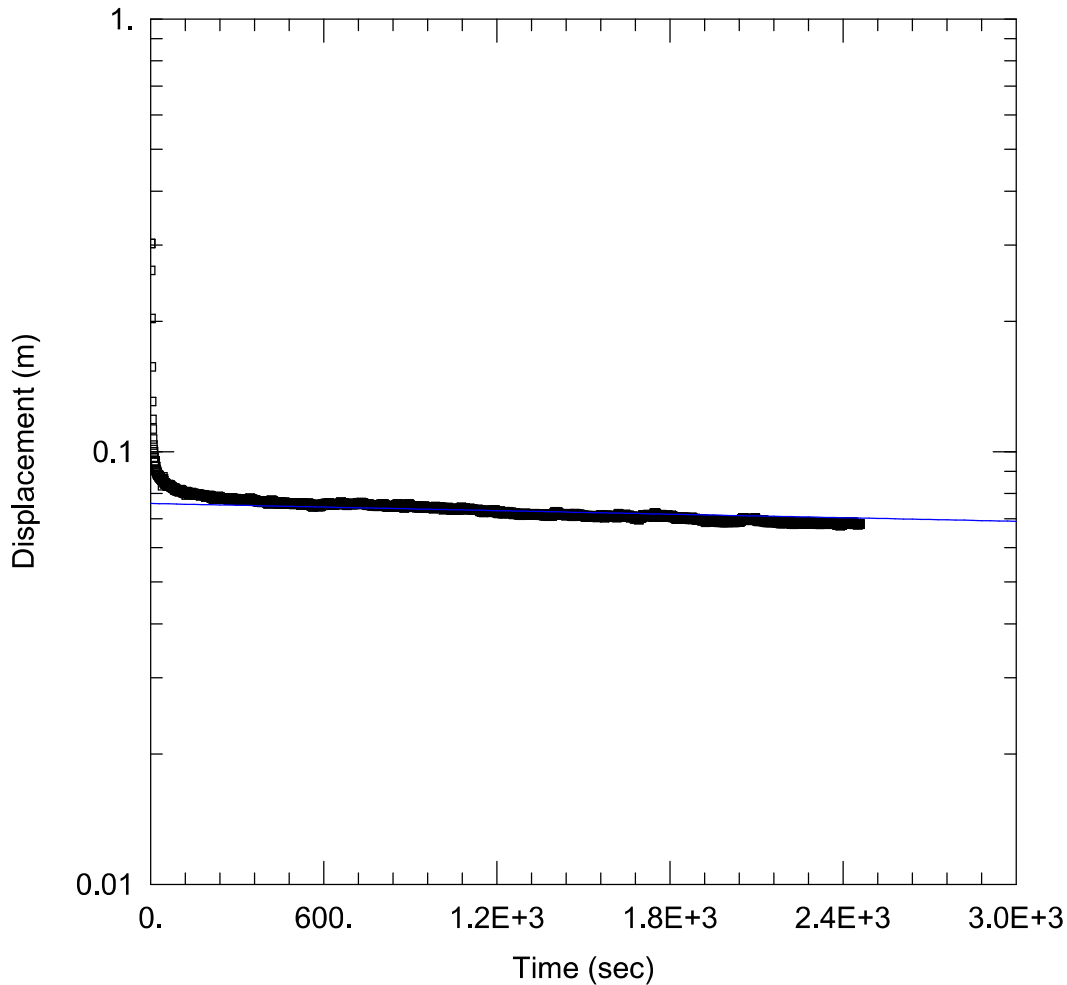
Hole Size: 0.20 m

Screening Tool: Eagle II

Sheet: 1 of 1

Appendix C

Single Well Response Tests
(Palmer, 2021)



WELL TEST ANALYSIS

Data Set: C:\Users\Andrei\Documents\Palmer\Richmond Street\MW103-RH.aqt
 Date: 07/22/21 Time: 15:07:26

PROJECT INFORMATION

Company: Palmer
 Client: Associated Eng
 Project: 2001512
 Location: 822 Richmond Street
 Test Well: MW103
 Test Date: July5th

AQUIFER DATA

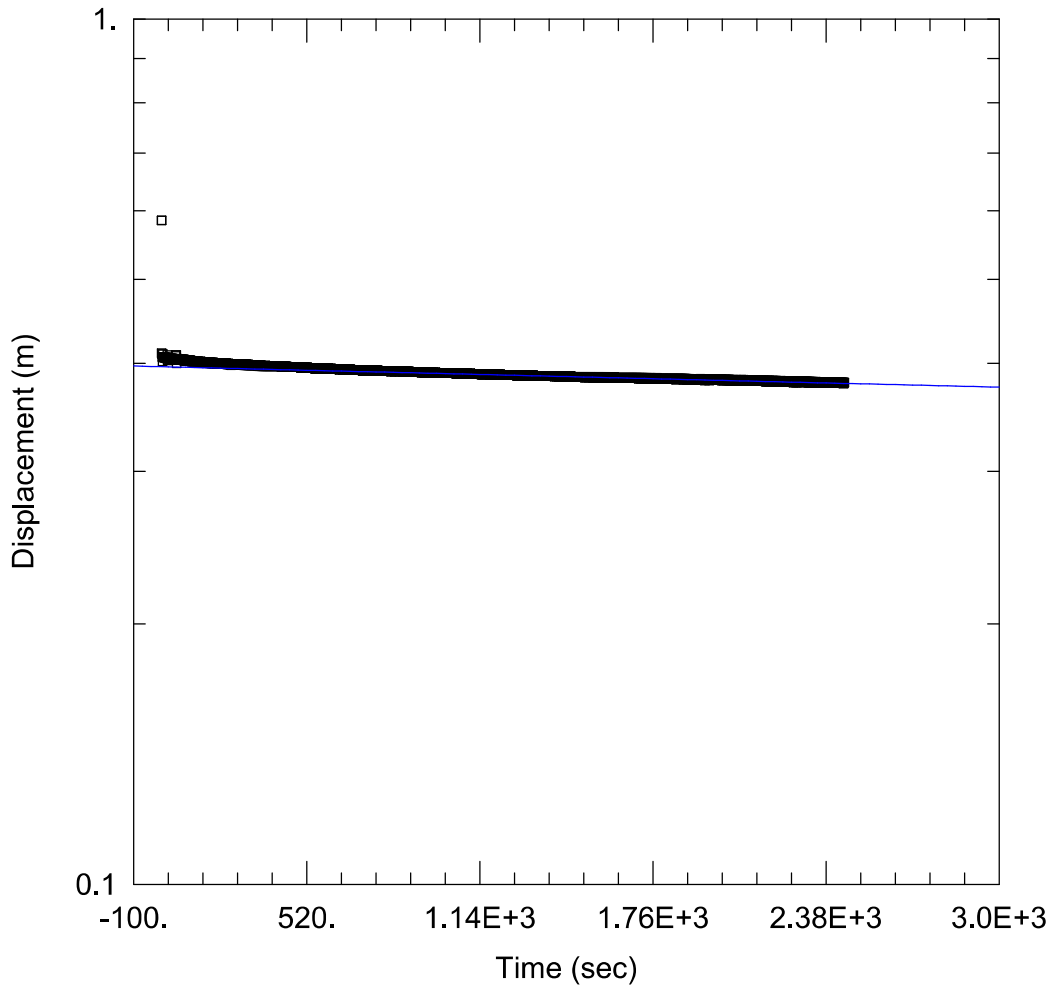
Saturated Thickness: 2.62 m Anisotropy Ratio (Kz/Kr): 0.01

WELL DATA (MW103 RH)

Initial Displacement: 0.3026 m Static Water Column Height: 2.62 m
 Total Well Penetration Depth: 3.13 m Screen Length: 3. m
 Casing Radius: 0.2 m Well Radius: 0.0254 m
 Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
 K = 8.878E-7 m/sec $y_0 =$ 0.07588 m



WELL TEST ANALYSIS

Data Set: C:\Users\Andrei\Documents\Palmer\Richmond Street\MW104-FH.aqt
 Date: 07/22/21 Time: 15:13:01

PROJECT INFORMATION

Company: Palmer
 Client: Associated Eng
 Project: 2001512
 Location: 822 Richmond Street
 Test Well: MW104
 Test Date: July5th

AQUIFER DATA

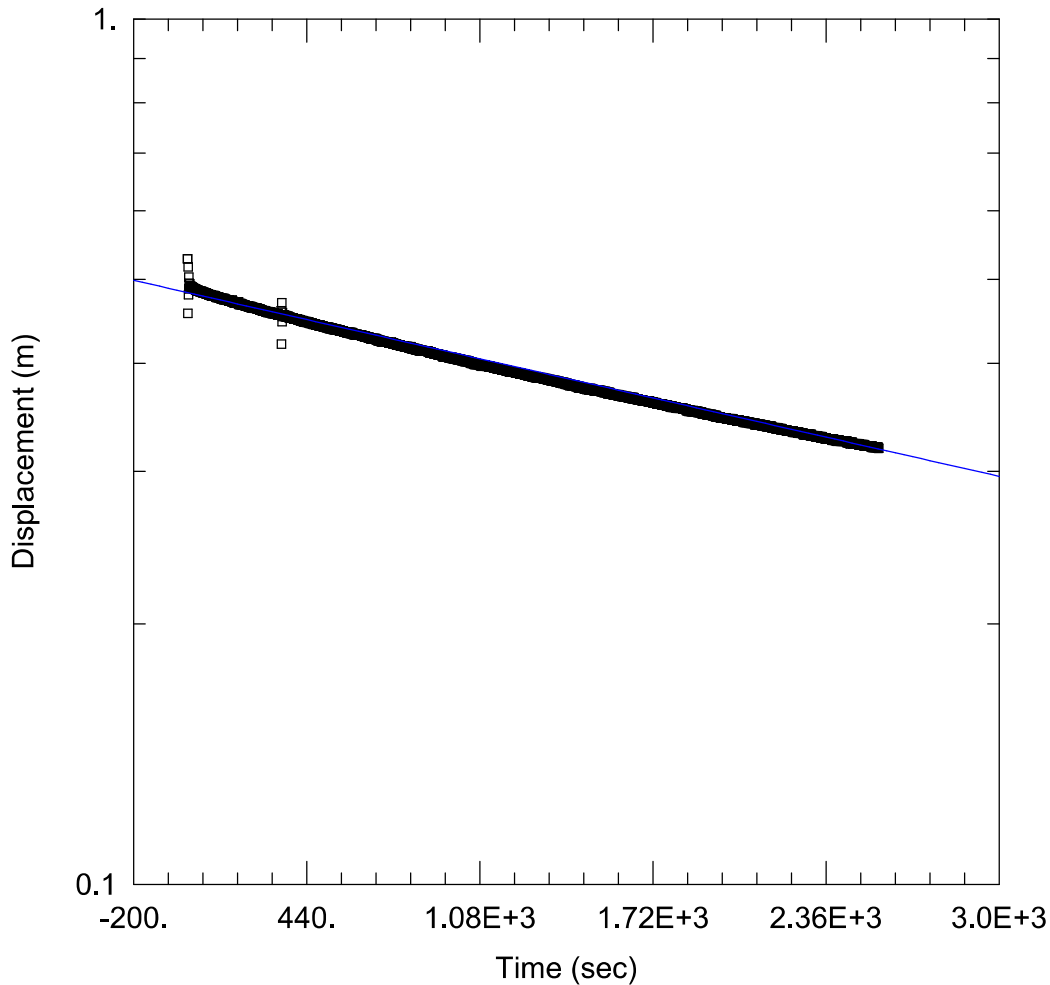
Saturated Thickness: 7.15 m Anisotropy Ratio (Kz/Kr): 0.01

WELL DATA (MW104 Falling)

Initial Displacement: 0.585 m Static Water Column Height: 7.15 m
 Total Well Penetration Depth: 5.5 m Screen Length: 3. m
 Casing Radius: 0.254 m Well Radius: 0.2 m
 Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
 K = 7.534E-7 m/sec y0 = 0.3964 m



WELL TEST ANALYSIS

Data Set: C:\Users\Andrei\Documents\Palmer\Richmond Street\MW106-d-FH.aqt
 Date: 07/22/21 Time: 15:14:25

PROJECT INFORMATION

Company: Palmer
 Client: Associated Eng
 Project: 2001512
 Location: 822 Richmond Street
 Test Well: MW106-d Falling
 Test Date: July5th

AQUIFER DATA

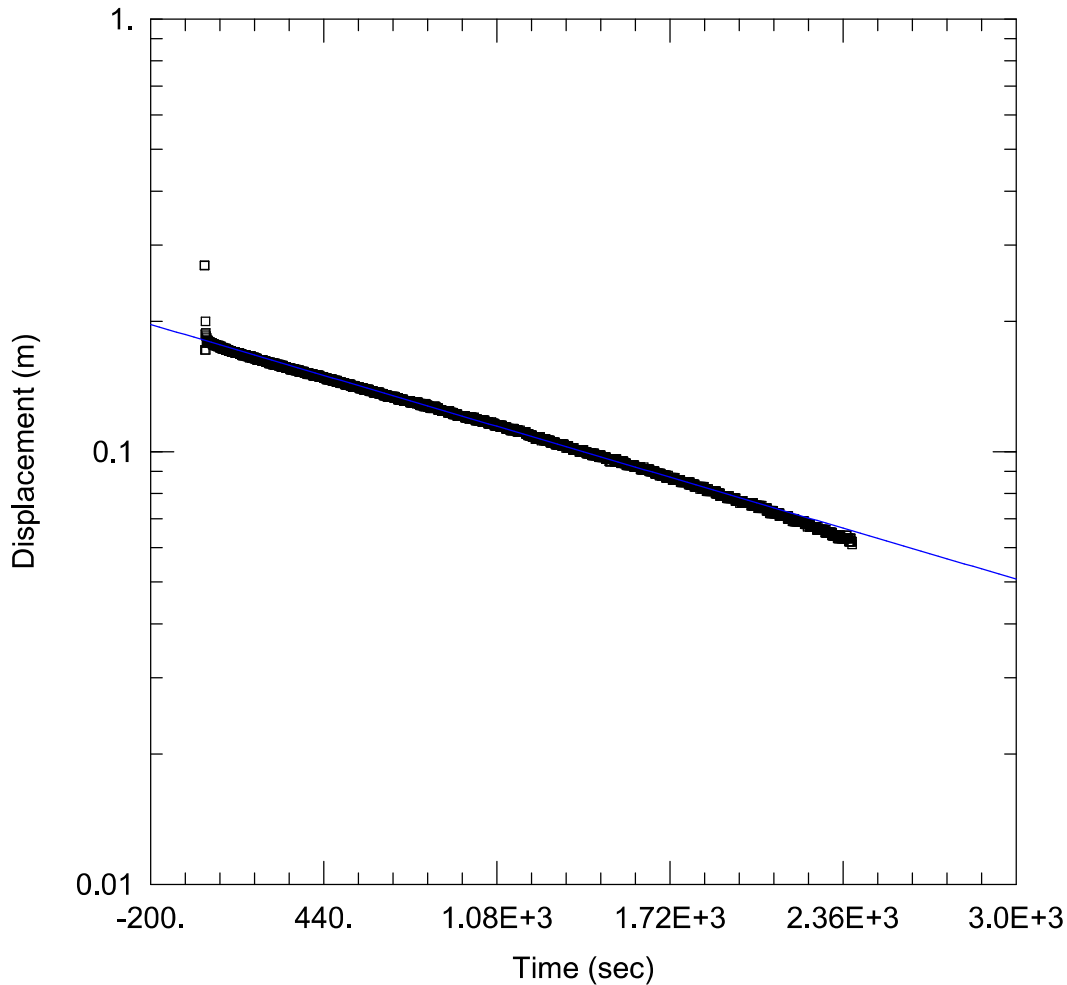
Saturated Thickness: 5.95 m Anisotropy Ratio (Kz/Kr): 0.01

WELL DATA (MW106-d Falling)

Initial Displacement: 0.528 m Static Water Column Height: 2.48 m
 Total Well Penetration Depth: 5.3 m Screen Length: 3. m
 Casing Radius: 0.0254 m Well Radius: 0.2 m
 Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
 K = 6.871E-8 m/sec y0 = 0.4828 m



WELL TEST ANALYSIS

Data Set: C:\Users\Andrei\Documents\Palmer\Richmond Street\MW106-d-RH.aqt
 Date: 07/22/21 Time: 15:15:16

PROJECT INFORMATION

Company: Palmer
 Client: Associated Eng
 Project: 2001512
 Location: 822 Richmond Street
 Test Well: MW106-d Rising
 Test Date: July5th

AQUIFER DATA

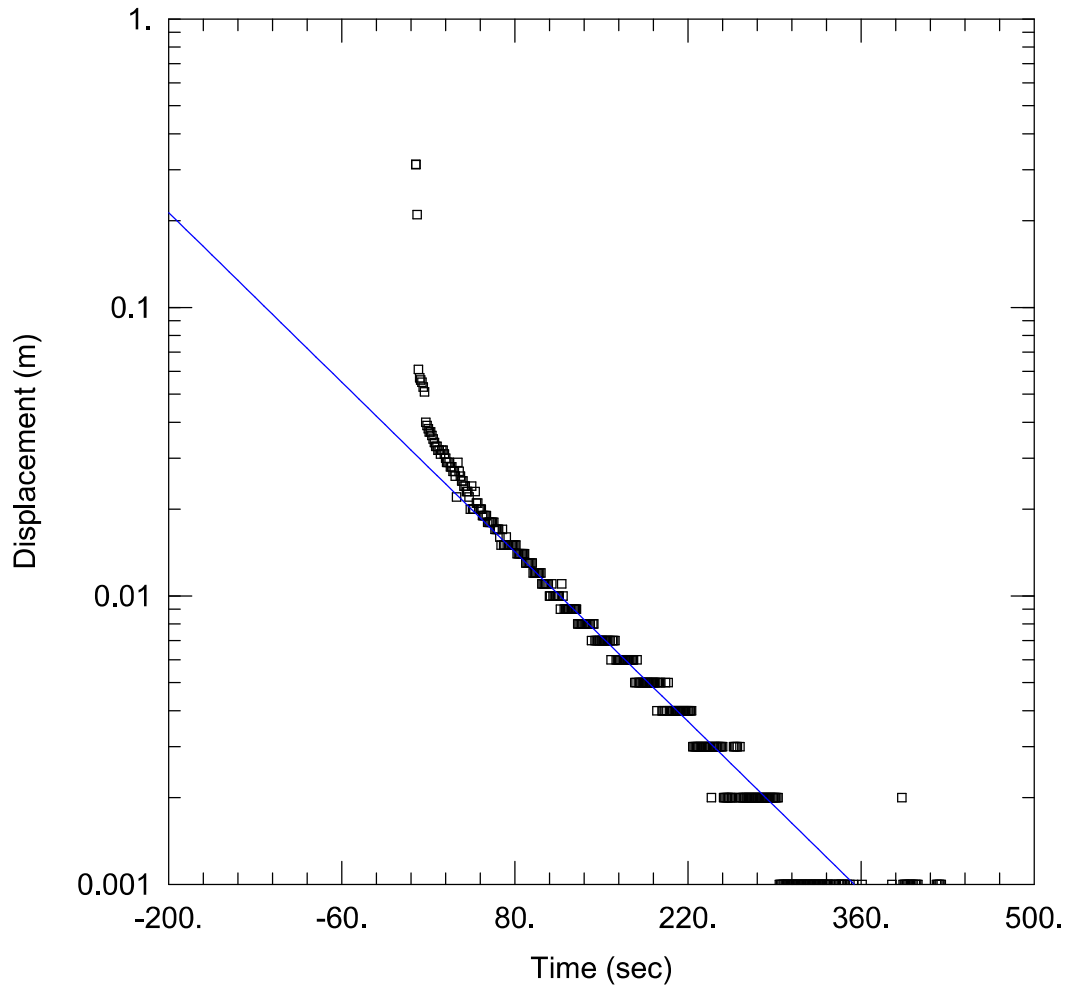
Saturated Thickness: 5.95 m Anisotropy Ratio (Kz/Kr): 0.01

WELL DATA (MW106-d Rising)

Initial Displacement: 0.2695 m Static Water Column Height: 2.48 m
 Total Well Penetration Depth: 5.3 m Screen Length: 3. m
 Casing Radius: 0.0254 m Well Radius: 0.2 m
 Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
 K = 1.786E-7 m/sec y0 = 0.1808 m



WELL TEST ANALYSIS

Data Set: C:\Users\Andrei\Documents\Palmer\Richmond Street\MW106-s-First RH.aqt
 Date: 07/22/21 Time: 15:16:34

PROJECT INFORMATION

Company: Palmer
 Client: Associated Eng
 Project: 2001512
 Location: 822 Richmond Street
 Test Well: MW106-s First RH
 Test Date: July5th

AQUIFER DATA

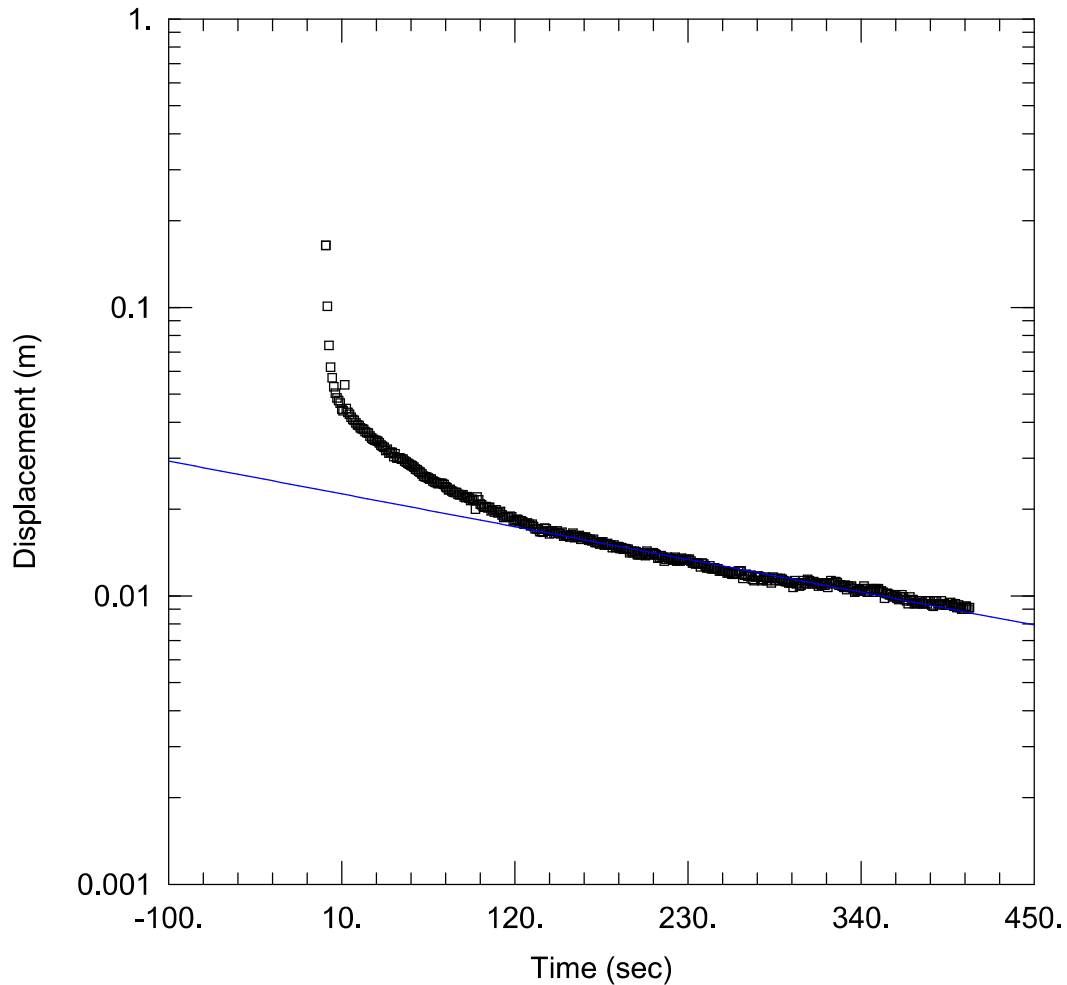
Saturated Thickness: 0.81 m Anisotropy Ratio (Kz/Kr): 0.01

WELL DATA (MW106-s (First RH))

Initial Displacement: 0.3134 m Static Water Column Height: 0.81 m
 Total Well Penetration Depth: 5.26 m Screen Length: 3. m
 Casing Radius: 0.0254 m Well Radius: 0.2 m
 Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 7.342E-6 m/sec $y_0 =$ 0.03081 m



WELL TEST ANALYSIS

Data Set: C:\Users\Andrei\Documents\Palmer\Richmond Street\MW106-s-SEcond RH.aqt
 Date: 07/22/21 Time: 15:17:25

PROJECT INFORMATION

Company: Palmer
 Client: Associated Eng
 Project: 2001512
 Location: 822 Richmond Street
 Test Well: MW106-s Second RH
 Test Date: July5th

AQUIFER DATA

Saturated Thickness: 0.81 m Anisotropy Ratio (Kz/Kr): 0.01

WELL DATA (MW106-s Second RH)

Initial Displacement: 0.1642 m Static Water Column Height: 0.81 m
 Total Well Penetration Depth: 3. m Screen Length: 3. m
 Casing Radius: 0.0254 m Well Radius: 0.2 m
 Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 1.593E-6 m/sec $y_0 =$ 0.02311 m

Appendix D

Laboratory Certificate of
Analysis (ALS, 2021)



PALMER ENVIRONMENTAL CONSULTING
GROUP INC. (Richmond Hill)
ATTN: Andrei Miler
74 Berkeley Street
Toronto ON M5V 1E3

Date Received: 02-JUL-21
Report Date: 14-JUL-21 12:21 (MT)
Version: FINAL

Client Phone: 647-795-8153

Certificate of Analysis

Lab Work Order #: L2609138
Project P.O. #: NOT SUBMITTED
Job Reference: 822
C of C Numbers:
Legal Site Desc:

Jennifer Barkshire-Paterson
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 95 West Beaver Creek Road, Unit 1, Richmond Hill, ON L4B 1H2 Canada | Phone: +1 905 881 9887 | Fax: +1 905 881 8062
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

Summary of Guideline Exceedances

Guideline		Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID	Client ID					
Ontario Toronto Sanitary Discharge Sewer By-Law 100-2016 (FEB 4,2016) - Ontario Toronto Sanitary Discharge Sewer By-Law						
(No parameter exceedances)						
Ontario Toronto Sanitary Discharge Sewer By-Law 100-2016 (FEB 4,2016) - Ontario Toronto Storm Sewer By-Law						
L2609138-1	MW-106- 5	Physical Tests	Total Suspended Solids	160	15	mg/L
		Total Metals	Manganese (Mn)-Total	1.11	0.05	mg/L
			Mercury (Hg)-Total	0.00162	0.0004	mg/L
			Zinc (Zn)-Total	0.063	0.04	mg/L

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Physical Tests - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
pH	pH units	6.00- 11.5	6.0-9.5	7.37
Total Suspended Solids	mg/L	350	15	160

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Anions and Nutrients - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
Fluoride (F)	mg/L	10	-	0.14 ^{D LDS}
Total Kjeldahl Nitrogen	mg/L	100	-	2.00 ^{D LM}
Phosphorus, Total	mg/L	10	0.4	0.347

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



ANALYTICAL REPORT

Cyanides - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5


Guide Limits
Unit #1 #2


Analyte

Analyte	Unit	#1	#2	
Cyanide, Total	mg/L	2	0.02	<0.0020

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Bacteriological Tests - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Guide Limits

Analyte	Unit	#1	#2	
----------------	-------------	-----------	-----------	--

E. Coli	CFU/100m L	-	200	0
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Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Total Metals - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
Aluminum (Al)-Total	mg/L	50	-	3.18 ^{DLHC}
Antimony (Sb)-Total	mg/L	5	-	<0.0010 ^{DLHC}
Arsenic (As)-Total	mg/L	1	0.02	0.0048 ^{DLHC}
Cadmium (Cd)-Total	mg/L	0.7	0.008	0.000063 ^{DLHC}
Chromium (Cr)-Total	mg/L	4	0.08	0.0071 ^{DLHC}
Cobalt (Co)-Total	mg/L	5	-	0.0027 ^{DLHC}
Copper (Cu)-Total	mg/L	2	0.04	0.0127 ^{DLHC}
Lead (Pb)-Total	mg/L	1	0.12	0.104 ^{DLHC}
Manganese (Mn)-Total	mg/L	5	0.05	1.11 ^{DLHC}
Mercury (Hg)-Total	mg/L	0.01	0.0004	0.00162 ^{DLHC}
Molybdenum (Mo)-Total	mg/L	5	-	0.00276 ^{DLHC}
Nickel (Ni)-Total	mg/L	2	0.08	0.0064 ^{DLHC}
Selenium (Se)-Total	mg/L	1	0.02	0.00073 ^{DLHC}
Silver (Ag)-Total	mg/L	5	0.12	<0.00050 ^{DLHC}
Tin (Sn)-Total	mg/L	5	-	0.0247 ^{DLHC}
Titanium (Ti)-Total	mg/L	5	-	0.109 ^{DLHC}
Zinc (Zn)-Total	mg/L	2	0.04	0.063 ^{DLHC}

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Speciated Metals - WATER

Lab ID	L2609138-1
Sample Date	02-JUL-21
Sample ID	MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
Chromium, Hexavalent	mg/L	2	0.04	<0.00050

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Aggregate Organics - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
BOD	mg/L	300	15	<3.0 ^{BODL}
Oil and Grease, Total	mg/L	-	-	<5.0
Animal/Veg Oil & Grease	mg/L	150	-	<5.0
Mineral Oil and Grease	mg/L	15	-	<2.5
Phenols (4AAP)	mg/L	1.0	0.008	<0.0010

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Volatile Organic Compounds - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
Benzene	ug/L	10	2	<0.50 ^{OWP}
Chloroform	ug/L	40	2	<1.0 ^{OWP}
1,2-Dichlorobenzene	ug/L	50	5.6	<0.50 ^{OWP}
1,4-Dichlorobenzene	ug/L	80	6.8	<0.50 ^{OWP}
cis-1,2-Dichloroethylene	ug/L	4000	5.6	<0.50 ^{OWP}
Dichloromethane	ug/L	2000	5.2	<2.0 ^{OWP}
trans-1,3-Dichloropropene	ug/L	140	-	<0.50 ^{OWP}
Ethylbenzene	ug/L	160	2	<0.50 ^{OWP}
1,1,2,2-Tetrachloroethane	ug/L	1400	17	<0.50 ^{OWP}
Tetrachloroethylene	ug/L	1000	4.4	<0.50 ^{OWP}
Toluene	ug/L	16	2	<0.50 ^{OWP}
Trichloroethylene	ug/L	400	7.6	<0.50 ^{OWP}
o-Xylene	ug/L	-	-	<0.50 ^{OWP}
m+p-Xylenes	ug/L	-	-	<1.0 ^{OWP}
Xylenes (Total)	ug/L	1400	4.4	<1.1
Surrogate: 4-Bromofluorobenzene	%	-	-	97.0
Surrogate: 1,4-Difluorobenzene	%	-	-	100.6

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Polycyclic Aromatic Hydrocarbons - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
Acenaphthene	ug/L	-	-	<0.010
Anthracene	ug/L	-	-	<0.010
Benzo(a)anthracene	ug/L	-	-	0.032
Benzo(a)pyrene	ug/L	-	-	0.032
Benzo(b&j)fluoranthene	ug/L	-	-	0.047
Benzo(e)pyrene	ug/L	-	-	<0.050
Benzo(ghi)perylene	ug/L	-	-	0.024
Benzo(k)fluoranthene	ug/L	-	-	0.014
Chrysene	ug/L	-	-	0.042
Dibenz(a,h)acridine	ug/L	-	-	<0.050
Dibenz(a,j)acridine	ug/L	-	-	<0.050
Dibenz(a,h)anthracene	ug/L	-	-	<0.010
Dibenzo(a,i)pyrene	ug/L	-	-	<0.050
7H-Dibenzo(c,g)carbazole	ug/L	-	-	<0.050
1,3-Dinitropyrene	ug/L	-	-	<1.0
1,6-Dinitropyrene	ug/L	-	-	<1.0
1,8-Dinitropyrene	ug/L	-	-	<1.0
Fluoranthene	ug/L	-	-	0.074
Fluorene	ug/L	-	-	<0.010
Indeno(1,2,3-cd)pyrene	ug/L	-	-	0.025
Naphthalene	ug/L	-	-	0.011
Perylene	ug/L	-	-	0.020
Phenanthrene	ug/L	-	-	0.033
Pyrene	ug/L	-	-	0.059
Surrogate: 2-Fluorobiphenyl	%	-	-	78.0
Surrogate: D14-Terphenyl	%	-	-	61.8
Surrogate: d14-Terphenyl	%	-	-	63.5
Total PAHs	ug/L	5	2	<1.7

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Semi-Volatile Organics - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
3,3'-Dichlorobenzidine	ug/L	2	0.8	<0.40
Di-n-butylphthalate	ug/L	80	15	<1.0
Bis(2-ethylhexyl)phthalate	ug/L	12	8.8	<2.0
Pentachlorophenol	ug/L	5	2	<0.50
Surrogate: 2-Fluorobiphenyl	%	-	-	86.9
Surrogate: p-Terphenyl d14	%	-	-	59.0
Surrogate: 2,4,6-Tribromophenol	%	-	-	94.0

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Polychlorinated Biphenyls - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
Aroclor 1242	ug/L	-	-	<0.020
Aroclor 1248	ug/L	-	-	<0.020
Aroclor 1254	ug/L	-	-	<0.020
Aroclor 1260	ug/L	-	-	<0.020
Surrogate: Decachlorobiphenyl	%	-	-	65.7
Total PCBs	ug/L	1	0.4	<0.040
Surrogate: Tetrachloro-m-xylene	%	-	-	72.9

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Organic Parameters - WATER

Lab ID L2609138-1
Sample Date 02-JUL-21
Sample ID MW-106- 5

Analyte	Unit	Guide Limits		
		#1	#2	
Nonylphenol	ug/L	20	1	<1.0
Nonylphenol Diethoxylates	ug/L	-	-	<0.10
Total Nonylphenol Ethoxylates	ug/L	200	10	<2.0
Nonylphenol Monoethoxylates	ug/L	-	-	<2.0

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
BODL	Limit of Reporting for BOD was increased to account for the largest volume of sample tested.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of

Reference Information

sediment.

DLHC Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
625-PAH-LOW-WT	Water	EPA 8270 PAH (Low Level)	SW846 8270
Aqueous samples are extracted and extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.			
625-SAN-WT	Water	Ontario Sanitary Sewer SVOC Target List	SW-846 8270
Samples are extracted with solvent and then analyzed by GC/MS.			
BOD-WT	Water	BOD	APHA 5210 B
This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.			
CN-TOT-WT	Water	Cyanide, Total	ISO 14403-2
Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.			
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference			
CR-CR6-IC-WT	Water	Chromium +6	EPA 7199
This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
EC-WW-MF-WT	Water	E. Coli	SM 9222D
A 100 mL volume of sample is filtered through a membrane, the membrane is placed on mFC-BCIG agar and incubated at 44.5 – 0.2 °C for 24 – 2 h. Method ID: WT-TM-1200			
F-IC-N-WT	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HG-T-CVAA-WT	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.			
MET-T-CCMS-WT	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

NP,NPE-LCMS-WT	Water	Nonylphenols and Ethoxylates by LC/MS-MS	J. Chrom A849 (1999) p.467-482
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Water samples are filtered and analyzed on LCMS/MS by direct injection.

OGG-SPEC-CALC-WT	Water	Speciated Oil and Grease A/V Calc	CALCULATION
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Sample is extracted with hexane, sample speciation into mineral and animal/vegetable fractions is achieved via silica gel separation and is then determined gravimetrically.

OGG-SPEC-WT	Water	Speciated Oil and Grease-Gravimetric	APHA 5520 B
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The procedure involves an extraction of the entire water sample with hexane. Sample speciation into mineral and animal/vegetable fractions is achieved via silica gel separation and is then determined gravimetrically.

P-T-COL-WT	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
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This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PAH-EXTRA-WT	Water	Sanitary Sewer Use By-Law Additional PAH	SW 846 8270
---------------------	-------	--	-------------

PAH-SUM-CALC-WT	Water	TOTAL PAH's	CALCULATION
------------------------	-------	-------------	-------------

Total PAH represents the sum of all PAH analytes reported for a given sample. Note that regulatory agencies and criteria differ in their definitions of Total PAH in terms of the individual PAH analytes to be included.

PCB-WT	Water	Polychlorinated Biphenyls	EPA 8082
---------------	-------	---------------------------	----------

PCBs are extracted from an aqueous sample at neutral pH with aliquots of dichloromethane using a modified separatory funnel technique. The extracts are analyzed by GC/MSD.

PH-WT	Water	pH	APHA 4500 H-Electrode
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Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-WT	Water	Phenol (4AAP)	EPA 9066
------------------------	-------	---------------	----------

An automated method is used to distill the sample. The distillate is then buffered to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured colorimetrically.

SOLIDS-TSS-WT	Water	Suspended solids	APHA 2540 D-Gravimetric
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A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.

TKN-F-WT	Water	TKN in Water by Fluorescence	J. ENVIRON. MONIT., 2005,7,37-42,RSC
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Reference Information

L2609138 CONT'D....
Job Reference: 822
PAGE 18 of 18
14-JUL-21 12:21 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
		Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection	
VOC-ROU-HS-WT	Water	Volatile Organic Compounds	SW846 8260
		Aqueous samples are analyzed by headspace-GC/MS.	
XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION
		Total xylenes represents the sum of o-xylene and m&p-xylene.	

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 1 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-PAH-LOW-WT	Water							
Batch	R5514523							
WG3570485-2	LCS							
Acenaphthene			64.4		%		50-140	08-JUL-21
Anthracene			78.0		%		50-140	08-JUL-21
Benzo(a)anthracene			97.4		%		50-140	08-JUL-21
Benzo(a)pyrene			74.0		%		60-130	08-JUL-21
Benzo(b&j)fluoranthene			87.1		%		60-130	08-JUL-21
Benzo(ghi)perylene			62.8		%		50-140	08-JUL-21
Benzo(k)fluoranthene			84.2		%		50-140	08-JUL-21
Chrysene			99.3		%		50-140	08-JUL-21
Dibenz(a,h)anthracene			72.2		%		50-140	08-JUL-21
Fluoranthene			90.5		%		50-140	08-JUL-21
Fluorene			73.1		%		50-140	08-JUL-21
Indeno(1,2,3-cd)pyrene			55.9		%		50-140	08-JUL-21
Naphthalene			64.0		%		50-130	08-JUL-21
Perylene			82.4		%		50-140	08-JUL-21
Phenanthrene			81.6		%		50-140	08-JUL-21
Pyrene			90.8		%		50-140	08-JUL-21
WG3570485-1	MB							
Acenaphthene			<0.010		ug/L		0.01	08-JUL-21
Anthracene			<0.010		ug/L		0.01	08-JUL-21
Benzo(a)anthracene			<0.010		ug/L		0.01	08-JUL-21
Benzo(a)pyrene			<0.010		ug/L		0.01	08-JUL-21
Benzo(b&j)fluoranthene			<0.010		ug/L		0.01	08-JUL-21
Benzo(ghi)perylene			<0.010		ug/L		0.01	08-JUL-21
Benzo(k)fluoranthene			<0.010		ug/L		0.01	08-JUL-21
Chrysene			<0.010		ug/L		0.01	08-JUL-21
Dibenz(a,h)anthracene			<0.010		ug/L		0.01	08-JUL-21
Fluoranthene			<0.010		ug/L		0.01	08-JUL-21
Fluorene			<0.010		ug/L		0.01	08-JUL-21
Indeno(1,2,3-cd)pyrene			<0.010		ug/L		0.01	08-JUL-21
Naphthalene			<0.010		ug/L		0.01	08-JUL-21
Perylene			<0.010		ug/L		0.01	08-JUL-21
Phenanthrene			<0.010		ug/L		0.01	08-JUL-21
Pyrene			<0.010		ug/L		0.01	08-JUL-21
Surrogate: 2-Fluorobiphenyl			72.5		%		40-130	08-JUL-21



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 2 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-PAH-LOW-WT Water								
Batch	R5514523							
WG3570485-1	MB							
Surrogate: D14-Terphenyl			84.0		%		40-130	08-JUL-21
625-SAN-WT Water								
Batch	R5516357							
WG3570485-2	LCS							
3,3'-Dichlorobenzidine			53.0		%		50-140	09-JUL-21
Bis(2-ethylhexyl)phthalate			99.7		%		50-140	09-JUL-21
Di-n-butylphthalate			93.5		%		50-140	09-JUL-21
Pentachlorophenol			121.4		%		50-140	09-JUL-21
WG3570485-1	MB							
3,3'-Dichlorobenzidine			<0.40		ug/L		0.4	09-JUL-21
Bis(2-ethylhexyl)phthalate			<2.0		ug/L		2	09-JUL-21
Di-n-butylphthalate			<1.0		ug/L		1	09-JUL-21
Pentachlorophenol			<0.50		ug/L		0.5	09-JUL-21
Surrogate: 2-Fluorobiphenyl			81.0		%		40-130	09-JUL-21
Surrogate: 2,4,6-Tribromophenol			71.9		%		40-130	09-JUL-21
Surrogate: p-Terphenyl d14			105.7		%		40-130	09-JUL-21
BOD-WT Water								
Batch	R5514134							
WG3568130-2	DUP	L2608943-1						
BOD		<3.0	<3.0	RPD-NA	mg/L	N/A	30	02-JUL-21
WG3568130-3	LCS							
BOD			94.4		%		85-115	02-JUL-21
WG3568130-1	MB							
BOD			<2.0		mg/L		2	02-JUL-21
CN-TOT-WT Water								
Batch	R5514075							
WG3570775-24	DUP	WG3570775-22						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	08-JUL-21
WG3570775-21	LCS							
Cyanide, Total			99.3		%		80-120	08-JUL-21
WG3570775-20	MB							
Cyanide, Total			<0.0020		mg/L		0.002	08-JUL-21
WG3570775-23	MS	WG3570775-22						
Cyanide, Total			99.8		%		70-130	08-JUL-21



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 3 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
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 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT		Water						
Batch	R5514033							
WG3570174-4	DUP	WG3570174-3						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	06-JUL-21
WG3570174-2	LCS							
Chromium, Hexavalent			92.9		%		80-120	06-JUL-21
WG3570174-1	MB							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	06-JUL-21
WG3570174-5	MS	WG3570174-3						
Chromium, Hexavalent			95.8		%		70-130	06-JUL-21
EC-WW-MF-WT		Water						
Batch	R5509996							
WG3568425-1	MB							
E. Coli			0		CFU/100mL		1	03-JUL-21
F-IC-N-WT		Water						
Batch	R5513472							
WG3570369-14	DUP	WG3570369-13						
Fluoride (F)		0.023	0.024		mg/L	6.1	20	06-JUL-21
WG3570369-12	LCS							
Fluoride (F)			103.3		%		90-110	06-JUL-21
WG3570369-11	MB							
Fluoride (F)			<0.020		mg/L		0.02	06-JUL-21
WG3570369-15	MS	WG3570369-13						
Fluoride (F)			102.9		%		75-125	06-JUL-21
HG-T-CVAA-WT		Water						
Batch	R5513159							
WG3569822-3	DUP	L2608837-1						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	06-JUL-21
WG3569822-2	LCS							
Mercury (Hg)-Total			92.3		%		80-120	06-JUL-21
WG3569822-1	MB							
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	06-JUL-21
WG3569822-4	MS	L2608934-1						
Mercury (Hg)-Total			N/A	MS-B	%		-	06-JUL-21
MET-T-CCMS-WT		Water						



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 4 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
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 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R5511962							
WG3568732-4	DUP	WG3568732-3						
Aluminum (Al)-Total		18.5	18.1		mg/L	1.8	20	05-JUL-21
Antimony (Sb)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	05-JUL-21
Arsenic (As)-Total		0.0094	0.0089		mg/L	4.9	20	05-JUL-21
Cadmium (Cd)-Total		0.000272	0.000286		mg/L	4.8	20	05-JUL-21
Chromium (Cr)-Total		0.0351	0.0353		mg/L	0.8	20	05-JUL-21
Cobalt (Co)-Total		0.0133	0.0133		mg/L	0.1	20	05-JUL-21
Copper (Cu)-Total		0.0397	0.0388		mg/L	2.2	20	05-JUL-21
Lead (Pb)-Total		0.0238	0.0238		mg/L	0.1	20	05-JUL-21
Manganese (Mn)-Total		0.890	0.888		mg/L	0.2	20	05-JUL-21
Molybdenum (Mo)-Total		0.0109	0.0107		mg/L	1.6	20	05-JUL-21
Nickel (Ni)-Total		0.0294	0.0298		mg/L	1.4	20	05-JUL-21
Selenium (Se)-Total		0.00090	0.00103		mg/L	13	20	05-JUL-21
Silver (Ag)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	05-JUL-21
Tin (Sn)-Total		0.0022	0.0021		mg/L	3.7	20	05-JUL-21
Titanium (Ti)-Total		0.678	0.660		mg/L	2.8	20	05-JUL-21
Zinc (Zn)-Total		0.106	0.099		mg/L	6.5	20	05-JUL-21
WG3568732-2	LCS							
Aluminum (Al)-Total			102.4		%		80-120	05-JUL-21
Antimony (Sb)-Total			110.1		%		80-120	05-JUL-21
Arsenic (As)-Total			110.5		%		80-120	05-JUL-21
Cadmium (Cd)-Total			106.9		%		80-120	05-JUL-21
Chromium (Cr)-Total			105.6		%		80-120	05-JUL-21
Cobalt (Co)-Total			107.9		%		80-120	05-JUL-21
Copper (Cu)-Total			106.7		%		80-120	05-JUL-21
Lead (Pb)-Total			107.7		%		80-120	05-JUL-21
Manganese (Mn)-Total			106.1		%		80-120	05-JUL-21
Molybdenum (Mo)-Total			102.7		%		80-120	05-JUL-21
Nickel (Ni)-Total			105.8		%		80-120	05-JUL-21
Selenium (Se)-Total			109.7		%		80-120	05-JUL-21
Silver (Ag)-Total			107.8		%		80-120	05-JUL-21
Tin (Sn)-Total			107.2		%		80-120	05-JUL-21
Titanium (Ti)-Total			102.1		%		80-120	05-JUL-21
Zinc (Zn)-Total			108.8		%		80-120	05-JUL-21



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 5 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R5511962							
WG3568732-1 MB								
Aluminum (Al)-Total			<0.0050		mg/L		0.005	05-JUL-21
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	05-JUL-21
Arsenic (As)-Total			<0.00010		mg/L		0.0001	05-JUL-21
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	05-JUL-21
Chromium (Cr)-Total			<0.00050		mg/L		0.0005	05-JUL-21
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	05-JUL-21
Copper (Cu)-Total			<0.00050		mg/L		0.0005	05-JUL-21
Lead (Pb)-Total			<0.000050		mg/L		0.00005	05-JUL-21
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	05-JUL-21
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	05-JUL-21
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	05-JUL-21
Selenium (Se)-Total			<0.000050		mg/L		0.00005	05-JUL-21
Silver (Ag)-Total			<0.000050		mg/L		0.00005	05-JUL-21
Tin (Sn)-Total			<0.00010		mg/L		0.0001	05-JUL-21
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	05-JUL-21
Zinc (Zn)-Total			<0.0030		mg/L		0.003	05-JUL-21
WG3568732-5 MS		WG3568732-6						
Aluminum (Al)-Total			N/A	MS-B	%		-	05-JUL-21
Antimony (Sb)-Total			107.5		%		70-130	05-JUL-21
Arsenic (As)-Total			110.4		%		70-130	05-JUL-21
Cadmium (Cd)-Total			112.3		%		70-130	05-JUL-21
Chromium (Cr)-Total			111.4		%		70-130	05-JUL-21
Cobalt (Co)-Total			106.3		%		70-130	05-JUL-21
Copper (Cu)-Total			98.5		%		70-130	05-JUL-21
Lead (Pb)-Total			103.1		%		70-130	05-JUL-21
Manganese (Mn)-Total			N/A	MS-B	%		-	05-JUL-21
Molybdenum (Mo)-Total			106.6		%		70-130	05-JUL-21
Nickel (Ni)-Total			108.4		%		70-130	05-JUL-21
Selenium (Se)-Total			109.6		%		70-130	05-JUL-21
Silver (Ag)-Total			104.9		%		70-130	05-JUL-21
Tin (Sn)-Total			103.4		%		70-130	05-JUL-21
Titanium (Ti)-Total			N/A	MS-B	%		-	05-JUL-21
Zinc (Zn)-Total			106.2		%		70-130	05-JUL-21
NP,NPE-LCMS-WT								
	Water							



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 6 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NP,NPE-LCMS-WT								
	Water							
Batch	R5515520							
WG3569017-3	DUP	L2608572-1						
Nonylphenol		<1.0	<1.0	RPD-NA	ug/L	N/A	30	06-JUL-21
Nonylphenol Monoethoxylates		<2.0	<2.0	RPD-NA	ug/L	N/A	30	06-JUL-21
Nonylphenol Diethoxylates		<0.10	<0.10	RPD-NA	ug/L	N/A	30	06-JUL-21
WG3569017-2	LCS							
Nonylphenol			86.1		%		75-125	06-JUL-21
Nonylphenol Monoethoxylates			88.5		%		75-125	06-JUL-21
Nonylphenol Diethoxylates			97.5		%		75-125	06-JUL-21
WG3569017-1	MB							
Nonylphenol			<1.0		ug/L		1	06-JUL-21
Nonylphenol Monoethoxylates			<2.0		ug/L		2	06-JUL-21
Nonylphenol Diethoxylates			<0.10		ug/L		0.1	06-JUL-21
WG3569017-4	MS	L2608572-1						
Nonylphenol			101.1		%		50-150	06-JUL-21
Nonylphenol Monoethoxylates			98.1		%		50-150	06-JUL-21
Nonylphenol Diethoxylates			97.3		%		50-150	06-JUL-21
OGG-SPEC-WT								
	Water							
Batch	R5521329							
WG3574045-2	LCS							
Oil and Grease, Total			94.0		%		70-130	12-JUL-21
Mineral Oil and Grease			89.2		%		70-130	12-JUL-21
WG3574045-1	MB							
Oil and Grease, Total			<5.0		mg/L		5	12-JUL-21
Mineral Oil and Grease			<2.5		mg/L		2.5	12-JUL-21
P-T-COL-WT								
	Water							
Batch	R5514071							
WG3569174-3	DUP	L2608356-3						
Phosphorus, Total		0.0249	0.0226		mg/L	9.8	20	07-JUL-21
WG3569174-2	LCS							
Phosphorus, Total			99.2		%		80-120	07-JUL-21
WG3569174-1	MB							
Phosphorus, Total			<0.0030		mg/L		0.003	07-JUL-21
WG3569174-4	MS	L2608356-3						
Phosphorus, Total			89.1		%		70-130	07-JUL-21
PAH-EXTRA-WT								
	Water							



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 7 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-EXTRA-WT		Water						
Batch	R5515456							
WG3570485-2	LCS							
Benzo(e)pyrene			85.1		%		60-130	08-JUL-21
1,3-Dinitropyrene			111.4		%		60-130	08-JUL-21
1,6-Dinitropyrene			163.8	LCS-H	%		60-130	08-JUL-21
Dibenz(a,h)acridine			99.5		%		60-130	08-JUL-21
1,8-Dinitropyrene			126.2		%		60-130	08-JUL-21
Dibenz(a,j)acridine			99.8		%		60-130	08-JUL-21
7H-Dibenzo(c,g)carbazole			113.1		%		60-130	08-JUL-21
Dibenzo(a,i)pyrene			100.9		%		60-130	08-JUL-21
WG3570485-1	MB							
Benzo(e)pyrene			<0.050		ug/L		0.05	08-JUL-21
1,3-Dinitropyrene			<1.0		ug/L		1	08-JUL-21
1,6-Dinitropyrene			<1.0		ug/L		1	08-JUL-21
Dibenz(a,h)acridine			<0.050		ug/L		0.05	08-JUL-21
1,8-Dinitropyrene			<1.0		ug/L		1	08-JUL-21
Dibenz(a,j)acridine			<0.050		ug/L		0.05	08-JUL-21
7H-Dibenzo(c,g)carbazole			<0.050		ug/L		0.05	08-JUL-21
Dibenzo(a,i)pyrene			<0.050		ug/L		0.05	08-JUL-21
Surrogate: d14-Terphenyl			85.8		%		40-130	08-JUL-21
PCB-WT		Water						
Batch	R5516501							
WG3569515-2	LCS							
Aroclor 1242			110.6		%		65-130	09-JUL-21
Aroclor 1248			88.4		%		65-130	09-JUL-21
Aroclor 1254			112.9		%		65-130	09-JUL-21
Aroclor 1260			113.1		%		65-130	09-JUL-21
WG3569515-1	MB							
Aroclor 1242			<0.020		ug/L		0.02	09-JUL-21
Aroclor 1248			<0.020		ug/L		0.02	09-JUL-21
Aroclor 1254			<0.020		ug/L		0.02	09-JUL-21
Aroclor 1260			<0.020		ug/L		0.02	09-JUL-21
Surrogate: Decachlorobiphenyl			110.2		%		50-150	09-JUL-21
Surrogate: Tetrachloro-m-xylene			78.3		%		50-150	09-JUL-21
PH-WT	Water							



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 8 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
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 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WT		Water						
Batch	R5510702							
WG3568407-4	DUP	WG3568407-3						
pH		7.58	7.54	J	pH units	0.04	0.2	03-JUL-21
WG3568407-2	LCS		7.00		pH units		6.9-7.1	03-JUL-21
PHENOLS-4AAP-WT		Water						
Batch	R5513831							
WG3569956-3	DUP	WG3569956-5						
Phenols (4AAP)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	06-JUL-21
WG3569956-2	LCS		99.2		%		85-115	06-JUL-21
Phenols (4AAP)								
WG3569956-1	MB		<0.0010		mg/L		0.001	06-JUL-21
Phenols (4AAP)								
WG3569956-4	MS	WG3569956-5						
Phenols (4AAP)			95.5		%		75-125	06-JUL-21
SOLIDS-TSS-WT		Water						
Batch	R5514559							
WG3570562-3	DUP	L2608963-1						
Total Suspended Solids		850	850		mg/L	0.0	20	08-JUL-21
WG3570562-2	LCS		98.0		%		85-115	08-JUL-21
Total Suspended Solids								
WG3570562-1	MB		<3.0		mg/L		3	08-JUL-21
Total Suspended Solids								
TKN-F-WT		Water						
Batch	R5513183							
WG3569169-3	DUP	L2608128-3						
Total Kjeldahl Nitrogen		0.770	0.730		mg/L	5.3	20	06-JUL-21
WG3569169-2	LCS		98.8		%		75-125	06-JUL-21
Total Kjeldahl Nitrogen								
WG3569169-1	MB		<0.050		mg/L		0.05	06-JUL-21
Total Kjeldahl Nitrogen								
WG3569169-4	MS	L2608128-3						
Total Kjeldahl Nitrogen			92.4		%		70-130	06-JUL-21
VOC-ROU-HS-WT		Water						
Batch	R5517259							
WG3572891-4	DUP	WG3572891-3						
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	12-JUL-21
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	12-JUL-21



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 9 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R5517259							
WG3572891-4	DUP	WG3572891-3						
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	12-JUL-21
Benzene		1.38	1.28		ug/L	7.5	30	12-JUL-21
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	12-JUL-21
cis-1,2-Dichloroethylene		1.34	1.37		ug/L	2.2	30	12-JUL-21
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	12-JUL-21
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	12-JUL-21
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	12-JUL-21
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	12-JUL-21
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	12-JUL-21
Toluene		<0.40	<0.40	RPD-NA	ug/L	N/A	30	12-JUL-21
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	12-JUL-21
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	12-JUL-21
WG3572891-1	LCS							
1,1,2,2-Tetrachloroethane			80.1		%		70-130	12-JUL-21
1,2-Dichlorobenzene			95.8		%		70-130	12-JUL-21
1,4-Dichlorobenzene			97.8		%		70-130	12-JUL-21
Benzene			92.4		%		70-130	12-JUL-21
Chloroform			94.9		%		70-130	12-JUL-21
cis-1,2-Dichloroethylene			94.8		%		70-130	12-JUL-21
Dichloromethane			87.9		%		70-130	12-JUL-21
Ethylbenzene			100.5		%		70-130	12-JUL-21
m+p-Xylenes			100.1		%		70-130	12-JUL-21
o-Xylene			107.2		%		70-130	12-JUL-21
Tetrachloroethylene			98.4		%		70-130	12-JUL-21
Toluene			98.5		%		70-130	12-JUL-21
trans-1,3-Dichloropropene			82.7		%		70-130	12-JUL-21
Trichloroethylene			96.3		%		70-130	12-JUL-21
WG3572891-2	MB							
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	12-JUL-21
1,2-Dichlorobenzene			<0.50		ug/L		0.5	12-JUL-21
1,4-Dichlorobenzene			<0.50		ug/L		0.5	12-JUL-21
Benzene			<0.50		ug/L		0.5	12-JUL-21
Chloroform			<1.0		ug/L		1	12-JUL-21
cis-1,2-Dichloroethylene			<0.50				0.5	



Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Page 10 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Andrei Miler

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R5517259							
WG3572891-2 MB								
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	12-JUL-21
Dichloromethane			<2.0		ug/L		2	12-JUL-21
Ethylbenzene			<0.50		ug/L		0.5	12-JUL-21
m+p-Xylenes			<0.40		ug/L		0.4	12-JUL-21
o-Xylene			<0.30		ug/L		0.3	12-JUL-21
Tetrachloroethylene			<0.50		ug/L		0.5	12-JUL-21
Toluene			<0.40		ug/L		0.4	12-JUL-21
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	12-JUL-21
Trichloroethylene			<0.50		ug/L		0.5	12-JUL-21
Surrogate: 1,4-Difluorobenzene			101.0		%		70-130	12-JUL-21
Surrogate: 4-Bromofluorobenzene			97.5		%		70-130	12-JUL-21
WG3572891-5 MS		WG3572891-3						
1,1,2,2-Tetrachloroethane			79.9		%		50-150	12-JUL-21
1,2-Dichlorobenzene			94.1		%		50-150	12-JUL-21
1,4-Dichlorobenzene			93.9		%		50-150	12-JUL-21
Benzene			89.4		%		50-150	12-JUL-21
Chloroform			93.0		%		50-150	12-JUL-21
cis-1,2-Dichloroethylene			92.7		%		50-150	12-JUL-21
Dichloromethane			87.3		%		50-150	12-JUL-21
Ethylbenzene			95.3		%		50-150	12-JUL-21
m+p-Xylenes			93.1		%		50-150	12-JUL-21
o-Xylene			101.8		%		50-150	12-JUL-21
Tetrachloroethylene			87.0		%		50-150	12-JUL-21
Toluene			91.6		%		50-150	12-JUL-21
trans-1,3-Dichloropropene			81.5		%		50-150	12-JUL-21
Trichloroethylene			90.5		%		50-150	12-JUL-21

Quality Control Report

Workorder: L2609138

Report Date: 14-JUL-21

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)

74 Berkeley Street

Toronto ON M5V 1E3

Page 11 of 11

Contact: Andrei Miler

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 889260

Canada Toll Free: 1 800 668 9878

Page 1 of 1



Report To	Reports / Recipients	Turnaround Time (TAT) Requested	
Contact and company name below will appear on the final report Company: Palmer Contact: Andrei Miler (andrei.miler@pecq.ca) Phone: 647-808-5612 Company address below will appear on the final report Street: 74 Berkeley Street City/Province: Toronto, Ontario Postal Code: M5V 1E3	Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Merge QC/QCI Reports with COA: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: andrei.miler@pecq.ca Email 2: jason.cole@pecq.ca Email 3:	<input checked="" type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum <input type="checkbox"/> Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests	AFFIX ALS BARCODE LABEL HERE (ALS use only)

Invoice To	Invoice Recipients	Analysis Request											
Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Copy of Invoice with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Select Invoice Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: Email 2: Email 3:	For all tests with rush TATs requested, please contact your AM to confirm availability. Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below											
Project Information		Oil and Gas Required Fields (client use)											
ALS Account # / Quote #: PALMER Quote Job #: 822 PO / AFE: LSD:	AFE/Cost Center: Major/Minor Code: Requisitioner: Location:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 5%;">NUMBER OF CONTAINERS</th> <th style="width: 75%;">INDICATE FILTERED (F), PRESERVED (P) OR FILTERED AND PRESERVED (F/P) BELOW</th> <th style="width: 10%;">SAMPLES ON HOLD</th> <th style="width: 10%;">EXTENDED STORAGE REQUIRED</th> <th style="width: 10%;">SUSPECTED HAZARD (see notes)</th> </tr> <tr> <td style="text-align: center;">20 X</td> <td style="text-align: center;"> City of Toronto Sewer + Sanitary Sewer Discharge </td> <td></td> <td></td> <td></td> </tr> </table>		NUMBER OF CONTAINERS	INDICATE FILTERED (F), PRESERVED (P) OR FILTERED AND PRESERVED (F/P) BELOW	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)	20 X	City of Toronto Sewer + Sanitary Sewer Discharge			
NUMBER OF CONTAINERS	INDICATE FILTERED (F), PRESERVED (P) OR FILTERED AND PRESERVED (F/P) BELOW	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)									
20 X	City of Toronto Sewer + Sanitary Sewer Discharge												
ALS Lab Work Order # (ALS use only): L2609138	ALS Contact: Sampler:												

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm) AM	Sample Type	NUMBER OF CONTAINERS	INDICATE FILTERED (F), PRESERVED (P) OR FILTERED AND PRESERVED (F/P) BELOW	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MW-106-S	02-07-21	10:30	GW	20 X				



Drinking Water (DW) Samples ¹ (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)	SAMPLE RECEIPT DETAILS (ALS use only)			
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Toronto Sewer + Sanitary Sewer Discharge	Cooling Method: <input type="checkbox"/> NONE <input checked="" type="checkbox"/> ICE <input checked="" type="checkbox"/> ICE PACKS <input type="checkbox"/> FROZEN <input checked="" type="checkbox"/> COOLING INITIATED Submission Comments identified on Sample Receipt Notification: <input type="checkbox"/> YES <input type="checkbox"/> NO Cooler Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A Sample Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A INITIAL COOLER TEMPERATURES °C: 13.3 FINAL COOLER TEMPERATURES °C: 3.8			
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (ALS use only)		FINAL SHIPMENT RECEPTION (ALS use only)	
Released by: Andrei Miler Date: 02-07-21 Time: 1:45 PM	Received by: Karam Date: 7/2/2021 Time: 13:47	Received by: JA Date: 7/2/21 Time: 16:00			



PALMER ENVIRONMENTAL CONSULTING
GROUP INC. (Richmond Hill)
ATTN: Nicole Anasis
74 Berkeley Street
Toronto ON M5V 1E3

Date Received: 17-JUN-22
Report Date: 27-JUN-22 14:56 (MT)
Version: FINAL

Client Phone: 647-795-8153

Certificate of Analysis

Lab Work Order #: L2716075
Project P.O. #: 24400
Job Reference: 2001512
C of C Numbers: 20-954734
Legal Site Desc:

KARANPARTAP SINGH
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 95 West Beaver Creek Road, Unit 1, Richmond Hill, ON L4B 1H2 Canada | Phone: +1 905 881 9887 | Fax: +1 905 881 8062
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

Summary of Guideline Exceedances

Guideline							
ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit	
Ontario Toronto Sanitary Discharge Sewer By-Law 100-2016 (FEB 4,2016) - Ontario Toronto Sanitary Discharge Sewer By-Law							
(No parameter exceedances)							
Ontario Toronto Sanitary Discharge Sewer By-Law 100-2016 (FEB 4,2016) - Ontario Toronto Storm Sewer By-Law							
L2716075-1	GROUNDWATER	Physical Tests	Total Suspended Solids	55.3	15	mg/L	
		Total Metals	Manganese (Mn)-Total	0.499	0.05	mg/L	

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Physical Tests - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWATER

Analyte	Unit	Guide Limits		
		#1	#2	
pH	pH units	6.00-11.5	6.0-9.5	7.21 ^{PEHT}
Total Suspended Solids	mg/L	350	15	55.3

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Anions and Nutrients - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWATER

Analyte	Unit	Guide Limits		
		#1	#2	
Fluoride (F)	mg/L	10	-	<0.20 ^{DLDS}
Total Kjeldahl Nitrogen	mg/L	100	-	0.371
Phosphorus, Total	mg/L	10	0.4	0.0389

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Cyanides - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWAT
 ER

Analyte	Unit	Guide Limits		
		#1	#2	
Cyanide, Total	mg/L	2	0.02	<0.0020

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Bacteriological Tests - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWAT
 ER

Guide Limits

Analyte	Unit	#1	#2
E. Coli	CFU/100m L	-	200 0

Analyte	Unit	#1	#2
E. Coli	CFU/100m L	-	200 0

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Total Metals - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWATER

Analyte	Unit	Guide Limits		
		#1	#2	
Aluminum (Al)-Total	mg/L	50	-	0.685 ^{DLHC}
Antimony (Sb)-Total	mg/L	5	-	<0.0010 ^{DLHC}
Arsenic (As)-Total	mg/L	1	0.02	0.0011 ^{DLHC}
Cadmium (Cd)-Total	mg/L	0.7	0.008	0.000211 ^{DLHC}
Chromium (Cr)-Total	mg/L	4	0.08	<0.0050 ^{DLHC}
Cobalt (Co)-Total	mg/L	5	-	0.0017 ^{DLHC}
Copper (Cu)-Total	mg/L	2	0.04	0.0070 ^{DLHC}
Lead (Pb)-Total	mg/L	1	0.12	0.00137 ^{DLHC}
Manganese (Mn)-Total	mg/L	5	0.05	0.499 ^{DLHC}
Mercury (Hg)-Total	mg/L	0.01	0.0004	<0.0000050
Molybdenum (Mo)-Total	mg/L	5	-	0.00203 ^{DLHC}
Nickel (Ni)-Total	mg/L	2	0.08	0.0053 ^{DLHC}
Selenium (Se)-Total	mg/L	1	0.02	<0.00050 ^{DLHC}
Silver (Ag)-Total	mg/L	5	0.12	<0.00050 ^{DLHC}
Tin (Sn)-Total	mg/L	5	-	<0.0010 ^{DLHC}
Titanium (Ti)-Total	mg/L	5	-	0.0119 ^{DLHC}
Zinc (Zn)-Total	mg/L	2	0.04	<0.030 ^{DLHC}

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Speciated Metals - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWAT
 ER

Analyte	Unit	Guide Limits		
		#1	#2	
Chromium, Hexavalent	mg/L	2	0.04	<0.00050

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Aggregate Organics - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWATER

Analyte	Unit	Guide Limits		
		#1	#2	
BOD	mg/L	300	15	<3.0 ^{BODL}
Oil and Grease, Total	mg/L	-	-	<5.0
Animal/Veg Oil & Grease	mg/L	150	-	<5.0
Mineral Oil and Grease	mg/L	15	-	<2.5
Phenols (4AAP)	mg/L	1.0	0.008	<0.0010

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Volatile Organic Compounds - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWATER

Analyte	Unit	Guide Limits		
		#1	#2	
Benzene	ug/L	10	2	<0.50 ^{OWP}
Chloroform	ug/L	40	2	<1.0 ^{OWP}
1,2-Dichlorobenzene	ug/L	50	5.6	<0.50 ^{OWP}
1,4-Dichlorobenzene	ug/L	80	6.8	<0.50 ^{OWP}
cis-1,2-Dichloroethylene	ug/L	4000	5.6	<0.50 ^{OWP}
Dichloromethane	ug/L	2000	5.2	<2.0 ^{OWP}
trans-1,3-Dichloropropene	ug/L	140	-	<0.50 ^{OWP}
Ethylbenzene	ug/L	160	2	<0.50 ^{OWP}
1,1,2,2-Tetrachloroethane	ug/L	1400	17	<0.50 ^{OWP}
Tetrachloroethylene	ug/L	1000	4.4	<0.50 ^{OWP}
Toluene	ug/L	16	2	<0.50 ^{OWP}
Trichloroethylene	ug/L	400	7.6	<0.50 ^{OWP}
o-Xylene	ug/L	-	-	<0.50 ^{OWP}
m+p-Xylenes	ug/L	-	-	<1.0 ^{OWP}
Xylenes (Total)	ug/L	1400	4.4	<1.1
Surrogate: 4-Bromofluorobenzene	%	-	-	96.1
Surrogate: 1,4-Difluorobenzene	%	-	-	100.5

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



ANALYTICAL REPORT

Polycyclic Aromatic Hydrocarbons - WATER

Lab ID L2716075-1
 Sample Date 17-JUN-22
 Sample ID GROUNDWATER

Analyte	Unit	Guide Limits		
		#1	#2	
Acenaphthene	ug/L	-	-	<0.010
Anthracene	ug/L	-	-	<0.010
Benzo(a)anthracene	ug/L	-	-	<0.010
Benzo(a)pyrene	ug/L	-	-	<0.010
Benzo(b&j)fluoranthene	ug/L	-	-	<0.010
Benzo(e)pyrene	ug/L	-	-	<0.050
Benzo(ghi)perylene	ug/L	-	-	<0.010
Benzo(k)fluoranthene	ug/L	-	-	<0.010
Chrysene	ug/L	-	-	<0.010
Dibenz(a,h)acridine	ug/L	-	-	<0.050
Dibenz(a,j)acridine	ug/L	-	-	<0.050
Dibenz(a,h)anthracene	ug/L	-	-	<0.010
Dibenzo(a,i)pyrene	ug/L	-	-	<0.050
7H-Dibenzo(c,g)carbazole	ug/L	-	-	<0.050
1,3-Dinitropyrene	ug/L	-	-	<1.0
1,6-Dinitropyrene	ug/L	-	-	<1.0
1,8-Dinitropyrene	ug/L	-	-	<1.0
Fluoranthene	ug/L	-	-	<0.010
Fluorene	ug/L	-	-	<0.010
Indeno(1,2,3-cd)pyrene	ug/L	-	-	<0.010
Naphthalene	ug/L	-	-	<0.010
Perylene	ug/L	-	-	<0.010
Phenanthrene	ug/L	-	-	<0.010
Pyrene	ug/L	-	-	<0.010
Surrogate: 2-Fluorobiphenyl	%	-	-	71.6
Surrogate: D14-Terphenyl	%	-	-	88.3
Surrogate: d14-Terphenyl	%	-	-	111.1
Total PAHs	ug/L	5	2	<1.7

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Semi-Volatile Organics - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWATER

Analyte	Unit	Guide Limits		
		#1	#2	
3,3-Dichlorobenzidine	ug/L	2	0.8	<0.40
Di-n-butylphthalate	ug/L	80	15	<1.0
Bis(2-ethylhexyl)phthalate	ug/L	12	8.8	<2.0
Pentachlorophenol	ug/L	5	2	<0.50
Surrogate: 2-Fluorobiphenyl	%	-	-	90.0
Surrogate: p-Terphenyl d14	%	-	-	96.1
Surrogate: 2,4,6-Tribromophenol	%	-	-	121.2

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Polychlorinated Biphenyls - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWATER

Analyte	Unit	Guide Limits		
		#1	#2	
Aroclor 1242	ug/L	-	-	<0.020
Aroclor 1248	ug/L	-	-	<0.020
Aroclor 1254	ug/L	-	-	<0.020
Aroclor 1260	ug/L	-	-	<0.020
Surrogate: Decachlorobiphenyl	%	-	-	93.1
Total PCBs	ug/L	1	0.4	<0.040
Surrogate: Tetrachloro-m-xylene	%	-	-	112.0

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Organic Parameters - WATER

Lab ID L2716075-1
Sample Date 17-JUN-22
Sample ID GROUNDWATER

Analyte	Unit	Guide Limits		
		#1	#2	
Nonylphenol	ug/L	20	1	<1.0
Nonylphenol Diethoxylates	ug/L	-	-	<0.10
Total Nonylphenol Ethoxylates	ug/L	200	10	<2.0
Nonylphenol Monoethoxylates	ug/L	-	-	<2.0

Guide Limit #1: Ontario Toronto Sanitary Discharge Sewer By-Law

Guide Limit #2: Ontario Toronto Storm Sewer By-Law

- Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
- Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
PEHT	Parameter Exceeded Recommended Holding Time Prior to Analysis
BODL	Limit of Reporting for BOD was increased to account for the largest volume of sample tested.
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of

Reference Information

sediment.

DLHC Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
625-PAH-LOW-WT	Water	EPA 8270 PAH (Low Level)	SW846 8270
Aqueous samples are extracted and extracts are analyzed on GC/MSD. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.			
625-SAN-WT	Water	Ontario Sanitary Sewer SVOC Target List	SW-846 8270
Samples are extracted with solvent and then analyzed by GC/MS.			
BOD-WT	Water	BOD	APHA 5210 B
This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.			
CN-TOT-WT	Water	Cyanide, Total	ISO 14403-2
Total cyanide is determined by the combination of UV digestion and distillation. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.			
When using this method, high levels of thiocyanate in samples can cause false positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, ALS recommends analysis for thiocyanate to check for this potential interference			
CR-CR6-IC-WT	Water	Chromium +6	EPA 7199
This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
EC-SCREEN-WT	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.			
EC-WW-MF-WT	Water	E. Coli	SM 9222D
A 100 mL volume of sample is filtered through a membrane, the membrane is placed on mFC-BCIG agar and incubated at 44.5 – 0.2 °C for 24 – 2 h. Method ID: WT-TM-1200			
F-IC-N-WT	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
HG-T-CVAA-WT	Water	Total Mercury in Water by CVAAS	EPA 1631E (mod)
Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.			
MET-T-CCMS-WT	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

NP,NPE-LCMS-WT	Water	Nonylphenols and Ethoxylates by LC/MS-MS	J. Chrom A849 (1999) p.467-482
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Water samples are filtered and analyzed on LCMS/MS by direct injection.

OGG-SPEC-CALC-WT	Water	Speciated Oil and Grease A/V Calc	CALCULATION
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Sample is extracted with hexane, sample speciation into mineral and animal/vegetable fractions is achieved via silica gel separation and is then determined gravimetrically.

OGG-SPEC-WT	Water	Speciated Oil and Grease-Gravimetric	APHA 5520 B
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The procedure involves an extraction of the entire water sample with hexane. Sample speciation into mineral and animal/vegetable fractions is achieved via silica gel separation and is then determined gravimetrically.

P-T-COL-WT	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
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This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PAH-EXTRA-WT	Water	Sanitary Sewer Use By-Law Additional PAH	SW 846 8270
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PAH-SUM-CALC-WT	Water	TOTAL PAH's	CALCULATION
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Total PAH represents the sum of all PAH analytes reported for a given sample. Note that regulatory agencies and criteria differ in their definitions of Total PAH in terms of the individual PAH analytes to be included.

PCB-WT	Water	Polychlorinated Biphenyls	EPA 8082
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PCBs are extracted from an aqueous sample at neutral pH with aliquots of dichloromethane using a modified separatory funnel technique. The extracts are analyzed by GC/MSD.

PH-WT	Water	pH	APHA 4500 H-Electrode
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Water samples are analyzed directly by a calibrated pH meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days

PHENOLS-4AAP-ED	Water	Phenols (4AAP)	EPA 9066 AUTO-DISTILL-COLORIMETRIC
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This automated method is based on the distillation of phenol and subsequent reaction of the distillate with an oxidizing agent (alkaline potassium ferricyanide), and 4-aminoantipyrine to form a red complex which is measured at 505 nm. The method will include ortho and meta-substituted phenols, and is collectively named 4AAP phenols.

SOLIDS-TSS-WT	Water	Suspended solids	APHA 2540 D-Gravimetric
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A well-mixed sample is filtered through a weighed standard glass fibre filter and the residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved.

TKN-F-WT	Water	TKN in Water by Fluorescence	J. ENVIRON. MONIT., 2005,7,37-42,RSC
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Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
		Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection	
VOC-ROU-HS-WT	Water	Volatile Organic Compounds	SW846 8260
		Aqueous samples are analyzed by headspace-GC/MS.	
XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION
		Total xylenes represents the sum of o-xylene and m&p-xylene.	

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

20-954734

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 1 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-PAH-LOW-WT	Water							
Batch	R5805078							
WG3741372-2	LCS							
Acenaphthene			87.6		%		50-130	21-JUN-22
Anthracene			93.4		%		60-130	21-JUN-22
Benzo(a)anthracene			88.4		%		60-140	21-JUN-22
Benzo(a)pyrene			96.4		%		60-130	21-JUN-22
Benzo(b&j)fluoranthene			100.8		%		60-130	21-JUN-22
Benzo(ghi)perylene			100.8		%		50-140	21-JUN-22
Benzo(k)fluoranthene			95.0		%		60-130	21-JUN-22
Chrysene			86.0		%		60-140	21-JUN-22
Dibenz(a,h)anthracene			99.0		%		60-130	21-JUN-22
Fluoranthene			79.6		%		60-130	21-JUN-22
Fluorene			91.7		%		60-130	21-JUN-22
Indeno(1,2,3-cd)pyrene			96.0		%		60-140	21-JUN-22
Naphthalene			87.3		%		50-130	21-JUN-22
Perylene			92.1		%		60-130	21-JUN-22
Phenanthrene			89.3		%		60-130	21-JUN-22
Pyrene			81.0		%		60-130	21-JUN-22
WG3741372-1	MB							
Acenaphthene			<0.010		ug/L		0.01	21-JUN-22
Anthracene			<0.010		ug/L		0.01	21-JUN-22
Benzo(a)anthracene			<0.010		ug/L		0.01	21-JUN-22
Benzo(a)pyrene			<0.010		ug/L		0.01	21-JUN-22
Benzo(b&j)fluoranthene			<0.010		ug/L		0.01	21-JUN-22
Benzo(ghi)perylene			<0.010		ug/L		0.01	21-JUN-22
Benzo(k)fluoranthene			<0.010		ug/L		0.01	21-JUN-22
Chrysene			<0.010		ug/L		0.01	21-JUN-22
Dibenz(a,h)anthracene			<0.010		ug/L		0.01	21-JUN-22
Fluoranthene			<0.010		ug/L		0.01	21-JUN-22
Fluorene			<0.010		ug/L		0.01	21-JUN-22
Indeno(1,2,3-cd)pyrene			<0.010		ug/L		0.01	21-JUN-22
Naphthalene			<0.010		ug/L		0.01	21-JUN-22
Perylene			<0.010		ug/L		0.01	21-JUN-22
Phenanthrene			<0.010		ug/L		0.01	21-JUN-22
Pyrene			<0.010		ug/L		0.01	21-JUN-22
Surrogate: 2-Fluorobiphenyl			66.0		%		40-130	21-JUN-22



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 2 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
625-PAH-LOW-WT Water								
Batch	R5805078							
WG3741372-1	MB							
Surrogate: D14-Terphenyl			88.5		%		40-130	21-JUN-22
625-SAN-WT Water								
Batch	R5805143							
WG3741372-2	LCS							
3,3-Dichlorobenzidine			61.9		%		50-140	21-JUN-22
Bis(2-ethylhexyl)phthalate			130.4		%		50-140	21-JUN-22
Di-n-butylphthalate			110.4		%		50-140	21-JUN-22
Pentachlorophenol			132.3		%		50-140	21-JUN-22
WG3741372-1	MB							
3,3-Dichlorobenzidine			<0.40		ug/L		0.4	21-JUN-22
Bis(2-ethylhexyl)phthalate			<2.0		ug/L		2	21-JUN-22
Di-n-butylphthalate			<1.0		ug/L		1	21-JUN-22
Pentachlorophenol			<0.50		ug/L		0.5	21-JUN-22
Surrogate: 2-Fluorobiphenyl			86.4		%		40-130	21-JUN-22
Surrogate: 2,4,6-Tribromophenol			78.2		%		40-130	21-JUN-22
Surrogate: p-Terphenyl d14			117.6		%		40-130	21-JUN-22
BOD-WT Water								
Batch	R5806202							
WG3741276-2	DUP	L2715939-1						
BOD		<3.0	<3.0	RPD-NA	mg/L	N/A	30	18-JUN-22
WG3741276-3	LCS							
BOD			87.9		%		85-115	18-JUN-22
WG3741276-1	MB							
BOD			<2.0		mg/L		2	18-JUN-22
CN-TOT-WT Water								
Batch	R5806105							
WG3742500-10	DUP	WG3742500-8						
Cyanide, Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-JUN-22
WG3742500-7	LCS							
Cyanide, Total			100.1		%		80-120	22-JUN-22
WG3742500-6	MB							
Cyanide, Total			<0.0020		mg/L		0.002	22-JUN-22
WG3742500-9	MS	WG3742500-8						
Cyanide, Total			106.1		%		70-130	22-JUN-22



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 3 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT		Water						
Batch	R5805059							
WG3741633-4	DUP	WG3741633-3						
Chromium, Hexavalent		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	20-JUN-22
WG3741633-2	LCS							
Chromium, Hexavalent			98.5		%		80-120	20-JUN-22
WG3741633-1	MB							
Chromium, Hexavalent			<0.00050		mg/L		0.0005	20-JUN-22
WG3741633-5	MS	WG3741633-3						
Chromium, Hexavalent			97.5		%		70-130	20-JUN-22
EC-WW-MF-WT		Water						
Batch	R5804668							
WG3741251-3	DUP	L2715946-1						
E. Coli		0	0		CFU/100mL	0.0	65	18-JUN-22
WG3741251-1	MB							
E. Coli			0		CFU/100mL		1	18-JUN-22
F-IC-N-WT		Water						
Batch	R5806019							
WG3742598-9	DUP	WG3742598-8						
Fluoride (F)		0.087	0.087		mg/L	0.8	20	22-JUN-22
WG3742598-7	LCS							
Fluoride (F)			101.2		%		90-110	22-JUN-22
WG3742598-6	MB							
Fluoride (F)			<0.020		mg/L		0.02	22-JUN-22
WG3742598-10	MS	WG3742598-8						
Fluoride (F)			99.7		%		75-125	22-JUN-22
HG-T-CVAA-WT		Water						
Batch	R5804779							
WG3741389-3	DUP	WG3741389-5						
Mercury (Hg)-Total		<0.0000050	<0.0000050	RPD-NA	mg/L	N/A	20	20-JUN-22
WG3741389-2	LCS							
Mercury (Hg)-Total			98.0		%		80-120	20-JUN-22
WG3741389-1	MB							
Mercury (Hg)-Total			<0.0000050		mg/L		0.000005	20-JUN-22
WG3741389-4	MS	WG3741389-6						
Mercury (Hg)-Total			96.2		%		70-130	20-JUN-22
MET-T-CCMS-WT	Water							



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 4 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R5804823							
WG3741487-4	DUP	WG3741487-3						
Aluminum (Al)-Total		0.273	0.263		mg/L	3.7	20	20-JUN-22
Antimony (Sb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	20-JUN-22
Arsenic (As)-Total		0.00084	0.00086		mg/L	2.3	20	20-JUN-22
Cadmium (Cd)-Total		<0.0000050	0.0000076	RPD-NA	mg/L	N/A	20	20-JUN-22
Chromium (Cr)-Total		0.00057	0.00054		mg/L	3.7	20	20-JUN-22
Cobalt (Co)-Total		0.00024	0.00024		mg/L	0.2	20	20-JUN-22
Copper (Cu)-Total		0.00134	0.00135		mg/L	0.7	20	20-JUN-22
Lead (Pb)-Total		0.000316	0.000315		mg/L	0.3	20	20-JUN-22
Manganese (Mn)-Total		0.0466	0.0464		mg/L	0.3	20	20-JUN-22
Molybdenum (Mo)-Total		0.000594	0.000607		mg/L	2.3	20	20-JUN-22
Nickel (Ni)-Total		0.00099	0.00099		mg/L	0.5	20	20-JUN-22
Selenium (Se)-Total		0.000088	0.000092		mg/L	4.3	20	20-JUN-22
Silver (Ag)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	20-JUN-22
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	20-JUN-22
Titanium (Ti)-Total		0.00781	0.00884		mg/L	12	20	20-JUN-22
Zinc (Zn)-Total		<0.0030	<0.0030	RPD-NA	mg/L	N/A	20	20-JUN-22
WG3741487-2	LCS							
Aluminum (Al)-Total			109.3		%		80-120	20-JUN-22
Antimony (Sb)-Total			107.4		%		80-120	20-JUN-22
Arsenic (As)-Total			106.8		%		80-120	20-JUN-22
Cadmium (Cd)-Total			102.8		%		80-120	20-JUN-22
Chromium (Cr)-Total			105.6		%		80-120	20-JUN-22
Cobalt (Co)-Total			102.5		%		80-120	20-JUN-22
Copper (Cu)-Total			101.7		%		80-120	20-JUN-22
Lead (Pb)-Total			107.3		%		80-120	20-JUN-22
Manganese (Mn)-Total			105.7		%		80-120	20-JUN-22
Molybdenum (Mo)-Total			104.9		%		80-120	20-JUN-22
Nickel (Ni)-Total			103.9		%		80-120	20-JUN-22
Selenium (Se)-Total			100.4		%		80-120	20-JUN-22
Silver (Ag)-Total			95.2		%		80-120	20-JUN-22
Tin (Sn)-Total			102.6		%		80-120	20-JUN-22
Titanium (Ti)-Total			109.1		%		80-120	20-JUN-22
Zinc (Zn)-Total			104.5		%		80-120	20-JUN-22



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 5 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WT								
	Water							
Batch	R5804823							
WG3741487-1 MB								
Aluminum (Al)-Total			<0.0050		mg/L		0.005	20-JUN-22
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	20-JUN-22
Arsenic (As)-Total			<0.00010		mg/L		0.0001	20-JUN-22
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	20-JUN-22
Chromium (Cr)-Total			<0.00050		mg/L		0.0005	20-JUN-22
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	20-JUN-22
Copper (Cu)-Total			<0.00050		mg/L		0.0005	20-JUN-22
Lead (Pb)-Total			<0.000050		mg/L		0.00005	20-JUN-22
Manganese (Mn)-Total			<0.00050		mg/L		0.0005	20-JUN-22
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	20-JUN-22
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	20-JUN-22
Selenium (Se)-Total			<0.000050		mg/L		0.00005	20-JUN-22
Silver (Ag)-Total			<0.000050		mg/L		0.00005	20-JUN-22
Tin (Sn)-Total			<0.00010		mg/L		0.0001	20-JUN-22
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	20-JUN-22
Zinc (Zn)-Total			<0.0030		mg/L		0.003	20-JUN-22
WG3741487-5 MS		WG3741487-6						
Aluminum (Al)-Total			N/A	MS-B	%		-	20-JUN-22
Antimony (Sb)-Total			102.9		%		70-130	20-JUN-22
Arsenic (As)-Total			105.0		%		70-130	20-JUN-22
Cadmium (Cd)-Total			99.6		%		70-130	20-JUN-22
Chromium (Cr)-Total			102.3		%		70-130	20-JUN-22
Cobalt (Co)-Total			97.8		%		70-130	20-JUN-22
Copper (Cu)-Total			94.7		%		70-130	20-JUN-22
Lead (Pb)-Total			99.9		%		70-130	20-JUN-22
Manganese (Mn)-Total			N/A	MS-B	%		-	20-JUN-22
Molybdenum (Mo)-Total			103.9		%		70-130	20-JUN-22
Nickel (Ni)-Total			95.8		%		70-130	20-JUN-22
Selenium (Se)-Total			98.2		%		70-130	20-JUN-22
Silver (Ag)-Total			88.8		%		70-130	20-JUN-22
Tin (Sn)-Total			98.5		%		70-130	20-JUN-22
Titanium (Ti)-Total			111.2		%		70-130	20-JUN-22
Zinc (Zn)-Total			93.2		%		70-130	20-JUN-22
NP,NPE-LCMS-WT								
	Water							



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 6 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NP,NPE-LCMS-WT								
	Water							
Batch	R5805543							
WG3741861-3	DUP	L2714698-1						
Nonylphenol		<1.0	<1.0	RPD-NA	ug/L	N/A	30	21-JUN-22
Nonylphenol Monoethoxylates		<2.0	<2.0	RPD-NA	ug/L	N/A	30	21-JUN-22
Nonylphenol Diethoxylates		<0.10	<0.10	RPD-NA	ug/L	N/A	30	21-JUN-22
WG3741861-2	LCS							
Nonylphenol			95.8		%		75-125	21-JUN-22
Nonylphenol Monoethoxylates			93.3		%		75-125	21-JUN-22
Nonylphenol Diethoxylates			113.7		%		75-125	21-JUN-22
WG3741861-1	MB							
Nonylphenol			<1.0		ug/L		1	21-JUN-22
Nonylphenol Monoethoxylates			<2.0		ug/L		2	21-JUN-22
Nonylphenol Diethoxylates			<0.10		ug/L		0.1	21-JUN-22
WG3741861-4	MS	L2714698-1						
Nonylphenol			110.6		%		60-140	21-JUN-22
Nonylphenol Monoethoxylates			117.6		%		60-140	21-JUN-22
Nonylphenol Diethoxylates			114.3		%		60-140	21-JUN-22
OGG-SPEC-WT								
	Water							
Batch	R5806253							
WG3741333-2	LCS							
Oil and Grease, Total			82.9		%		70-130	20-JUN-22
Mineral Oil and Grease			77.0		%		70-130	20-JUN-22
WG3741333-1	MB							
Oil and Grease, Total			<5.0		mg/L		5	20-JUN-22
Mineral Oil and Grease			<2.5		mg/L		2.5	20-JUN-22
P-T-COL-WT								
	Water							
Batch	R5806148							
WG3741377-3	DUP	L2715862-1						
Phosphorus, Total		0.0286	0.0244		mg/L	16	20	23-JUN-22
WG3741377-2	LCS							
Phosphorus, Total			99.3		%		80-120	23-JUN-22
WG3741377-1	MB							
Phosphorus, Total			<0.0030		mg/L		0.003	23-JUN-22
WG3741377-4	MS	L2715862-1						
Phosphorus, Total			87.8		%		70-130	23-JUN-22
PAH-EXTRA-WT								
	Water							



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 7 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-EXTRA-WT		Water						
Batch	R5805115							
WG3741372-2	LCS							
Benzo(e)pyrene			97.1		%		60-130	21-JUN-22
1,3-Dinitropyrene			99.5		%		60-130	21-JUN-22
1,6-Dinitropyrene			85.9		%		60-130	21-JUN-22
Dibenz(a,h)acridine			96.9		%		60-130	21-JUN-22
1,8-Dinitropyrene			99.9		%		60-130	21-JUN-22
Dibenz(a,j)acridine			119.7		%		60-130	21-JUN-22
7H-Dibenzo(c,g)carbazole			101.2		%		60-130	21-JUN-22
Dibenzo(a,i)pyrene			78.5		%		60-130	21-JUN-22
WG3741372-1	MB							
Benzo(e)pyrene			<0.050		ug/L		0.05	21-JUN-22
1,3-Dinitropyrene			<1.0		ug/L		1	21-JUN-22
1,6-Dinitropyrene			<1.0		ug/L		1	21-JUN-22
Dibenz(a,h)acridine			<0.050		ug/L		0.05	21-JUN-22
1,8-Dinitropyrene			<1.0		ug/L		1	21-JUN-22
Dibenz(a,j)acridine			<0.050		ug/L		0.05	21-JUN-22
7H-Dibenzo(c,g)carbazole			<0.050		ug/L		0.05	21-JUN-22
Dibenzo(a,i)pyrene			<0.050		ug/L		0.05	21-JUN-22
Surrogate: d14-Terphenyl			111.4		%		40-130	21-JUN-22
PCB-WT		Water						
Batch	R5807127							
WG3743700-2	LCS							
Aroclor 1242			103.2		%		65-130	27-JUN-22
Aroclor 1248			98.7		%		65-130	27-JUN-22
Aroclor 1254			106.9		%		65-130	27-JUN-22
Aroclor 1260			92.3		%		65-130	27-JUN-22
WG3743700-1	MB							
Aroclor 1242			<0.020		ug/L		0.02	27-JUN-22
Aroclor 1248			<0.020		ug/L		0.02	27-JUN-22
Aroclor 1254			<0.020		ug/L		0.02	27-JUN-22
Aroclor 1260			<0.020		ug/L		0.02	27-JUN-22
Surrogate: Decachlorobiphenyl			111.6		%		50-150	27-JUN-22
Surrogate: Tetrachloro-m-xylene			101.5		%		50-150	27-JUN-22
PH-WT		Water						



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 8 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WT		Water						
Batch	R5805998							
WG3742430-4	DUP	WG3742430-3						
pH		7.90	7.90	J	pH units	0.00	0.2	22-JUN-22
WG3742430-2	LCS							
pH			7.03		pH units		6.9-7.1	22-JUN-22
PHENOLS-4AAP-ED		Water						
Batch	R5806912							
WG3743956-3	DUP	L2715934-1						
Phenols (4AAP)		0.0042	0.0046		mg/L	9.1	20	25-JUN-22
WG3743956-2	LCS							
Phenols (4AAP)			99.6		%		85-115	25-JUN-22
WG3743956-1	MB							
Phenols (4AAP)			<0.0010		mg/L		0.001	25-JUN-22
WG3743956-4	MS	L2715934-2						
Phenols (4AAP)			99.1		%		75-125	25-JUN-22
SOLIDS-TSS-WT		Water						
Batch	R5805248							
WG3741240-3	DUP	L2715516-1						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	19-JUN-22
WG3741240-2	LCS							
Total Suspended Solids			102.5		%		85-115	19-JUN-22
WG3741240-1	MB							
Total Suspended Solids			<3.0		mg/L		3	19-JUN-22
TKN-F-WT		Water						
Batch	R5805603							
WG3741378-3	DUP	L2716048-1						
Total Kjeldahl Nitrogen		46.7	51.0		mg/L	8.7	20	22-JUN-22
WG3741378-2	LCS							
Total Kjeldahl Nitrogen			103.1		%		75-125	21-JUN-22
WG3741378-1	MB							
Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	21-JUN-22
WG3741378-4	MS	L2716048-1						
Total Kjeldahl Nitrogen			N/A	MS-B	%		-	22-JUN-22
VOC-ROU-HS-WT		Water						
Batch	R5805736							
WG3742464-4	DUP	WG3742464-3						
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-JUN-22
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-JUN-22



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 9 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT		Water						
Batch	R5805736							
WG3742464-4	DUP	WG3742464-3						
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-JUN-22
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-JUN-22
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	23-JUN-22
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-JUN-22
Dichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	23-JUN-22
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-JUN-22
m+p-Xylenes		<1.0	<0.40	RPD-NA	ug/L	N/A	30	23-JUN-22
o-Xylene		<0.50	<0.30	RPD-NA	ug/L	N/A	30	23-JUN-22
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	23-JUN-22
Toluene		<0.50	<0.40	RPD-NA	ug/L	N/A	30	23-JUN-22
trans-1,3-Dichloropropene		<0.50	<0.30	RPD-NA	ug/L	N/A	30	23-JUN-22
Trichloroethylene		0.79	0.73		ug/L	7.9	30	23-JUN-22
WG3742464-1	LCS							
1,1,2,2-Tetrachloroethane			99.3		%		70-130	22-JUN-22
1,2-Dichlorobenzene			103.4		%		70-130	22-JUN-22
1,4-Dichlorobenzene			106.2		%		70-130	22-JUN-22
Benzene			108.4		%		70-130	22-JUN-22
Chloroform			108.4		%		70-130	22-JUN-22
cis-1,2-Dichloroethylene			96.5		%		70-130	22-JUN-22
Dichloromethane			108.8		%		70-130	22-JUN-22
Ethylbenzene			102.1		%		70-130	22-JUN-22
m+p-Xylenes			102.8		%		70-130	22-JUN-22
o-Xylene			101.4		%		70-130	22-JUN-22
Tetrachloroethylene			103.7		%		70-130	22-JUN-22
Toluene			103.8		%		70-130	22-JUN-22
trans-1,3-Dichloropropene			106.3		%		70-130	22-JUN-22
Trichloroethylene			106.9		%		70-130	22-JUN-22
WG3742464-2	MB							
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	22-JUN-22
1,2-Dichlorobenzene			<0.50		ug/L		0.5	22-JUN-22
1,4-Dichlorobenzene			<0.50		ug/L		0.5	22-JUN-22
Benzene			<0.50		ug/L		0.5	22-JUN-22
Chloroform			<1.0		ug/L		1	22-JUN-22
cis-1,2-Dichloroethylene			<0.50				0.5	



Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Page 10 of 11

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)
 74 Berkeley Street
 Toronto ON M5V 1E3

Contact: Nicole Anasis

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-ROU-HS-WT								
	Water							
Batch	R5805736							
WG3742464-2	MB							
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	22-JUN-22
Dichloromethane			<2.0		ug/L		2	22-JUN-22
Ethylbenzene			<0.50		ug/L		0.5	22-JUN-22
m+p-Xylenes			<0.40		ug/L		0.4	22-JUN-22
o-Xylene			<0.30		ug/L		0.3	22-JUN-22
Tetrachloroethylene			<0.50		ug/L		0.5	22-JUN-22
Toluene			<0.40		ug/L		0.4	22-JUN-22
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	22-JUN-22
Trichloroethylene			<0.50		ug/L		0.5	22-JUN-22
Surrogate: 1,4-Difluorobenzene			100.2		%		70-130	22-JUN-22
Surrogate: 4-Bromofluorobenzene			96.2		%		70-130	22-JUN-22
WG3742464-5	MS	WG3742464-3						
1,1,2,2-Tetrachloroethane			89.8		%		50-150	23-JUN-22
1,2-Dichlorobenzene			102.3		%		50-150	23-JUN-22
1,4-Dichlorobenzene			107.9		%		50-150	23-JUN-22
Benzene			105.3		%		50-150	23-JUN-22
Chloroform			104.9		%		50-150	23-JUN-22
cis-1,2-Dichloroethylene			91.9		%		50-150	23-JUN-22
Dichloromethane			103.4		%		50-150	23-JUN-22
Ethylbenzene			102.4		%		50-150	23-JUN-22
m+p-Xylenes			103.6		%		50-150	23-JUN-22
o-Xylene			100.6		%		50-150	23-JUN-22
Tetrachloroethylene			105.2		%		50-150	23-JUN-22
Toluene			102.7		%		50-150	23-JUN-22
trans-1,3-Dichloropropene			95.6		%		50-150	23-JUN-22
Trichloroethylene			106.1		%		50-150	23-JUN-22

Quality Control Report

Workorder: L2716075

Report Date: 27-JUN-22

Client: PALMER ENVIRONMENTAL CONSULTING GROUP INC. (Richmond Hill)

74 Berkeley Street

Toronto ON M5V 1E3

Page 11 of 11

Contact: Nicole Anasis

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L2716075-COFC

TM

COC Number: 20 -

Page of

Report To Contact and company name below will appear on the final report Company: <u>PALMER</u> Contact: <u>NICOLE AN</u> Phone: <u>916 729 2747</u> Company address below will appear on the final report Street: <u>7 BERRY ST</u> City/Province: <u>IRONVILLE OH</u> Postal Code: <u>USA 27</u>		Reports / Recipients Select Report Format: <input type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) Merge QC/QCI Reports with COA <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>NICOLE AN 916 729 2747</u> Email 2: Email 3:		Turnaround Time (TAT) Requested <input type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum <input type="checkbox"/> Same day [E2] if received by 12pm M-S - 200% rush surcharge. Additional fees may apply for rush requests on weekends, statutory holidays and non-routine tests Date and Time Required for all E&P TATs:		AFFIX ALS BARCODE LABEL HERE (ALS use only)	
Invoice To Same as Report To <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Copy of Invoice with Report <input type="checkbox"/> YES <input type="checkbox"/> NO Company: Contact:		Invoice Recipients Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: <u>916 729 2747</u> Email 2:		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below			
Project Information ALS Account # / Quote #: <u>250151</u> Job #: <u>200151</u> PFI/AFE: <u>24400</u> LSD:		Oil and Gas Required Fields (client use) AFE/Cost Center: PC# Major/Minor Code: Routing Code Requisitioner: Location:		NUMBER OF CONTAINERS <u>6</u> <u>CITY SURFACE SAMPLING</u>	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
ALS Lab Work Order # (ALS use only): <u>L2716075 J01</u>		ALS Contact: Sampler:					
ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date	Time	Sample Type			
	<u>GROUNDWATER</u>	<u>11/17/22</u>		<u>G</u>			

Drinking Water (DW) Samples¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Notes: Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)		SAMPLE RECEIPT DETAILS (ALS use only) Cooling Method: <input type="checkbox"/> NONE <input checked="" type="checkbox"/> ICE <input type="checkbox"/> ICE PACKS <input type="checkbox"/> FROZE. <input checked="" type="checkbox"/> COOLING INITIATED Submission Comments identified on Sample Receipt Notification: <input type="checkbox"/> YES <input type="checkbox"/> NO Cooler Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A Sample Custody Seals Intact: <input type="checkbox"/> YES <input type="checkbox"/> N/A INITIAL COOLER TEMPERATURES °C: <u>19.5</u> FINAL COOLER TEMPERATURES °C:			
SHIPMENT RELEASE (client use) Released by: <u>NICOLE ANAS</u> Date: <u>11/17/22</u> Time: <u>9:30</u>		INITIAL SHIPMENT RECEPTION (ALS use only) Received by: Date: <u>06/17/22</u> Time:		FINAL SHIPMENT RECEPTION (ALS use only) Received by: Date: Time:			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION
 WHITE - LABORATORY COPY YELLOW - CLIENT COPY
 Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.
 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

7/12/2023

Engineering and Construction Services
Metro Hall
55 John Street, 16th Floor
Toronto, Ontario M5V 3C6

Attention: Executive Director, Engineering and Construction Services
c/o Manager, Development Engineering

cc: General Manager, Toronto Water
c/o Manager, Environmental Monitoring and Protection Unit
30 Dee Ave, Toronto ON M9N 1S9

Dear Sir or Madam:

RE: Letter from the Property Owner Confirming Watertight Structure
822-838 Richmond Street West

City File Nos.: 16 261191 STE 20 OZ & 16 270154 STE 20 OZ

I, JEFF HULL, confirm and undertake that I will construct and maintain all **new** building(s) on the subject lands, **822-838 Richmond Street West** in a manner which shall be completely water-tight below grade and resistant to hydrostatic pressure without any necessity for Private Water Drainage System (subsurface drainage system) consisting of but not limited to weeping tile(s), foundation drain(s), private water collection sump(s), private water pump or any combination therefore for the disposal of private water on the surface of the ground or to a private sewer connection directly or indirectly or drainage system for disposal directly or indirectly in a municipal sewer.

Jeff Hull, ASO
Name and Title

jeff@hullmark.ca
Email


Signature

I, JEFF HULL, have authority to bind the corporation.

July 12, 2023

Attention:
Executive Director, Engineering and Construction Services
c/o Manager, Development Engineering
55 John Street, 16th Floor
Toronto ON M5V 3C6

cc:
General Manager, Toronto Water
c/o Manager, Environmental Monitoring and Protection Unit
30 Dee Ave, Toronto ON M9N 1S9

Re: 822-838 Richmond Street West, Toronto

Dear Sir or Madam,

I, Anthony Mirvish, confirm that all new buildings on the subject lands at 822-838 Richmond Street West, Toronto ON can be constructed completely water-tight below grade in a manner that will resist hydrostatic pressure without any necessity for Private Water Drainage System (subsurface drainage system) consisting of but not limited to weeping tile(s), foundation drain(s), private water collection sump(s), private water pump or any combination thereof for the disposal of private water on the surface of the ground or to a private sewer connection directly or indirectly or drainage system for disposal directly or indirectly in a municipal sewer.

Regards,
Honeycomb Group Inc.



Anthony Mirvish, P. Eng.
Principal
anthony.mirvish@honeycombgroup.ca
416-451-9806



APPENDIX B

Water Demand Analysis

**TABLE B1 - PROPOSED PEAK WATER DEMAND
CALCULATIONS**

		TOTAL
1.1	Total Population (Used for Calculation Purposes)*	Population 50
1.2	Per Capita Demand @ 190 L/person/day**	L/day 9,500
1.3	Equivalent Population Demand	L/s 0.11
1.4	Maximum Day Peaking Factor **	1.30
1.5	Maximum Day Design Demand	L/s 0.14
1.6	Peak Hour Peaking Factor **	2.50
1.7	Peak Hour Design Demand	L/s 0.27

* Refer to Appendix A - Table A1 for the Proposed Population Breakdown

** as per City of Toronto Design Criteria for Sewers and Watermains - January 2021

TABLE B2 - FIRE DEMAND CALCULATIONS - BASED ON F.U.S. GUIDELINES

		Fire Resis w/o Vertical Protection
1.1	Coefficient for type of construction	0.6
1.2	Height in Stories	8
1.3	Total Area**	m ² 2270.06
1.4	Fire Flow Required	L/min 6,300
1.5	15% Reduction for Occupancy Charge - low fire hazard	L/min -945
1.6	Fire Flow Required	L/min 5,355
1.7	30% Reduction for Automatic Sprinklers	L/min -1,607
1.8	Charge for Building Separation	Distance
	North: Nearest Building	4.9 20%
	West: Nearest Building	0 25%
	South: Nearest Building	20 10%
	East: Nearest Building	0 25%
1.9	Charge for Building Separation	L/min 4,016
2.0	Fire Flow Required**	L/min 7,800
2.1	Fire Flow Required	L/s 130.00

*See Architectural site statistics provided in Appendix A for individual floor areas. For fire-resistive buildings the the total area equals the sum of the two largest floors plus 50 % of each of any floors above them up to eight.

** As per the City of Toronto's Design Criteria for Sewers and Watermains, fire flows for residential areas will not be less than 4,800 L/min.

Hydrant Test

4.10.1.2 The formula that is generally used to compute the discharge at the specified residual pressure or for any desired pressure drop is Equation 4.10.1.2:

$$Q_r = Q_f \times \frac{h_r^{0.54}}{h_f^{0.54}} \quad (4.10.1.2)$$

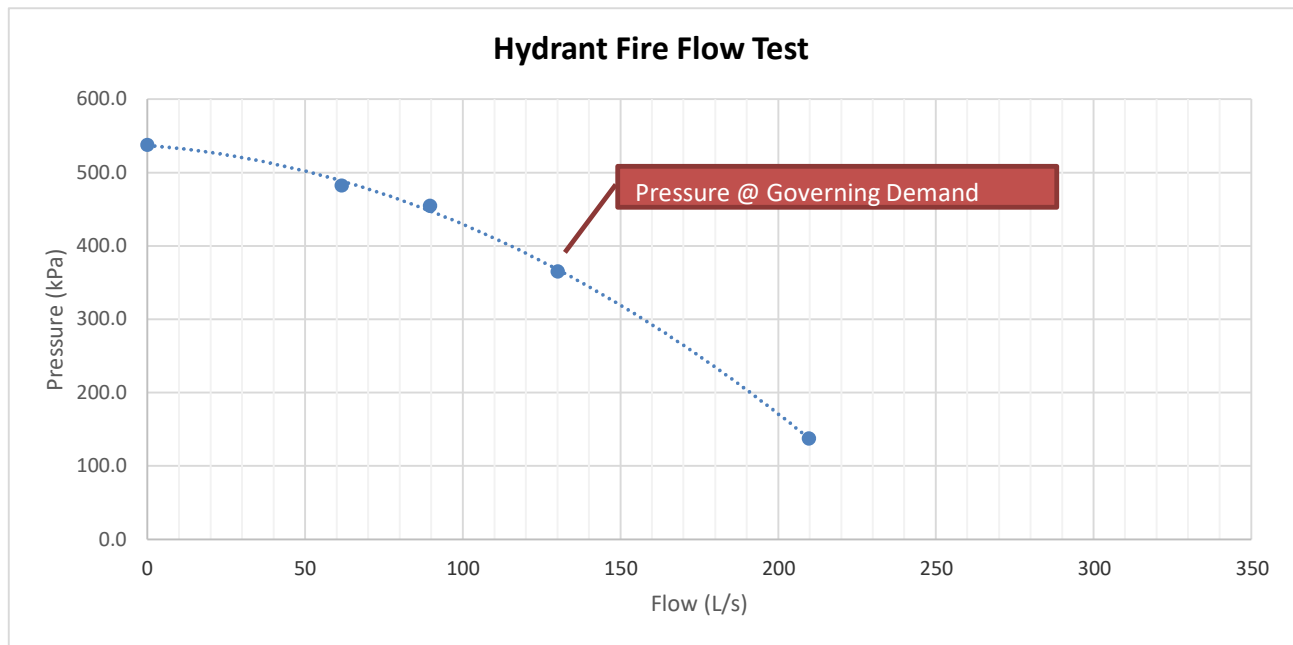
where:

Q_r = flow predicted at desired residual pressure
 Q_f = total flow measured during test
 h_r = pressure drop to desired residual pressure
 h_f = pressure drop measured during test

Qf	hr	hf	Qr
90	58	12	209.8

	USGPM	L/s	psi	kPa
Static	0	0	78	537.8
One 2.5" Port	976	62	70	482.6
Two 2.5" Ports	1420	90	66	455.1

Gov. Demand	2062.8	130.1	53	365.4
Qr, Theoretical Limit @ 20 psi	3324.9	209.8	20	137.9



Lozzi Aqua Check

Massimo Lozzi

12307 Woodbine Ave, P.O. Box 519

Cell: 416 990-2131

Gormley, ON L0H 1G0

E-mail: lozziaquacheck@gmail.com

Hydrant Flow Test Form

Job Location: 198 Walnut Ave, Toronto

Date: June 6, 2021

Time of Test: 12:30 pm

Location of Flow Hydrant: @ 829 Richmond St. W

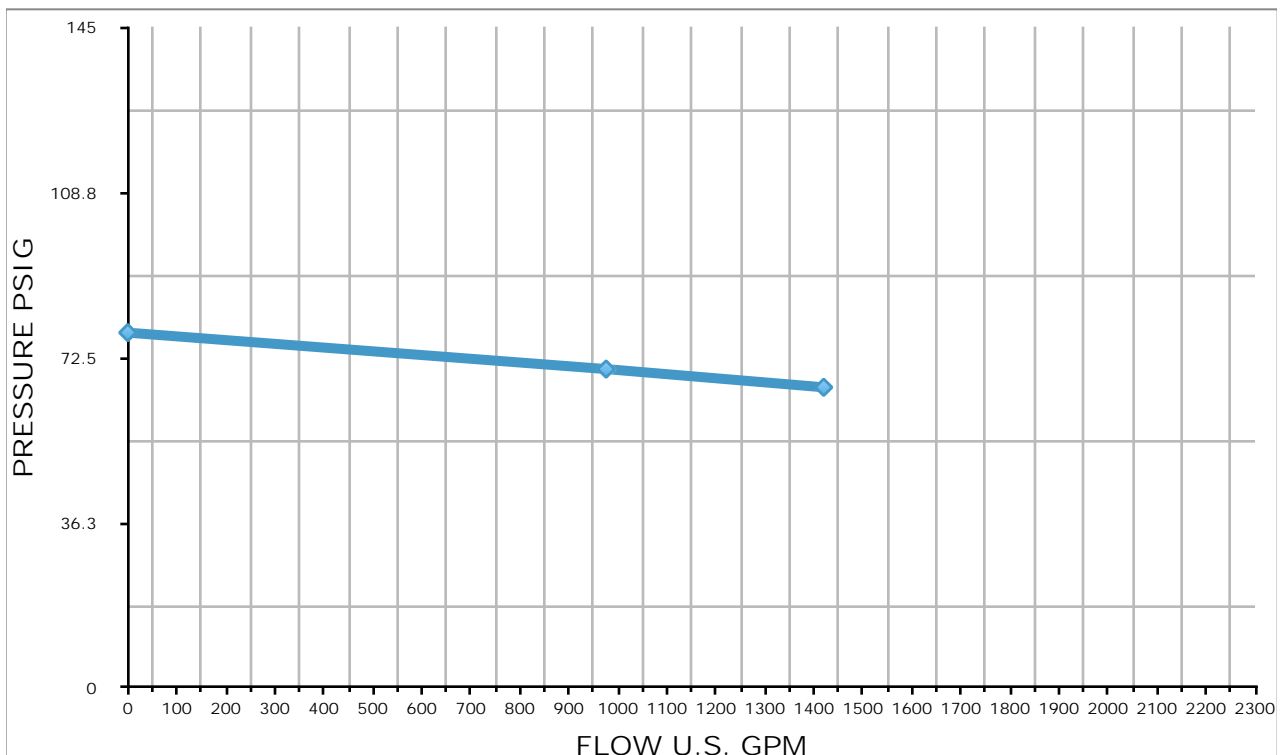
Residual : Hydrant @ 198 Walnut Ave.

Main Size: 150 mm.

Static Pressure: 78 psi

	Number of Outlets & Orifice Size	Pitot Pressure (psi)	Flow (U.S. G.P.M.)	Residual Pressure (psi)
1.	Static	0	0	78
2.	1 x 2 ½	34	976	70
3.	2 x 2 ½	18	1420	66

Note: Flow test conducted in accordance with NFPA 291



Lozzi Aqua Check

Massimo Lozzi

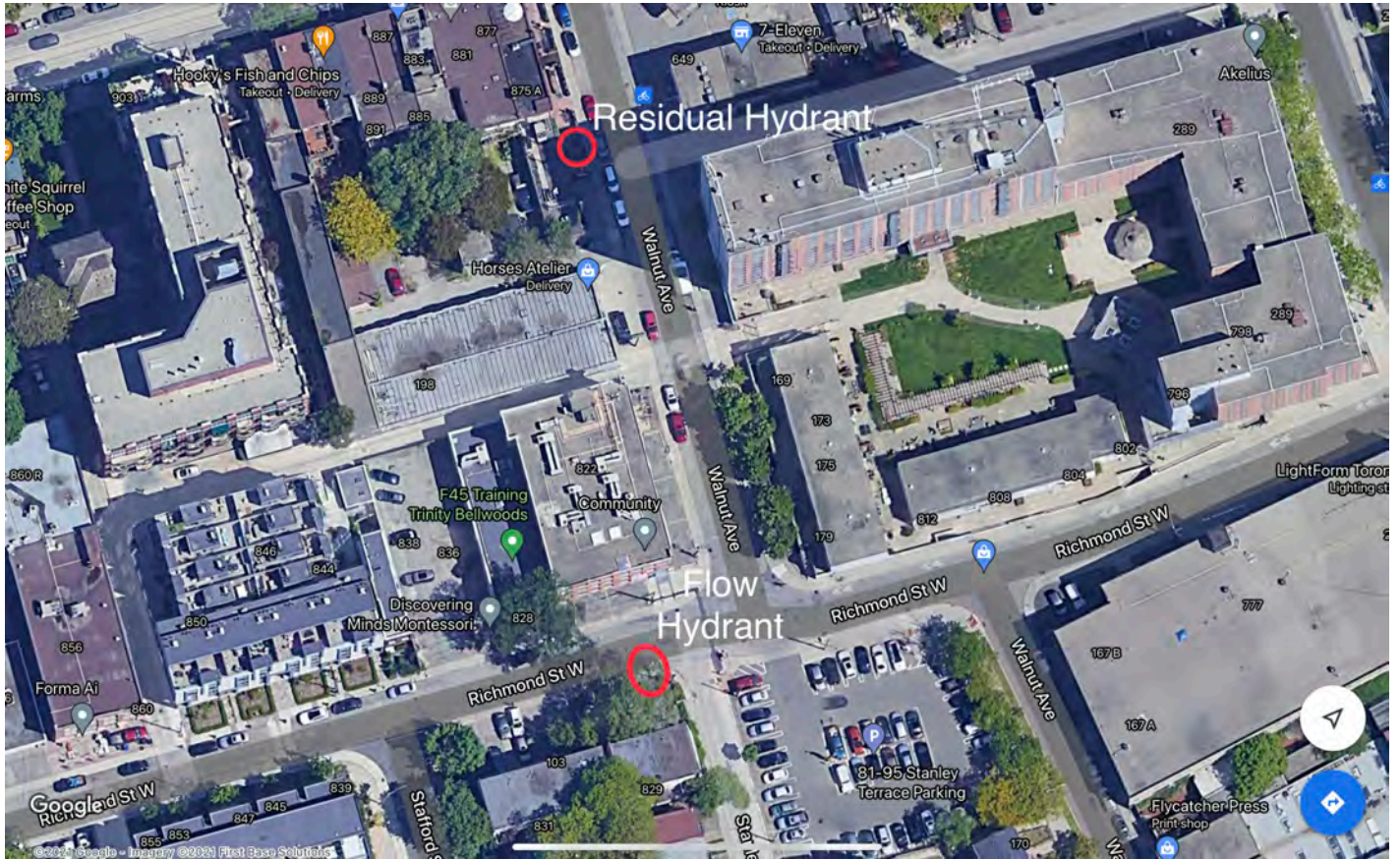
12307 Woodbine Ave, P.O. Box 519

Cell: 416 990-2131

Gormley, ON L0H 1G0

E-mail: lozziaquacheck@gmail.com

Site Map:



APPENDIX C

Sanitary Demand Analysis

TABLE C1 - PROPOSED PEAK SANITARY DEMAND CALCULATIONS

		TOTAL
1.1 Total Existing Commercial Floor Area*	m ²	306
1.2 Total Commercial Peak Flow @ 180,000 L/floor ha/day**	L/day	5,508.00
1.3 Total Existing Commercial Peak Flow	L/s	0.06
1.4 Site Area	ha	0.075
1.5 Existing Infiltration Allowance @ 0.26L/s/ha**	L/s	0.02
1.6 Total Estimated Existing Sanitary Peak Flow	L/s	0.08
1.7 Total Residential Population (Used for Calculation Purposes)*	Population	50
1.8 Residential Peak Factor (PF=1+(14/(4+P/1000) ^{1/2}))		4.31
1.9 Total Residential Peak Flow (@240 L/capita/day)**	L/day	51,776
2.0 Total Residential Flow	L/s	0.60
2.1 Total Infiltration Peak Flow	L/s	0.02
2.2 Total Proposed Sanitary Peak Flow	L/s	0.62
2.3 Total Net Sanitary Peak Flow Increase	L/s	0.54

* Refer to Appendix A Architectural Drawings for the existing & proposed floor areas/populations of the site.

** as per City of Toronto Design Criteria for Sewers and Watermains - R1 January 2021



**226 WILKINSON ROAD, BRAMPTON, ONTARIO L6T 4N7
(905) 792-8169**

COMBINED SEWER VIDEO INSPECTION REPORT

150 MM & 200 MM DIAMETER COMBINED SEWER

FOR

822 - 838 RICHMOND STREET WEST

CITY OF TORONTO

DVD # 21187

**CONSULTANT: R.V. ANDERSON
CONSULTANT'S REPRESENTATIVE: ALEX WONG
DEVELOPER: HULLMARK
DEVELOPER'S REPRESENTATIVE: CHARLES ARBEZ**

FRIDAY, JULY 9TH, 2021

INDEX:

- 1. TITLE PAGE AND INDEX**
- 2. SUMMARY REPORT AND CONCLUSIONS**
- 3. SKETCH OF SEWERS INSPECTED**
- 4. SEWER INSPECTION REPORTS**

**SEWER CLEANING, VIDEO INSPECTION, INSITU REPAIRS &
MUNICIPAL ENGINEERING SERVICES**

2. SUMMARY REPORT AND CONCLUSIONS:

The video inspections of the combined sewers for 822 - 828 Richmond Street West was carried out by Steven Lostracco, P. Eng. of Aquaflow Technology, and was authorized by Alex Wong of R.V. Anderson. The video inspections was carried out on Friday, July 9th, 2021

COMBINED SEWERS VIDEO INSPECTED:

DVD # 21187:	150 mm & 200 mm diameter Combined sewers inspected	<u>14.0 m</u>
--------------	---	---------------

TOTAL LENGTH OF SEWERS VIDEO INSPECTED: 14.0 M

The video inspection confirmed that all of the sewer lines inspected are in satisfactory condition, with the following summary comments. For detailed comments on each sewer run, please refer to the attached sewer video Inspection reports.

1. 822 - 838 Richmond Street West, COMB-1 to N-E-200MM, 200MM PVC, COMBINED: Connection to # 828 (storm drain) (survey #1).
2. 822 - 838 Richmond Street West, COMB-1 to N-E-150MM, 150MM PVC, COMBINED: Connection to #828 (sanitary drain) (survey #2).
3. 300 MM outlet pipe from MH COMB-1 was confirmed to connect to MH COMB-2 by doing a dye test.



1. MH COMB-1, 150 mm & 200 mm pipe to the N-East



2. MH COMB-2, View of dye test from MH COMB-1

Report Prepared by:

A handwritten signature in blue ink, appearing to read 'S. Lostracco', with a long horizontal stroke extending to the right.

Steven Lostracco, P. Eng.



3. SKETCH OF COMBINED SEWERS VIDEO INSPECTED 822 - 838 RICHMOND ST W. CITY OF TORONTO

JULY 9TH, 2021

DVD # 21187 (COMBINED) (STORM)

HULLMARK
Sewer TV Inspection Report Summary

No.	Date	Street	Start MH	Finish MH	Surv'd Len	Video
1	2021-07-09	822-838 RICHMOND ST WEST	-COMB COMB-1	N-E-200MM	7.0 m	21187
2	2021-07-09	822-838 RICHMOND ST WEST	-COMB COMB-1	N-E-150MM	7.0 m	21187

HULLMARK
Sewer TV Inspection Report

Survey No: 1	Date: 2021-07-09	Time: 07:52
PipeLenRef: N-E-200MM X	Status: Completed	Surveyed Length: 007.0 m
Contractor: AQUAFLOW	Contract No: 1	Job No: 1
Catchment: -	Division: -	District: -
Street: 822-838 RICHMOND ST WEST -COMB		City: TORONTO
Start MH: COMB-1	Location: PARKING LOT S-WEST #828 BLDG	
Depth: 00.00 m	Cover: 000.00 m	Invert: 000.00 m
Finish MH: N-E-200MM	Location: S-WEST CORNER #828 BLDG	
Depth: 00.00 m	Cover: 000.00 m	Invert: 000.00 m
PipeLength: 4.00 m	Size (Dia): 0200 mm	Total Length: 007.0 m
Use: Combined	Material: Polyvinyl Chloride	Shape: Circular
Lining:	Purpose: Assessment	Category: Not Known
Weather: Light Rain	Location Code: Urban Street	Direction: Upstream
		Pre-cleaning: Yes
Year Laid:	Location:	
Video Tape: 21187	Comments:	

Structural Grade: 1	Total Score: 0	Peak Score: 0	Mean Score: 0
Operational Grade: 1	Total Score: 0	Peak Score: 0	Mean Score: 0

Index	Pho	Dist	CD	Code	Description/Remarks	Dim	Clock	Int	Score
0:00:13		000.0		ST	Start of Survey				
					Upstream (against flow)				
0:00:17		000.0		MH	Manhole				
					COMB-1				
0:00:22		000.0		WL	Water Level				00%
0:01:24		005.0		WL	Water Level				05%
0:01:28		005.0		GO	General Observation				
					PIPE IS HEADING N-EAST TOWARDS BLDG				
0:01:36		005.5		GO	General Observation				
					PREFAB 45 DEGREE BEND LEFT INTO BLDG				
0:01:45		006.0		GO	General Observation				
					TRANSITION FROM PVC TO CAST IRON				
0:02:00		007.0		GO	General Observation				
					90 DEGREE BEND UP INTO BUILDING				
0:02:06		007.0		GO	General Observation				
					LIGHT CLEAR WATER FLOW - STORM CONN'N				
0:02:28		007.0		MH	Manhole				
					N-E-200MM				
0:02:30		007.0		FH	Finish of Survey				

HULLMARK
Sewer TV Inspection Report

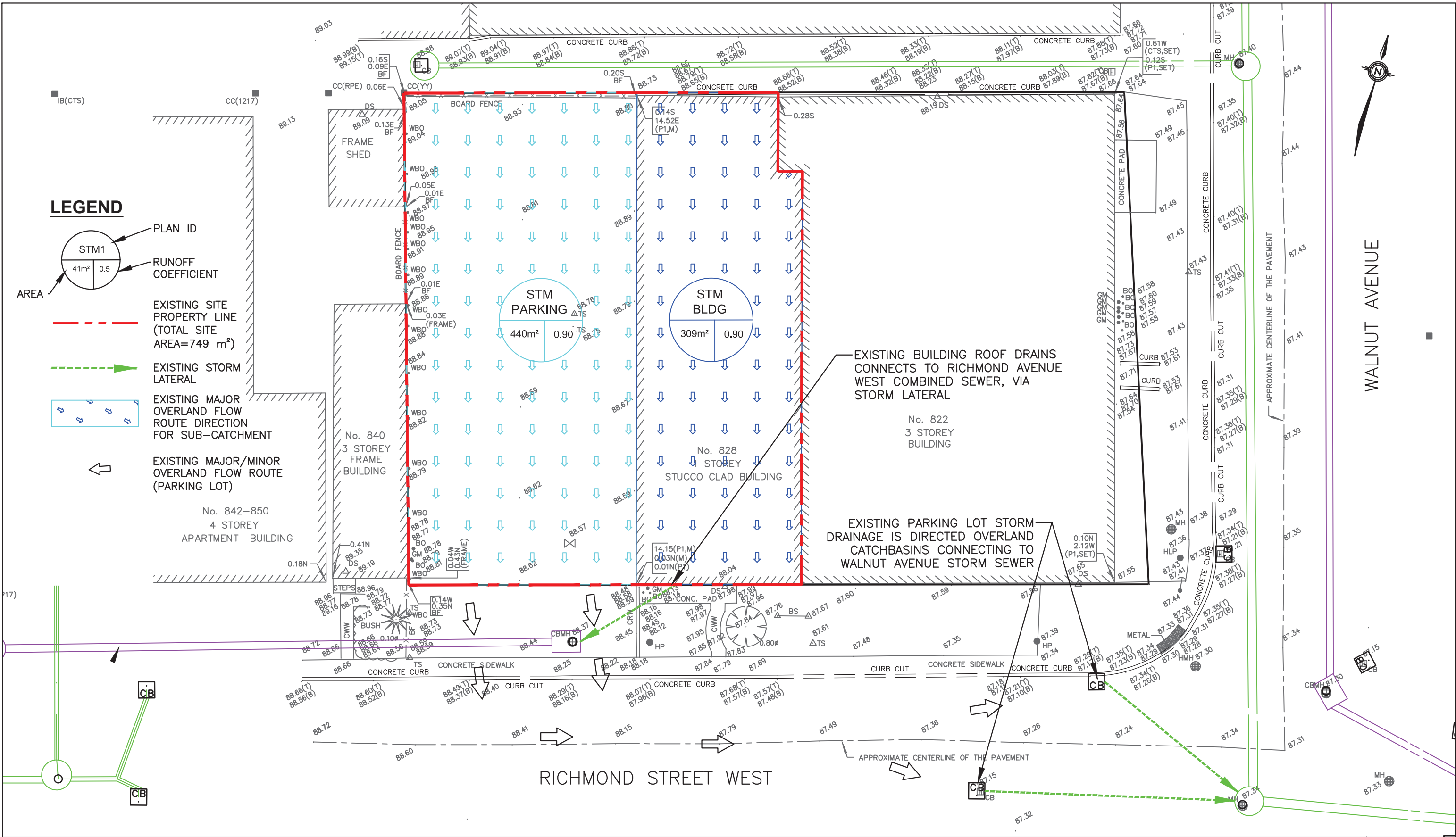
Survey No: 2	Date: 2021-07-09	Time: 09:00
PipeLenRef: N-E-150MM X	Status: Completed	Surveyed Length: 007.0 m
Contractor: AQUAFLOW	Contract No: 1	Job No: 1
Catchment: -	Division: -	District: -
Street: 822-838 RICHMOND ST WEST -COMB		City: TORONTO
Start MH: COMB-1	Location: PARKING LOT S-WEST #828 BLDG	
Depth: 00.00 m	Cover: 000.00 m	Invert: 000.00 m
Finish MH: N-E-150MM	Location: S-WEST CORNER #828 BLDG	
Depth: 00.00 m	Cover: 000.00 m	Invert: 000.00 m
PipeLength: 4.00 m	Size (Dia): 0150 mm	Total Length: 007.0 m
Use: Combined	Material: Polyvinyl Chloride	Shape: Circular
Lining:	Purpose: Assessment	Category: Not Known
Weather: Light Rain	Location Code: Urban Street	Direction: Upstream
		Pre-cleaning: Yes
Year Laid:	Location:	
Video Tape: 21187	Comments:	

Structural Grade: 1	Total Score: 0	Peak Score: 0	Mean Score: 0
Operational Grade: 1	Total Score: 0	Peak Score: 0	Mean Score: 0

Index	Pho	Dist	CD	Code	Description/Remarks	Dim	Clock	Int	Score
0:00:12		000.0		ST	Start of Survey				
					Upstream (against flow)				
0:00:16		000.0		MH	Manhole				
					COMB-1				
0:00:20		000.0		WL	Water Level				00%
0:01:00		003.0		WL	Water Level				10%
0:01:02		003.0		GO	General Observation				
					TOILET PAPER IN LINE - SANITARY CONN'N				
0:01:20		005.0		WL	Water Level				01%
0:01:33		005.5		GO	General Observation				
					TRANSITION FROM PVC TO CAST IRON PIPE				
0:01:40		006.0		GO	General Observation				
					PREFAB 45 DEGREE BEND LEFT				
0:01:53		007.0		GO	General Observation				
					PREFAB 90 DEGREE BEND UP INTO BLDG #828				
0:01:55		007.0		MH	Manhole				
					N-E-150MM				
0:02:19		007.0		FH	Finish of Survey				

APPENDIX D

Storm Demand Analysis



LEGEND

- PLAN ID
- RUNOFF COEFFICIENT
- AREA
- EXISTING SITE PROPERTY LINE (TOTAL SITE AREA=749 m²)
- EXISTING STORM LATERAL
- EXISTING MAJOR OVERLAND FLOW ROUTE DIRECTION FOR SUB-CATCHMENT
- EXISTING MAJOR/MINOR OVERLAND FLOW ROUTE (PARKING LOT)

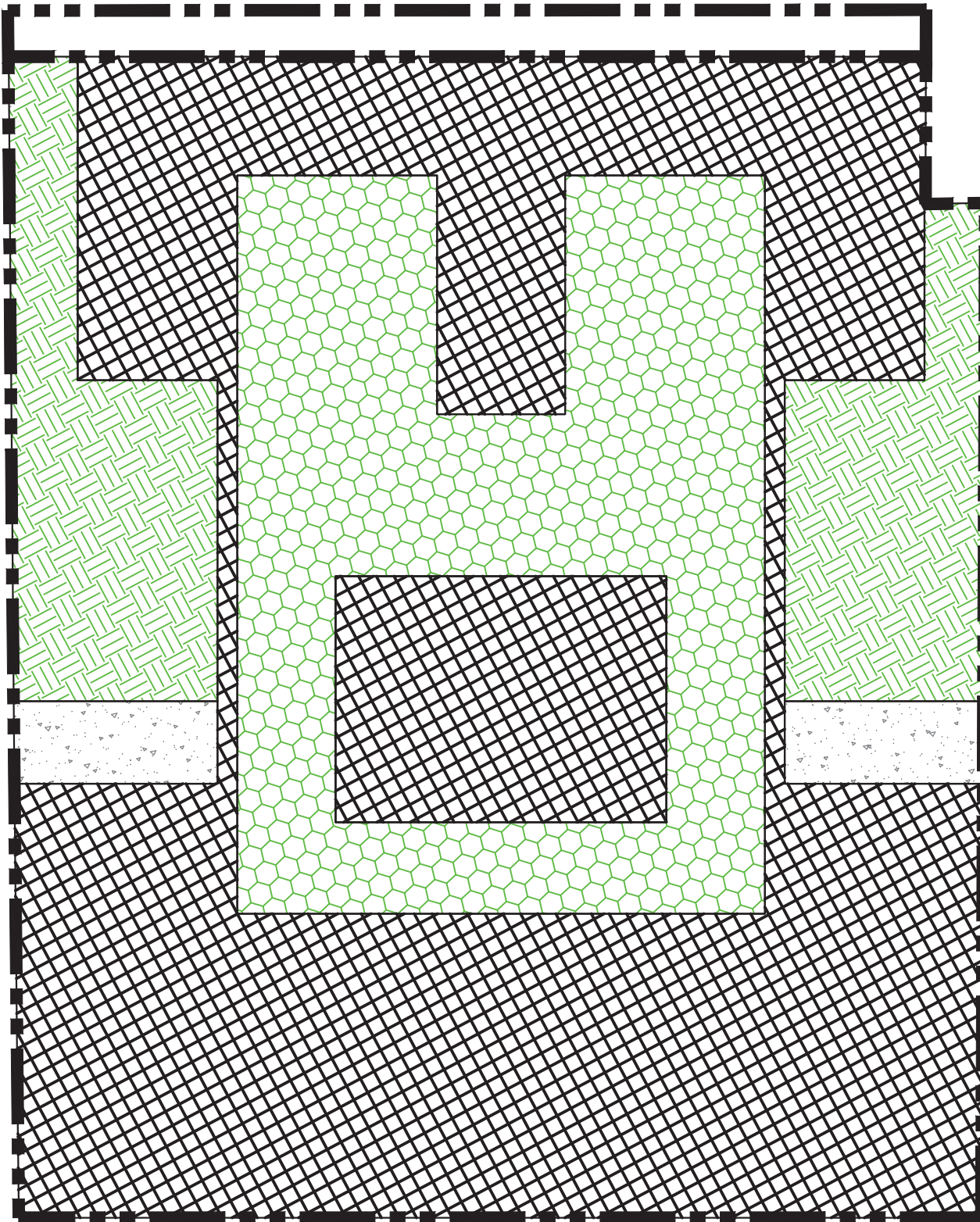
EXISTING BUILDING ROOF DRAINS CONNECTS TO RICHMOND AVENUE WEST COMBINED SEWER, VIA STORM LATERAL

EXISTING PARKING LOT STORM DRAINAGE IS DIRECTED OVERLAND CATCHBASINS CONNECTING TO WALNUT AVENUE STORM SEWER



828 RICHMOND STREET WEST
PRE-DEVELOPMENT STORM DRAINAGE

Scale	Date
N.T.S.	JUNE 2022
Project No.	Dwg No.
215893	D.1



LEGEND

	SURFACE TYPE	AREA (m ²)
DEVELOPMENT AREA		
	GREEN ROOF	179
	CONVENTIONAL ROOF	416
	AMENITY AT GRADE	105
	IMPERVIOUS AT GRADE	21
	SUBTOTAL AREA (m ²)	721
		PROPERTY LINE



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

822 RICHMOND ST W
 POST-DEVELOPMENT SURFACE AREA TREATMENT
 215893

SWM FIGURE
 1:150

SWM-1

CRITERIA: REDUCE POST DEVELOPMENT FLOWS FROM THE 2 TO 100-YEAR EVENTS TO THE 2-YEAR PRE-DEVELOPMENT PEAK FLOW RATE WITH A MAXIMUM RUNOFF COEFFICIENT OF "C"=0.50

ALLOWABLE FOR TOTAL SITE AREA	
2-YEAR TORONTO	
A=	531.391
B=	0.0
C=	0.78
AREA	721 m ²
RUN-OFF COEFFICIENT	C= 0.50
TIME OF CONCENTRATION (Tc)	
10	
INTENSITY = A/(t+B)^C	
88.2 mm/hr	
PEAK FLOW	
Q = CiA	
Q = 8.83 L/s	

EXISTING TO STORM SEWER ON WALNUT AVENUE	
2-YEAR TORONTO	
A=	531.391
B=	0.0
C=	0.78
AREA	440 m ²
RUN-OFF COEFFICIENT	C= 0.90
TIME OF CONCENTRATION (Tc)	
10	
INTENSITY = A/(t+B)^C	
88.2 mm/hr	
PEAK FLOW	
Q = CiA	
Q = 9.70 L/s	

EXISTING TO COMBINED SEWER ON RICHMOND STREET WEST	
2-YEAR TORONTO	
A=	531.391
B=	0.0
C=	0.78
AREA	309 m ²
RUN-OFF COEFFICIENT	C= 0.90
TIME OF CONCENTRATION (Tc)	
10	
INTENSITY = A/(t+B)^C	
88.2 mm/hr	
PEAK FLOW	
Q = CiA	
Q = 6.81 L/s	

TABLE D1 - Stage Storage System Discharge Details

TABLE D1a - Combined Sewer Tank Storage System Discharge Details

	Units	Combined Tank
Peak Discharge Rate	L/s	5.53
Orifice Equation (Orifice Plate)		Vortex
Orifice Diameter	mm	113
Orifice Invert	masl	86.54
Top of Tank	masl	87.40
Tank Area	m ²	45.00

(SE Corner of Site -
0.3m overburden -
0.3m slab)

TABLE D1b - Combined Sewer Tank Storage System Discharge Details

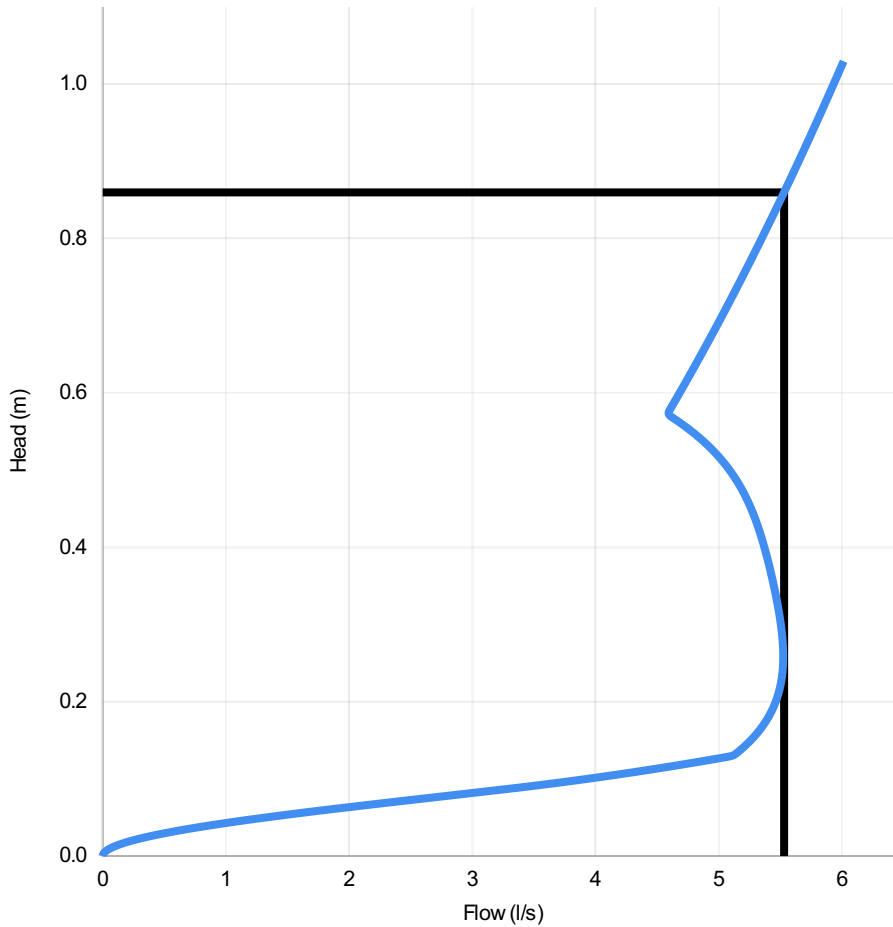
Elevation (m)	Description	Depth to Invert (m)	Head (m)	Total Storage Volume (m ³)	Orifice Discharge (L/s)
86.54	Orifice Invert	0.00	0.0	0.00	0.00
86.60		0.06	0.06	2.70	1.92
86.71		0.11	0.11	4.95	4.50
87.29		0.58	0.58	26.10	4.60
87.40	High Water Level	0.86	0.86	38.70	5.53

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	0.860	5.530
Flush-Flo	0.258	5.523
Kick-Flo®	0.572	4.579
Mean Flow		4.767



hydro-int.com/patents



Head (m)	Flow (l/s)
0.000	0.000
0.030	0.502
0.059	1.781
0.089	3.388
0.119	4.702
0.148	5.248
0.178	5.394
0.208	5.478
0.237	5.516
0.267	5.522
0.297	5.506
0.326	5.477
0.356	5.439
0.386	5.394
0.415	5.342
0.445	5.276
0.474	5.189
0.504	5.069
0.534	4.900
0.563	4.668
0.593	4.656
0.623	4.762
0.652	4.866
0.682	4.967
0.712	5.065
0.741	5.162
0.771	5.256
0.801	5.349
0.830	5.440
0.860	5.529

DESIGN ADVICE

The head/flow characteristics of this SHE-0113-5530-0860-5530 Hydro-Brake Optimum® Flow Control are unique. Dynamic hydraulic modeling evaluates the full head/flow characteristic curve.



The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.



DATE	5/24/2022 7:18 PM
Site	822 Richmond Street West
DESIGNER	Simon Pignataro
Ref	215893

SHE-0113-5530-0860-5530
Hydro-Brake Optimum®

Technical Specification

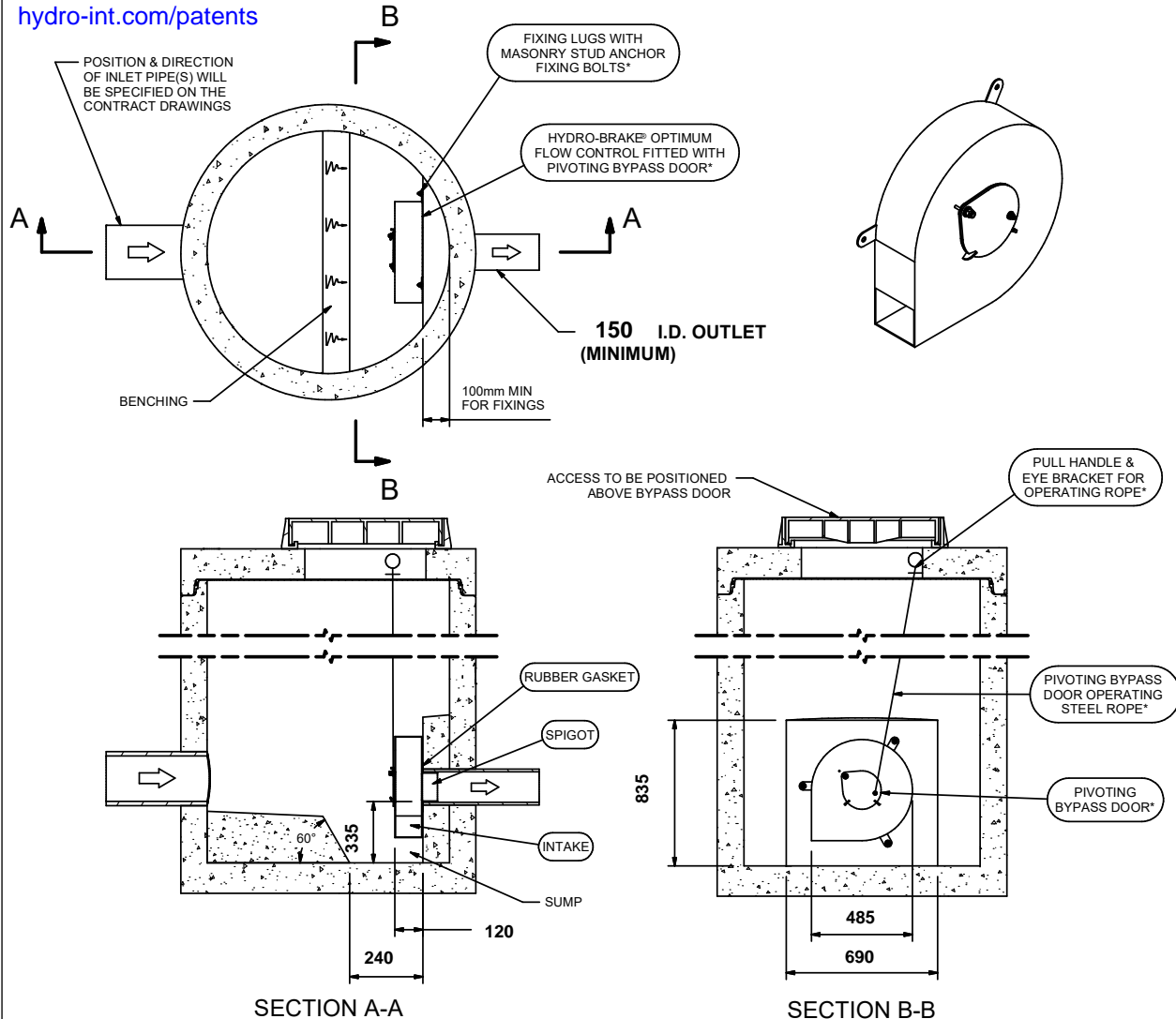
Control Point	Head (m)	Flow (l/s)
Primary Design	0.860	5.530
Flush-Flo™	0.258	5.523
Kick-Flo®	0.572	4.579
Mean Flow		4.767

Hydro-Brake® Optimum Flow Control including:

- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet
- Indicative Weight: 111 kg



hydro-int.com/patents



IMPORTANT: ○ LIMIT OF HYDRO INTERNATIONAL SUPPLY
 THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
 FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
 ALL CIVIL AND INSTALLATION WORK BY OTHERS
 * WHERE SUPPLIED
 HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW
 CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

**DESIGN
 ADVICE**
 !

The head/flow characteristics of this SHE-0113-5530-0860-5530 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro
 International

DATE	5/24/2022 7:18 PM	SHE-0113-5530-0860-5530 Hydro-Brake® Optimum
SITE	822 Richmond Street West	
DESIGNER	Simon Pignataro	
REF	215893	

© 2022 Hydro International Ltd, 94 Hutchins Drive, Portland, Maine, 04102-1930. Tel: +1 (207) 756 6200 Fax: +1 (207) 756 6212 Web: www.hydro-int.com Email: enquiries@hydro-int.com

simon.pignataro@gmail.com

=====

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V V I SSSS U U A L (v 6.2.2012)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLLL
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000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000
```

Developed and Distributed by Smart City Water Inc
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Duration of storm = 6.00 hrs
 Storm time step = 10.00 min
 Time to peak ratio = 0.38

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	1.24	1.50	3.18	3.00	3.75	4.50	1.69
0.17	1.32	1.67	4.03	3.17	3.26	4.67	1.61
0.33	1.42	1.83	5.67	3.33	2.89	4.83	1.53
0.50	1.53	2.00	10.99	3.50	2.61	5.00	1.46
0.67	1.66	2.17	88.19	3.67	2.38	5.17	1.40
0.83	1.82	2.33	12.86	3.83	2.20	5.33	1.34
1.00	2.03	2.50	7.53	4.00	2.04	5.50	1.29
1.17	2.29	2.67	5.53	4.17	1.91	5.67	1.24
1.33	2.66	2.83	4.44	4.33	1.79	5.83	1.19

***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\vo1n.dat

Output filename:

C:\Users\soh\AppData\Local\Ci vi ca\5H5\3c724db5-4e0e-400a-ac61-97739a601ed4\6ee64541-2cb8-4856-89b9-2183bac858b0\scenario

Summary filename:

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DATE: 04/11/2023

TIME: 02:24:24

USER:

COMMENTS: _____

CALIB	Area (ha)=	0.07
STANDHYD (0001)	Total Imp(%)=	81.00
ID= 1 DT=10.0 min	Dir. Conn. (%)=	81.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	21.92	40.00
Mannings n =	0.013	0.250

Max. Eff. Inten. (mm/hr)=	88.19	21.67
over (min)	10.00	20.00
Storage Coeff. (min)=	1.08 (ii)	14.09 (ii)
Unit Hyd. Tpeak (min)=	10.00	20.00
Unit Hyd. peak (cms)=	0.17	0.07

	TOTALS		
PEAK FLOW (cms)=	0.01	0.00	0.015 (iii)
TIME TO PEAK (hrs)=	2.33	2.50	2.33
RUNOFF VOLUME (mm)=	31.33	13.45	27.89
TOTAL RAINFALL (mm)=	32.33	32.33	32.33
RUNOFF COEFFICIENT =	0.97	0.42	0.86

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 90.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CHICAGO STORM |
| Ptotal = 32.33 mm |
-----
```

IDF curve parameters: A= 531.391
 B= 0.000
 C= 0.780

used in: INTENSITY = A / (t + B)^C

```

-----
| RESERVOIR( 0002) | OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 10.0 min |
-----

```

OUTFLOW (cms)	STORAGE (ha. m.)	OUTFLOW (cms)	STORAGE (ha. m.)
0.0000	0.0000	0.0046	0.0026
0.0019	0.0003	0.0055	0.0039
0.0045	0.0005	0.0000	0.0000

DATE: 04/11/2023 TIME: 02:24:24

USER:

COMMENTS: _____

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R. V. (mm)
INFLOW : ID= 2 (0001)	0.072	0.015	2.33	27.89
OUTFLOW: ID= 1 (0002)	0.072	0.005	2.50	27.57

PEAK FLOW REDUCTION [Qout/Qin](%)= 30.92
 TIME SHIFT OF PEAK FLOW (min)= 10.00
 MAXIMUM STORAGE USED (ha. m.)= 0.0008

```

-----
*****
** SIMULATION : #2 TORONTO 5-YEAR **
*****

```

```

-----
| CHICAGO STORM |
| Ptotal= 46.62 mm |
-----

```

IDF curve parameters: A= 812.623
 B= 0.000
 C= 0.790

used in: INTENSITY = A / (t + B)^C

Duration of storm = 6.00 hrs
 Storm time step = 10.00 min
 Time to peak ratio = 0.38

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.71	1.50	4.43	3.00	5.23	4.50	2.34
0.17	1.82	1.67	5.63	3.17	4.54	4.67	2.22
0.33	1.96	1.83	7.96	3.33	4.03	4.83	2.11
0.50	2.11	2.00	15.58	3.50	3.63	5.00	2.01
0.67	2.30	2.17	131.79	3.67	3.31	5.17	1.92
0.83	2.53	2.33	18.26	3.83	3.05	5.33	1.84
1.00	2.81	2.50	10.62	4.00	2.83	5.50	1.77
1.17	3.18	2.67	7.77	4.17	2.64	5.67	1.70
1.33	3.69	2.83	6.22	4.33	2.48	5.83	1.64

```

=====
V V I SSSSS U U A L (v 6.2.2012)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000

```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voinput.dat

Output filename:
 C:\Users\soh\AppData\Local\CVI\vi ca\5H5\3c724db5-4e0e-400a-ac61-97739a601ed4\6c816512-32f3-43b3-a996-a941665c51ef\scenario
 Summary filename:
 C:\Users\soh\AppData\Local\CVI\vi ca\5H5\3c724db5-4e0e-400a-ac61-97739a601ed4\6c816512-32f3-43b3-a996-a941665c51ef\scenario

```

-----
| CALIB |
| STANDHYD ( 0001) |
| ID= 1 DT=10.0 min |
-----

```

Area (ha)= 0.07
 Total Imp(%)= 81.00 Dir. Conn.(%)= 81.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	21.92	40.00
Mannings n =	0.013	0.250

Max. Eff. Inten. (mm/hr)= 131.79 72.51
 over (min) 10.00 10.00
 Storage Coeff. (min)= 0.92 (ii) 8.95 (ii)
 Unit Hyd. Tpeak (min)= 10.00 10.00
 Unit Hyd. peak (cms)= 0.17 0.11

TOTALS

PEAK FLOW (cms)= 0.02 0.00 0.023 (iii)
 TIME TO PEAK (hrs)= 2.33 2.33 2.33
 RUNOFF VOLUME (mm)= 45.62 24.80 41.64
 TOTAL RAINFALL (mm)= 46.62 46.62 46.62
 RUNOFF COEFFICIENT = 0.98 0.53 0.89

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 90.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0002)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 10.0 min				
	OUTFLOW (cms)	STORAGE (ha. m.)	OUTFLOW (cms)	STORAGE (ha. m.)
	0.0000	0.0000	0.0046	0.0026
	0.0019	0.0003	0.0055	0.0039
	0.0045	0.0005	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R. V. (mm)
INFLOW: ID= 2 (0001)	0.072	0.023	2.33	41.64
OUTFLOW: ID= 1 (0002)	0.072	0.005	2.50	41.36

PEAK FLOW REDUCTION [Qout/Qin](%)= 19.51
 TIME SHIFT OF PEAK FLOW (min)= 10.00
 MAXIMUM STORAGE USED (ha. m.)= 0.0013

O O T T H H Y M M O O
 000 T T H H Y M M 000
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\vo1n.dat

Output filename:
 C:\Users\soh\AppData\Local\Ci vi ca\VH5\3c724db5-4e0e-400a-ac61-97739a601ed4\9f7f4236-7cc0-4b0d-a2ee-fe71cad652c3\scenario
 Summary filename:
 C:\Users\soh\AppData\Local\Ci vi ca\VH5\3c724db5-4e0e-400a-ac61-97739a601ed4\9f7f4236-7cc0-4b0d-a2ee-fe71cad652c3\scenario

DATE: 04/11/2023

TIME: 02:24:24

USER:

COMMENTS: _____

 ** SIMULATION : #3 TORONTO 10-YEAR **

CHICAGO STORM | IDF curve parameters: A=1023.840
 Ptotal= 55.38 mm | B= 0.000
 C= 0.800
 used in: INTENSITY = A / (t + B)^C

Duration of storm = 6.00 hrs
 Storm time step = 10.00 min
 Time to peak ratio = 0.38

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.94	1.50	5.08	3.00	6.01	4.50	2.66
0.17	2.07	1.67	6.47	3.17	5.21	4.67	2.52
0.33	2.22	1.83	9.19	3.33	4.61	4.83	2.40
0.50	2.40	2.00	18.14	3.50	4.15	5.00	2.28

V V I SSSS U U A L (v 6.2.2012)
 V V I SS U U A A L
 V V I SS U U A A A A A L
 V V I SS U U A A A L
 V V I SSSS UUUU A A LLLLL
 000 TTTT TTTT H H Y Y M M 000 TM
 0 0 T T H H Y Y M M 0 0

0.67	2.61	2.17	162.27	3.67	3.78	5.17	2.18
0.83	2.87	2.33	21.31	3.83	3.48	5.33	2.09
1.00	3.20	2.50	12.30	4.00	3.22	5.50	2.01
1.17	3.63	2.67	8.97	4.17	3.01	5.67	1.93
1.33	4.22	2.83	7.16	4.33	2.82	5.83	1.86

INFLOW : ID= 2 (0001) (ha) (cms) (hrs) (mm)
 0.072 0.029 2.33 50.16
 OUTFLOW: ID= 1 (0002) 0.072 0.005 2.50 49.83

PEAK FLOW REDUCTION [Qout/Qin](%)= 15.67
 TIME SHIFT OF PEAK FLOW (min)= 10.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0017

 CALIB
 STANDHYD (0001)
 ID= 1 DT=10.0 min
 Area (ha)= 0.07
 Total Imp(%)= 81.00 Dir. Conn.(%)= 81.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	21.92	40.00
Mannings n =	0.013	0.250

Max. Eff. Inten. (mm/hr)=	162.27	99.70
over (min)	10.00	10.00
Storage Coeff. (min)=	0.85 (ii)	7.91 (ii)
Unit Hyd. Tpeak (min)=	10.00	10.00
Unit Hyd. peak (cms)=	0.17	0.12

TOTALS
 0.029 (iii)
 2.33
 50.16
 55.38
 0.91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 90.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 RESERVOIR(0002)
 IN= 2---> OUT= 1
 DT= 10.0 min
 OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0046	0.0026
0.0019	0.0003	0.0055	0.0039
0.0045	0.0005	0.0000	0.0000

AREA	QPEAK	TPEAK	R. V.
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 V V I SSSSS U U A L (v 6.2.2012)
 V V I SS U U A A L
 V V I SS U U A A L
 VV I SSSSS UUUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
 0 0 T T H H Y Y MM MM 0 0
 0 0 T T H H Y M M 0 0
 000 T T H H Y M M 000

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\V02\vo1n.dat

Output filename:
 C:\Users\soh\AppData\Local\Ci vi ca\XH5\3c724db5-4e0e-400a-ac61-97739a601ed4\8761187a-fcab-441d-ac96-49372a1bf9d9\scenari o
 Summary filename:
 C:\Users\soh\AppData\Local\Ci vi ca\XH5\3c724db5-4e0e-400a-ac61-97739a601ed4\8761187a-fcab-441d-ac96-49372a1bf9d9\scenari o

DATE: 04/11/2023

TIME: 02:24:24

USER:

COMMENTS: _____

 ** SIMULATION : #4 TORONTO 25-YEAR **

 | CHICAGO STORM |
Ptotal = 64.68 mm

IDF curve parameters: A=1195.800
 B= 0.000
 C= 0.800
 used in: INTENSITY = A / (t + B)^C

Duration of storm = 6.00 hrs
 Storm time step = 10.00 min
 Time to peak ratio = 0.38

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	2.26	1.50	5.93	3.00	7.02	4.50	3.11
0.17	2.41	1.67	7.55	3.17	6.08	4.67	2.94
0.33	2.59	1.83	10.73	3.33	5.38	4.83	2.80
0.50	2.80	2.00	21.19	3.50	4.85	5.00	2.67
0.67	3.05	2.17	189.52	3.67	4.41	5.17	2.55
0.83	3.36	2.33	24.89	3.83	4.06	5.33	2.44
1.00	3.74	2.50	14.37	4.00	3.77	5.50	2.34
1.17	4.24	2.67	10.47	4.17	3.52	5.67	2.25
1.33	4.93	2.83	8.36	4.33	3.30	5.83	2.17

 | CALIB
 | STANDHYD (0001) |
ID= 1 DT=10.0 min

Area (ha)= 0.07
 Total Imp(%)= 81.00 Dir. Conn.(%)= 81.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	21.92	40.00
Mannings n =	0.013	0.250

Max. Eff. Inten. (mm/hr)=	189.52	126.65
over (min)	10.00	10.00
Storage Coeff. (min)=	0.80 (ii)	7.22 (ii)
Unit Hyd. Tpeak (min)=	10.00	10.00
Unit Hyd. peak (cms)=	0.17	0.13

TOTALS
 PEAK FLOW (cms)= 0.03 0.00 0.034 (iii)
 TIME TO PEAK (hrs)= 2.33 2.33 2.33
 RUNOFF VOLUME (mm)= 63.68 40.52 59.26
 TOTAL RAINFALL (mm)= 64.68 64.68 64.68
 RUNOFF COEFFICIENT = 0.98 0.63 0.92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
 CN* = 90.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | RESERVOIR(0002) | OVERFLOW IS OFF
 | IN= 2---> OUT= 1 |
DT= 10.0 min

	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0046	0.0026
	0.0019	0.0003	0.0055	0.0039
	0.0045	0.0005	0.0000	0.0000

	AREA (ha)	OPEAK (cms)	TPEAK (hrs)	R. V. (mm)
INFLOW : ID= 2 (0001)	0.072	0.034	2.33	59.26
OUTFLOW: ID= 1 (0002)	0.072	0.005	2.50	58.87

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.30
 TIME SHIFT OF PEAK FLOW (min)= 10.00
 MAXIMUM STORAGE USED (ha.m.)= 0.0021

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V V I SSSSS U U A L (v 6.2.2012)
 V V I SS U U A A L
 V V I SS U U A A A L
 V V I SS U U A A L
 VV I SSSSS UUUUU A A LLLLL
 000 TTTT TTTT H H Y Y M M 000 TM
 0 0 T T H H Y Y MM MM 0 0
 0 0 T T H H Y M M 0 0
 000 T T H H Y M M 000

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\vo1n.dat

Output filename:
 C:\Users\soh\AppData\Local\Ci vi ca\WH5\3c724db5-4e0e-400a-ac61-97739a601ed4\9dbd7ae-da5e-4f5a-a566-fc36f2177e9e\scenario
 Summary filename:
 C:\Users\soh\AppData\Local\Ci vi ca\WH5\3c724db5-4e0e-400a-ac61-97739a601ed4\9dbd7ae-da5e-4f5a-a566-fc36f2177e9e\scenario

DATE: 04/11/2023 TIME: 02:24:24
 USER:

COMMENTS: _____

 ** SIMULATION : #5 TORONTO 50-YEAR **

 | CHICAGO STORM | IDF curve parameters: A=1415.390
 | Ptotal = 76.56 mm | B= 0.000
 C= 0.800
 used in: INTENSITY = A / (t + B)^C

Duration of storm = 6.00 hrs
 Storm time step = 10.00 min
 Time to peak ratio = 0.38

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	2.68	1.50	7.02	3.00	8.31	4.50	3.68
0.17	2.86	1.67	8.94	3.17	7.20	4.67	3.49
0.33	3.07	1.83	12.71	3.33	6.37	4.83	3.31
0.50	3.31	2.00	25.08	3.50	5.74	5.00	3.16
0.67	3.61	2.17	224.32	3.67	5.23	5.17	3.02
0.83	3.97	2.33	29.45	3.83	4.81	5.33	2.89
1.00	4.43	2.50	17.01	4.00	4.46	5.50	2.77
1.17	5.02	2.67	12.39	4.17	4.16	5.67	2.67
1.33	5.84	2.83	9.90	4.33	3.91	5.83	2.57

 | CALIB |
 | STANDHYD (0001) | Area (ha)= 0.07

|ID= 1 DT=10.0 min | Total Imp(%)= 81.00 Dir. Conn.(%)= 81.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.06	0.01	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	1.00	2.00	
Length (m)=	21.92	40.00	
Mannings n =	0.013	0.250	
Max. Eff. Inten. (mm/hr)=	224.32	161.90	
over (min)=	10.00	10.00	
Storage Coeff. (min)=	0.74 (ii)	6.56 (ii)	
Unit Hyd. Tpeak (min)=	10.00	10.00	
Unit Hyd. peak (cms)=	0.17	0.13	
PEAK FLOW (cms)=	0.04	0.00	*TOTALS* 0.041 (iii)
TIME TO PEAK (hrs)=	2.33	2.33	2.33
RUNOFF VOLUME (mm)=	75.56	51.32	70.93
TOTAL RAINFALL (mm)=	76.56	76.56	76.56
RUNOFF COEFFICIENT =	0.99	0.67	0.93

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 90.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | RESERVOIR(0002) | OVERFLOW IS OFF
 | IN= 2---> OUT= 1 |
 | DT= 10.0 min |

	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0046	0.0026
	0.0019	0.0003	0.0055	0.0039
	0.0045	0.0005	0.0000	0.0000
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R. V. (mm)
INFLOW : ID= 2 (0001)	0.072	0.041	2.33	80.93
OUTFLOW: ID= 1 (0002)	0.072	0.005	2.67	70.61
PEAK FLOW REDUCTION [Qout/Qin](%)=	11.20			
TIME SHIFT OF PEAK FLOW (min)=	20.00			
MAXIMUM STORAGE USED (ha.m.)=	0.0027			

FINISH

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V V I SSSSS U U A L (v 6.2.2012)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\vo1n.dat

Output filename:
C:\Users\soh\AppData\Local\Civi\ca\5H5\3c724db5-4e0e-400a-ac61-97739a601ed4\0c0b6550-044a-469e-926d-5e1dbed120a0\scenari0
Summary filename:
C:\Users\soh\AppData\Local\Civi\ca\5H5\3c724db5-4e0e-400a-ac61-97739a601ed4\0c0b6550-044a-469e-926d-5e1dbed120a0\scenari0

DATE: 04/11/2023 TIME: 02:24:24

USER:

COMMENTS: _____

** SIMULATION : #6 TORONTO 100-YEAR **

CHICAGO STORM | IDF curve parameters: A=1579.410

| Ptotal = 85.43 mm |

B= 0.000
C= 0.800

used in: INTENSITY = A / (t + B)^C

Duration of storm = 6.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.38

Table with 8 columns: TIME (hrs), RAIN (mm/hr), TIME (hrs), RAIN (mm/hr), TIME (hrs), RAIN (mm/hr), TIME (hrs), RAIN (mm/hr). Rows show rainfall intensity over time from 0.00 to 1.33 hours.

CALIB
STANDHYD (0001)
ID= 1 DT=10.0 min

Area (ha)= 0.07
Total Imp(%)= 81.00
Dir. Conn.(%)= 81.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.06 0.01
Dep. Storage (mm)= 1.00 5.00
Average Slope (%)= 1.00 2.00
Length (m)= 21.92 40.00
Mannings n = 0.013 0.250

Max. Eff. Inten. (mm/hr)= 250.32 188.61
over (min) 10.00 10.00
Storage Coeff. (min)= 0.71 (ii) 6.19 (ii)
Unit Hyd. Tpeak (min)= 10.00 10.00
Unit Hyd. peak (cms)= 0.17 0.14

TOTALS
PEAK FLOW (cms)= 0.04 0.01 0.046 (iii)
TIME TO PEAK (hrs)= 2.33 2.33 2.33
RUNOFF VOLUME (mm)= 84.43 59.54 79.68
TOTAL RAINFALL (mm)= 85.43 85.43 85.43
RUNOFF COEFFICIENT = 0.99 0.70 0.93

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 90.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 | RESERVOIR(0002) |
 | IN= 2---> OUT= 1 |
DT= 10.0 mi n

OVERFLOW IS OFF

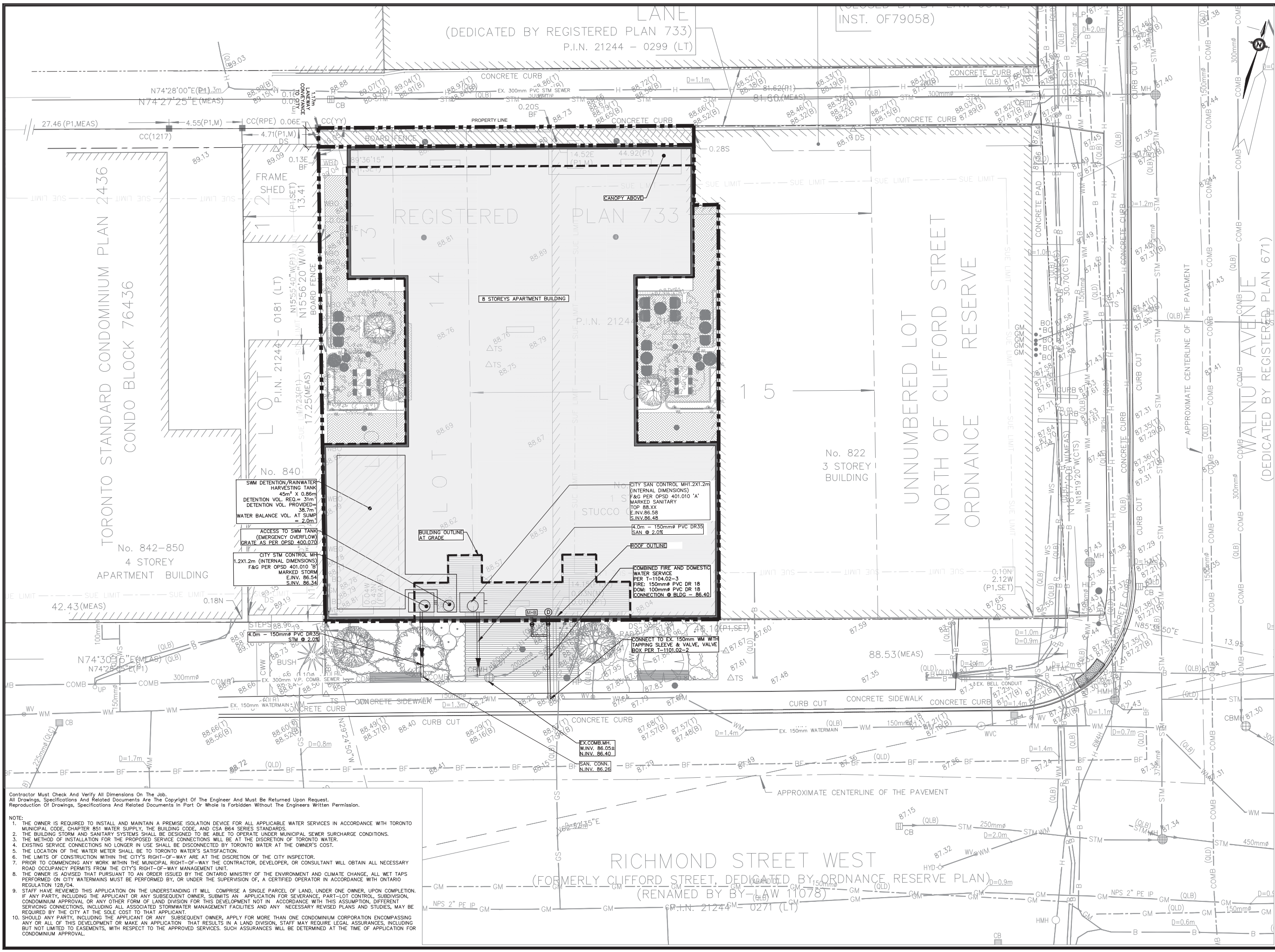
OUTFLOW (cms)	STORAGE (ha. m.)	OUTFLOW (cms)	STORAGE (ha. m.)
0.0000	0.0000	0.0046	0.0026
0.0019	0.0003	0.0055	0.0039
0.0045	0.0005	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R. V. (mm)
INFLOW : ID= 2 (0001)	0.072	0.046	2.33	79.68
OUTFLOW: ID= 1 (0002)	0.072	0.005	2.67	79.29

PEAK FLOW REDUCTION [Qout/Qi n](%)= 10.56
 TIME SHIFT OF PEAK FLOW (mi n)= 20.00
 MAXIMUM STORAGE USED (ha. m.)= 0.0031

APPENDIX E

Preliminary Civil Drawings



KEY PLAN
N.T.S.

No.	Revision	Comments
1	2022-06-22	ISSUED FOR ZBA/OPA
2	2023-07-17	ISSUED FOR ZBA/OPA II

- LEGEND
- PROPOSED PROPERTY LINE
 - PROPOSED WATERMAIN
 - PROPOSED SEWER AND FLOW DIRECTION
 - ⊕ PROPOSED WATER METER & DOUBLE CHECK VALVE ASSEMBLY AS PER T-1107.04-1 (SEE MECH DWGS FOR DETAILS)
 - ⊕ PROPOSED DETECTOR ASSEMBLY (SEE MECH DWGS FOR DETAILS)
 - ⊕ PROPOSED GAS METER
 - ⊕ PROPOSED VALVE & BOX
 - ⊕ PROPOSED ACCESS OPENING FRAME & GRATE (ACCESSIBLE AT GRADE)
 - ▨ PROPOSED BUILDING (CANOPY AREA)
 - ▨ PROPOSED GREEN ROOF AREA

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO CITY OF TORONTO BENCH MARK No. CT552, HAVING AN ELEVATION = 90.430 metres.

1m 0 2m 4m
1:100



Drawing Prepared By:
RVA
R.V. ANDERSON ASSOCIATES LIMITED

Client:
HM PF (822-838 Richmond) LP

Project Name:
828-838 RICHMOND ST. W ZBA/OPA

Drawing Title:
CONCEPTUAL SERVICING

Drawn:	EA	Design:	AW	Date:	2022-04
Checked:	AST	Approved:	AST	Scale:	1:50
CADD File:	215893-S-03-SERVICING.dwg			Dwg. No.:	C-3
Project No.:	215893.01				

- Contractor Must Check And Verify All Dimensions On The Job.
All Drawings, Specifications And Related Documents Are The Copyright Of The Engineer And Must Be Returned Upon Request.
Reproduction Of Drawings, Specifications And Related Documents In Part Or Whole Is Forbidden Without The Engineers Written Permission.
- NOTE:
1. THE OWNER IS REQUIRED TO INSTALL AND MAINTAIN A PREMISE ISOLATION DEVICE FOR ALL APPLICABLE WATER SERVICES IN ACCORDANCE WITH TORONTO MUNICIPAL CODE, CHAPTER 851 WATER SUPPLY, THE BUILDING CODE, AND CSA B64 SERIES STANDARDS.
 2. THE BUILDING STORM AND SANITARY SYSTEMS SHALL BE DESIGNED TO BE ABLE TO OPERATE UNDER MUNICIPAL SEWER SURCHARGE CONDITIONS.
 3. THE METHOD OF INSTALLATION FOR THE PROPOSED SERVICE CONNECTIONS WILL BE AT THE DISCRETION OF TORONTO WATER.
 4. EXISTING SERVICE CONNECTIONS NO LONGER IN USE SHALL BE DISCONNECTED BY TORONTO WATER AT THE OWNER'S COST.
 5. THE LOCATION OF THE WATER METER SHALL BE TO TORONTO WATER'S SATISFACTION.
 6. THE LIMITS OF CONSTRUCTION WITHIN THE CITY'S RIGHT-OF-WAY ARE AT THE DISCRETION OF THE CITY INSPECTOR.
 7. PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL RIGHT-OF-WAY THE CONTRACTOR, DEVELOPER, OR CONSULTANT WILL OBTAIN ALL NECESSARY ROAD OCCUPANCY PERMITS FROM THE CITY'S RIGHT-OF-WAY MANAGEMENT UNIT.
 8. THE OWNER IS ADVISED THAT PURSUANT TO AN ORDER ISSUED BY THE ONTARIO MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE, ALL WET TAPS PERFORMED ON CITY WATERMANS MUST BE PERFORMED BY OR UNDER THE SUPERVISION OF, A CERTIFIED OPERATOR IN ACCORDANCE WITH ONTARIO REGULATION 128/04.
 9. STAFF HAVE REVIEWED THIS APPLICATION ON THE UNDERSTANDING IT WILL COMPREHEND A SINGLE PARCEL OF LAND, UNDER ONE OWNER, UPON COMPLETION. IF ANY PARTY, INCLUDING THE APPLICANT OR ANY SUBSEQUENT OWNER, SUBMITS AN APPLICATION FOR SEVERANCE, PART-LOT CONTROL, SUBDIVISION, CONDOMINIUM APPROVAL OR ANY OTHER FORM OF LAND DIVISION FOR THIS DEVELOPMENT NOT IN ACCORDANCE WITH THIS ASSUMPTION, DIFFERENT SERVICING CONNECTIONS, INCLUDING ALL ASSOCIATED STORMWATER MANAGEMENT FACILITIES AND ANY NECESSARY REVISED PLANS AND STUDIES, MAY BE REQUIRED BY THE CITY AT THE SOLE COST TO THAT APPLICANT.
 10. SHOULD ANY PARTY, INCLUDING THE APPLICANT OR ANY SUBSEQUENT OWNER, APPLY FOR MORE THAN ONE CONDOMINIUM CORPORATION ENCOMPASSING ANY OR ALL OF THIS DEVELOPMENT OR MAKE AN APPLICATION THAT RESULTS IN A LAND DIVISION, STAFF MAY REQUIRE LEGAL ASSURANCES, INCLUDING BUT NOT LIMITED TO EASEMENTS, WITH RESPECT TO THE APPROVED SERVICES. SUCH ASSURANCES SHALL BE DETERMINED AT THE TIME OF APPLICATION FOR CONDOMINIUM APPROVAL.