QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 029795
Page 1 of 1

Laboratory Information Section - Lab use only

Received By: B. Chance
Received Date: 10/26/22 (mm/dd/yy)
Received Time: 18:00 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☐ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☐ No ☐ Type: Ice.
Temperature Upon Receipt (°C): 9.9.9
LAB LIMS #: CA10196-OCT22

REPORT INFORMATION

Company: DS consultants Ltd.
Contact: Dorothy Santos
Address: 6221 Hwy-7, Unit-16
Vaughan, ON
Phone: 905-264-9393
Fax:
Email: dorthy.santos@dsconsultants.ca

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact: Accounting
Address:
Phone:
Email:

Quotation #:
Project #: 19-093-100
P.O. #:
Site Location/ID: 7675 King St, Bolton

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends)
Samples received after 6pm or on weekends: TAT begins next business day
RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Specify Due Date:
*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park ☐ Soil Texture:
☐ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine
☐ Table ____ Appx: ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☑ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ O.WS Not Reportable *See note

Sewer By-Law:
☑ Sanitary
☑ Storm
Municipality: Peel

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	M&I: Field Filtered (Y/N)	M&I: Metals & Inorganics	M&I: Full Metals Suite	M&I: ICP Metals only	SVOC: PAHs only	SVOC: SVOCs	PCB: PCBs (Total ☐ Aroclor ☐)	PHC: F1-F4 + BTEX	PHC: F1-F4 only	VOC: VOCs	VOC: BTEX only	Pest: Pesticides	Other: Peel Sanitary/Storm Sewer Use	Other: PWQO	Other: Water Characterization Pkg (General ☐ Extended ☐)	SPLP: Specify tests	TCLP: Specify tests	COMMENTS:
1	BH 22-5	Oct 26th/22	PM	17	GW	N												✓	✓					Non-filtered sample
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Observations/Comments/Special Instructions

Sampled By (NAME): Harry Chaitanya
Signature: Chaitanya
Date: 10, 26, 22 (mm/dd/yy)

Relinquished by (NAME): Harry Chaitanya
Signature: Chaitanya
Date: 10, 26, 22 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

FINAL REPORT

CA40196-OCT22 R1

19-093-100, 7675 King St., Bolton

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS

Client	DS Consultants
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada
Contact	Dorothy Santos
Telephone	905-329-2735
Facsimile	905-264-2685
Email	dorothy.santos@dsconsultants.ca
Project	19-093-100, 7675 King St., Bolton
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Jill Campbell, B.Sc.,GISAS
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	2165
Facsimile	705-652-6365
Email	jill.campbell@sgs.com
SGS Reference	CA40196-OCT22
Received	10/26/2022
Approved	11/03/2022
Report Number	CA40196-OCT22 R1
Date Reported	11/03/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present: Yes
Custody Seal Present: Yes

Chain of Custody Number: 029795

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

TABLE OF CONTENTS

Client: DS Consultants
Project: 19-093-100, 7675 King St., Bolton
Project Manager: Dorothy Santos
Samplers: Harry/ Chaitemya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-5
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2		5
Total Suspended Solids	mg/L	2		94
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Metals and Inorganics				
Fluoride	mg/L	0.06		0.27
Cyanide (total)	mg/L	0.01		< 0.01
Sulphate	mg/L	2		22
Aluminum (total)	mg/L	0.001		4.96
Antimony (total)	mg/L	0.0009	0.02	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	0.0061
Cadmium (total)	mg/L	0.000003	0.0001	0.000024
Chromium (total)	mg/L	0.00008	0.1	0.00591
Copper (total)	mg/L	0.0002	0.001	0.0056
Cobalt (total)	mg/L	0.000004	0.0009	0.00314
Lead (total)	mg/L	0.00009	0.005	0.00155
Manganese (total)	mg/L	0.00001		0.148
Molybdenum (total)	mg/L	0.00004	0.04	0.00761
Nickel (total)	mg/L	0.0001	0.025	0.0064
Phosphorus (total)	mg/L	0.003	0.01	0.171
Selenium (total)	mg/L	0.00004	0.1	0.00023
Silver (total)	mg/L	0.00005	0.0001	< 0.00005
Tin (total)	mg/L	0.00006		0.00340

Client: DS Consultants
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MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-5
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
Metals and Inorganics (continued)				
Titanium (total)	mg/L	0.00005		0.0707
Zinc (total)	mg/L	0.002	0.02	0.019
Microbiology				
E. Coli	cfu/100mL	0	100	2
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001		0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 2
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

Client: DS Consultants
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MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-5
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	8.6	8.04
Mercury (total)	mg/L	0.00001	0.0002	< 0.00001
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001		< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.001	< 0.002
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005	0.1	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.07	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.05	< 0.0005
Trichloroethylene	mg/L	0.0005	0.02	< 0.0005

Client: DS Consultants
Project: 19-093-100, 7675 King St., Bolton
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Samplers: Harry/ Chaitemya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-5
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.0005	0.1	< 0.0005
Ethylbenzene	mg/L	0.0005	0.008	< 0.0005
Toluene	mg/L	0.0005	0.0008	< 0.0005
Xylene (total)	mg/L	0.0005		< 0.0005
m-p-xylene	mg/L	0.0005	0.002	< 0.0005
o-xylene	mg/L	0.0005	0.04	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
BH 22-5				
Arsenic	SM 3030/EPA 200.8	mg/L	0.0061	0.005
Cobalt	SM 3030/EPA 200.8	mg/L	0.00314	0.0009
Copper	SM 3030/EPA 200.8	mg/L	0.0056	0.001
Phosphorus	SM 3030/EPA 200.8	mg/L	0.171	0.01
4AAP-Phenolics	SM 5530B-D	mg/L	< 0.002	0.001

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5002-NOV22	mg/L	2	<2	ND	20	106	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0054-OCT22	mg/L	2	< 2	18	30	99	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0285-OCT22	mg/L	0.01	<0.01	ND	10	98	90	110	101	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0664-OCT22	mg/L	0.06	<0.06	ND	10	104	90	110	100	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B I Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0051-OCT22	mg/L	0.00001	< 0.00001	4	20	115	80	120	106	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0224-OCT22	mg/L	0.00005	<0.00005	ND	20	106	90	110	98	70	130
Aluminum (total)	EMS0224-OCT22	mg/L	0.001	<0.001	1	20	107	90	110	110	70	130
Arsenic (total)	EMS0224-OCT22	mg/L	0.0002	<0.0002	11	20	109	90	110	105	70	130
Cadmium (total)	EMS0224-OCT22	mg/L	0.000003	<0.000003	ND	20	106	90	110	101	70	130
Cobalt (total)	EMS0224-OCT22	mg/L	0.000004	<0.000004	0	20	106	90	110	93	70	130
Chromium (total)	EMS0224-OCT22	mg/L	0.00008	<0.00008	19	20	106	90	110	113	70	130
Copper (total)	EMS0224-OCT22	mg/L	0.0002	<0.0002	6	20	105	90	110	97	70	130
Manganese (total)	EMS0224-OCT22	mg/L	0.00001	<0.00001	1	20	109	90	110	108	70	130
Molybdenum (total)	EMS0224-OCT22	mg/L	0.00004	<0.00004	5	20	105	90	110	105	70	130
Nickel (total)	EMS0224-OCT22	mg/L	0.0001	<0.0001	5	20	102	90	110	94	70	130
Lead (total)	EMS0224-OCT22	mg/L	0.00009	<0.00001	18	20	106	90	110	95	70	130
Phosphorus (total)	EMS0224-OCT22	mg/L	0.003	<0.003	0	20	108	90	110	NV	70	130
Antimony (total)	EMS0224-OCT22	mg/L	0.0009	<0.0009	ND	20	101	90	110	94	70	130
Selenium (total)	EMS0224-OCT22	mg/L	0.00004	<0.00004	11	20	109	90	110	108	70	130
Tin (total)	EMS0224-OCT22	mg/L	0.00006	<0.00006	ND	20	104	90	110	NV	70	130
Titanium (total)	EMS0224-OCT22	mg/L	0.00005	<0.00005	13	20	106	90	110	NV	70	130
Zinc (total)	EMS0224-OCT22	mg/L	0.002	<0.002	1	20	103	90	110	121	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9419-OCT22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			113	55	120			
Nonylphenol Ethoxylates	GCM0431-OCT22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			115	55	120			
Nonylphenol	GCM0431-OCT22	mg/L	0.001	<0.001			115	55	120			

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0410-OCT22	mg/L	2	<2	NSS	20	100	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0681-OCT22	No unit	0.05	NA	0		101			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0318-OCT22	mg/L	0.002	<0.002	ND	10	100	80	120	100	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-[ENVIGC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0377-OCT22	mg/L	0.0001	<0.0001	NSS	30	84	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	123	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	113	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0006-NOV22	mg/L	2	< 2	0	10	93	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0015-NOV22	as N mg/L	0.5	<0.5	2	10	100	90	110	107	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	92	60	130	94	50	140
1,2-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	95	60	130	98	50	140
1,4-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	94	60	130	96	50	140
Benzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Chloroform	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
cis-1,2-Dichloroethene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
m-p-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
Methyl ethyl ketone	GCM0375-OCT22	mg/L	0.02	<0.02	ND	30	93	50	140	95	50	140
Methylene Chloride	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
o-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
Styrene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	101	50	140
Tetrachloroethylene (perchloroethylene)	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	100	50	140
Toluene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140
Trichloroethylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 029795
Page 1 of 1

Laboratory Information Section - Lab use only

Received By: B. Chance
Received Date: 10/26/22 (mm/dd/yy)
Received Time: 18:00 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☐ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☐ No ☐ Type: Ice.
Temperature Upon Receipt (°C): 9.9.9
LAB LIMS #: CA10196-OCT22

REPORT INFORMATION

Company: DS consultants Ltd.
Contact: Dorothy Santos
Address: 6221 Hwy-7, Unit-16
Vaughan, ON
Phone: 905-264-9393
Fax:
Email: dorthy.santos@dsconsultants.ca

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact: Accounting
Address:
Phone:
Email:

Quotation #:
Project #: 19-093-100
P.O. #:
Site Location/ID: 7675 King St, Bolton

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends)
Samples received after 6pm or on weekends: TAT begins next business day
RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Specify Due Date:
*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park ☐ Soil Texture:
☐ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine
☐ Table ____ Appx: ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☑ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ O.WS Not Reportable *See note

Sewer By-Law:
☑ Sanitary
☑ Storm
Municipality: Peel

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	M&I: Field Filtered (Y/N)	M&I: Metals & Inorganics	M&I: Full Metals Suite	M&I: ICP Metals only	SVOC: PAHs only	SVOC: SVOCs	PCB: PCBs (Total ☐ Aroclor ☐)	PHC: F1-F4 + BTEX	PHC: F1-F4 only	VOC: VOCs	VOC: BTEX only	Pest: Pesticides	Other: Peel Sanitary/Storm Sewer Use	Other: PWQO	Other: Water Characterization Pkg (General ☐ Extended ☐)	SPLP: Specify tests	TCLP: Specify tests	COMMENTS:
1	BH 22-5	Oct 26th/22	PM	17	GW	N												✓	✓					Non-filtered sample
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Observations/Comments/Special Instructions

Sampled By (NAME): Harry Chaitanya
Signature: Chaitanya
Date: 10, 26, 22 (mm/dd/yy)

Relinquished by (NAME): Harry Chaitanya
Signature: Chaitanya
Date: 10, 26, 22 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

FINAL REPORT

CA40197-OCT22 R1

19-093-100, 7675 King St, Bolton

Prepared for

DS Consultants

FINAL REPORT

CA40197-OCT22 R1

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Santos	Telephone	2165
Telephone	905-329-2735	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	jill.campbell@sgs.com
Email	dorothy.santos@dsconsultants.ca	SGS Reference	CA40197-OCT22
Project	19-093-100, 7675 King St, Bolton	Received	10/26/2022
Order Number		Approved	11/03/2022
Samples	Ground Water (1)	Report Number	CA40197-OCT22 R1
		Date Reported	11/03/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present: Yes
Custody Seal Present: Yes

Chain of Custody Number: 029796

Note: Elevated E coli reporting limit due to excessive growth of bacteria at higher volumes.

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

TABLE OF CONTENTS

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	L2	Result
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4 ↑
Total Suspended Solids	mg/L	2	350	15	38300
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5
Metals and Inorganics					
Fluoride	mg/L	0.06	10		0.14
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Sulphate	mg/L	2	1500		24
Aluminum (total)	mg/L	0.001	50		15.7
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0072
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000178
Chromium (total)	mg/L	0.00008	5	0.08	0.0326
Copper (total)	mg/L	0.0002	3	0.05	0.0266
Cobalt (total)	mg/L	0.000004	5		0.0125
Lead (total)	mg/L	0.00009	3	0.12	0.0180
Manganese (total)	mg/L	0.00001	5	0.05	2.17
Molybdenum (total)	mg/L	0.00004	5		0.00230
Nickel (total)	mg/L	0.0001	3	0.08	0.0248
Phosphorus (total)	mg/L	0.003	10	0.4	3.12
Selenium (total)	mg/L	0.00004	1	0.02	0.00022
Silver (total)	mg/L	0.00005	5	0.12	0.00006
Tin (total)	mg/L	0.00006	5		0.00227

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
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Samplers: Harry/Chaitanyo

MATRIX: WATER

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Titanium (total)	mg/L	0.00005	5		0.576
Zinc (total)	mg/L	0.002	3	0.04	0.057
Microbiology					
E. Coli	cfu/100mL	0		200	< 20↑
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 4↑
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

Sample Number 8
Sample Name BH 22-1
Sample Matrix Ground Water
Sample Date 26/10/2022

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
Other (ORP)					
pH	No unit	0.05	10	9	7.72
Mercury (total)	mg/L	0.00001	0.01	0.0004	0.00002
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

VOCs - BTEX

Parameter	Units	RL	L1	L2	Result
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010 L1	SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010 L2
BH 22-1					
Total Suspended Solids	SM 2540D	mg/L	38300	350	15
Manganese	SM 3030/EPA 200.8	mg/L	2.17		0.05
Phosphorus	SM 3030/EPA 200.8	mg/L	3.12		0.4
Zinc	SM 3030/EPA 200.8	mg/L	0.057		0.04

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5002-NOV22	mg/L	2	<2	ND	20	106	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0054-OCT22	mg/L	2	< 2	18	30	99	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0285-OCT22	mg/L	0.01	<0.01	ND	10	98	90	110	101	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0664-OCT22	mg/L	0.06	<0.06	ND	10	104	90	110	100	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B I Internal ref.: ME-CA-[ENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0051-OCT22	mg/L	0.00001	< 0.00001	4	20	115	80	120	106	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0217-OCT22	mg/L	0.00005	<0.00005	ND	20	104	90	110	102	70	130
Aluminum (total)	EMS0217-OCT22	mg/L	0.001	<0.001	3	20	103	90	110	107	70	130
Arsenic (total)	EMS0217-OCT22	mg/L	0.0002	<0.0002	ND	20	110	90	110	106	70	130
Cadmium (total)	EMS0217-OCT22	mg/L	0.000003	<0.000003	ND	20	103	90	110	102	70	130
Cobalt (total)	EMS0217-OCT22	mg/L	0.000004	<0.000004	2	20	104	90	110	99	70	130
Chromium (total)	EMS0217-OCT22	mg/L	0.00008	<0.00008	4	20	105	90	110	104	70	130
Copper (total)	EMS0217-OCT22	mg/L	0.0002	<0.0002	5	20	105	90	110	92	70	130
Manganese (total)	EMS0217-OCT22	mg/L	0.00001	<0.00001	ND	20	107	90	110	83	70	130
Molybdenum (total)	EMS0217-OCT22	mg/L	0.00004	<0.00004	ND	20	105	90	110	105	70	130
Nickel (total)	EMS0217-OCT22	mg/L	0.0001	<0.0001	ND	20	105	90	110	90	70	130
Lead (total)	EMS0217-OCT22	mg/L	0.00009	<0.00001	3	20	103	90	110	93	70	130
Phosphorus (total)	EMS0217-OCT22	mg/L	0.003	<0.003	ND	20	97	90	110	NV	70	130
Antimony (total)	EMS0217-OCT22	mg/L	0.0009	<0.0009	ND	20	103	90	110	106	70	130
Selenium (total)	EMS0217-OCT22	mg/L	0.00004	<0.00004	ND	20	110	90	110	100	70	130
Tin (total)	EMS0217-OCT22	mg/L	0.00006	<0.00006	ND	20	106	90	110	NV	70	130
Titanium (total)	EMS0217-OCT22	mg/L	0.00005	<0.00005	ND	20	105	90	110	NV	70	130
Zinc (total)	EMS0217-OCT22	mg/L	0.002	<0.002	1	20	102	90	110	104	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9419-OCT22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			113	55	120			
Nonylphenol Ethoxylates	GCM0431-OCT22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			115	55	120			
Nonylphenol	GCM0431-OCT22	mg/L	0.001	<0.001			115	55	120			

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-[ENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0410-OCT22	mg/L	2	<2	NSS	20	100	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-[ENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0681-OCT22	No unit	0.05	NA	0		101			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0318-OCT22	mg/L	0.002	<0.002	ND	10	100	80	120	100	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-[ENV]GC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0377-OCT22	mg/L	0.0001	<0.0001	NSS	30	84	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	123	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	113	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0006-NOV22	mg/L	2	< 2	0	10	93	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0004-NOV22	as N mg/L	0.5	<0.5	2	10	98	90	110	106	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	92	60	130	94	50	140
1,2-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	95	60	130	98	50	140
1,4-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	94	60	130	96	50	140
Benzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Chloroform	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
cis-1,2-Dichloroethene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
m-p-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
Methyl ethyl ketone	GCM0375-OCT22	mg/L	0.02	<0.02	ND	30	93	50	140	95	50	140
Methylene Chloride	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
o-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
Styrene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	101	50	140
Tetrachloroethylene (perchloroethylene)	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	100	50	140
Toluene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140
Trichloroethylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS

No: 029796

Page 1 of 1

Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Laboratory Information Section - Lab use only

Received By: [signature]
Received Date: 10/26/22 (mm/dd/yy)
Received Time: 17:50 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☐ No ☐
Custody Seal Intact: Yes ☐ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Temperature Upon Receipt (°C): 7,6,3
LAB LIMS #: CA40197-oct 22

REPORT INFORMATION	INVOICE INFORMATION
Company: DS Consultants	☑ (same as Report Information)
Contact: Dorothy Santos	Company:
Address: 6221 Hwy 7, Unit 16, Vaughan, ON	Contact: Accounting
Phone: 905 329 2735	Address:
Fax:	Phone:
Email: dorothy.santos@dsconsult...	Email:

Quotation #:
P.O. #:
Project #: 19-073-100
Site Location/ID: 7675 King St Bolton

TURNAROUND TIME (TAT) REQUIRED

TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

☑ Regular TAT (5-7days)

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture:
☐ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine
☐ Table ___ Appx ___
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☑ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☑ Sanitary
☐ Storm
Municipality: Peel

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	Full Metals Suite	ICP Metals only	PAHs only	SVOCs	PCBs (Total / Aroclor)	F1-F4 + BTEX	F1-F4 only	VOCs	BTEX only	Pesticides	Other: Peel Storm and Sanitary	Other: PWQO	Other	Other	Sewer Use	Water Characterization Pkg	SPLP	TCLP	COMMENTS
1	BH 22-1	Oct 26 22	pm	17	GW	N												✓	✓							Non filtered sample
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Harry Chaitanya Signature: [signature] Date: 10/26/22 (mm/dd/yy)
Relinquished by (NAME): Harry Chaitanya Signature: [signature] Date: 10/26/22 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.4
Date of Issue: 03 Mar 2020

Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

FINAL REPORT

CA40197-OCT22 R1

19-093-100, 7675 King St, Bolton

Prepared for

DS Consultants

FINAL REPORT

CA40197-OCT22 R1

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Santos	Telephone	2165
Telephone	905-329-2735	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	jill.campbell@sgs.com
Email	dorothy.santos@dsconsultants.ca	SGS Reference	CA40197-OCT22
Project	19-093-100, 7675 King St, Bolton	Received	10/26/2022
Order Number		Approved	11/03/2022
Samples	Ground Water (1)	Report Number	CA40197-OCT22 R1
		Date Reported	11/03/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present: Yes
Custody Seal Present: Yes

Chain of Custody Number: 029796

Note: Elevated E coli reporting limit due to excessive growth of bacteria at higher volumes.

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

TABLE OF CONTENTS

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4 ↑
Total Suspended Solids	mg/L	2		38300
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Metals and Inorganics				
Fluoride	mg/L	0.06		0.14
Cyanide (total)	mg/L	0.01		< 0.01
Sulphate	mg/L	2		24
Aluminum (total)	mg/L	0.001		15.7
Antimony (total)	mg/L	0.0009	0.02	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	**0.0072**
Cadmium (total)	mg/L	0.000003	0.0001	**0.000178**
Chromium (total)	mg/L	0.00008	0.1	0.0326
Copper (total)	mg/L	0.0002	0.001	**0.0266**
Cobalt (total)	mg/L	0.000004	0.0009	**0.0125**
Lead (total)	mg/L	0.00009	0.005	**0.0180**
Manganese (total)	mg/L	0.00001		2.17
Molybdenum (total)	mg/L	0.00004	0.04	0.00230
Nickel (total)	mg/L	0.0001	0.025	0.0248
Phosphorus (total)	mg/L	0.003	0.01	**3.12**
Selenium (total)	mg/L	0.00004	0.1	0.00022
Silver (total)	mg/L	0.00005	0.0001	0.00006
Tin (total)	mg/L	0.00006		0.00227

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
Metals and Inorganics (continued)				
Titanium (total)	mg/L	0.00005		0.576
Zinc (total)	mg/L	0.002	0.02	0.057
Microbiology				
E. Coli	cfu/100mL	0	100	< 20↑
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 4↑
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	8.6	7.72
Mercury (total)	mg/L	0.00001	0.0002	0.00002
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001		< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.001	< 0.002
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005	0.1	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.07	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.05	< 0.0005
Trichloroethylene	mg/L	0.0005	0.02	< 0.0005

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
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MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.0005	0.1	< 0.0005
Ethylbenzene	mg/L	0.0005	0.008	< 0.0005
Toluene	mg/L	0.0005	0.0008	0.0005
Xylene (total)	mg/L	0.0005		< 0.0005
m-p-xylene	mg/L	0.0005	0.002	< 0.0005
o-xylene	mg/L	0.0005	0.04	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
BH 22-1				
Arsenic	SM 3030/EPA 200.8	mg/L	0.0072	0.005
Cadmium	SM 3030/EPA 200.8	mg/L	0.000178	0.0001
Cobalt	SM 3030/EPA 200.8	mg/L	0.0125	0.0009
Copper	SM 3030/EPA 200.8	mg/L	0.0266	0.001
Lead	SM 3030/EPA 200.8	mg/L	0.0180	0.005
Phosphorus	SM 3030/EPA 200.8	mg/L	3.12	0.01
Zinc	SM 3030/EPA 200.8	mg/L	0.057	0.02
4AAP-Phenolics	SM 5530B-D	mg/L	< 0.002	0.001

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5002-NOV22	mg/L	2	<2	ND	20	106	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0054-OCT22	mg/L	2	< 2	18	30	99	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0285-OCT22	mg/L	0.01	<0.01	ND	10	98	90	110	101	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0664-OCT22	mg/L	0.06	<0.06	ND	10	104	90	110	100	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B I Internal ref.: ME-CA-[ENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0051-OCT22	mg/L	0.00001	< 0.00001	4	20	115	80	120	106	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0217-OCT22	mg/L	0.00005	<0.00005	ND	20	104	90	110	102	70	130
Aluminum (total)	EMS0217-OCT22	mg/L	0.001	<0.001	3	20	103	90	110	107	70	130
Arsenic (total)	EMS0217-OCT22	mg/L	0.0002	<0.0002	ND	20	110	90	110	106	70	130
Cadmium (total)	EMS0217-OCT22	mg/L	0.000003	<0.000003	ND	20	103	90	110	102	70	130
Cobalt (total)	EMS0217-OCT22	mg/L	0.000004	<0.000004	2	20	104	90	110	99	70	130
Chromium (total)	EMS0217-OCT22	mg/L	0.00008	<0.00008	4	20	105	90	110	104	70	130
Copper (total)	EMS0217-OCT22	mg/L	0.0002	<0.0002	5	20	105	90	110	92	70	130
Manganese (total)	EMS0217-OCT22	mg/L	0.00001	<0.00001	ND	20	107	90	110	83	70	130
Molybdenum (total)	EMS0217-OCT22	mg/L	0.00004	<0.00004	ND	20	105	90	110	105	70	130
Nickel (total)	EMS0217-OCT22	mg/L	0.0001	<0.0001	ND	20	105	90	110	90	70	130
Lead (total)	EMS0217-OCT22	mg/L	0.00009	<0.00001	3	20	103	90	110	93	70	130
Phosphorus (total)	EMS0217-OCT22	mg/L	0.003	<0.003	ND	20	97	90	110	NV	70	130
Antimony (total)	EMS0217-OCT22	mg/L	0.0009	<0.0009	ND	20	103	90	110	106	70	130
Selenium (total)	EMS0217-OCT22	mg/L	0.00004	<0.00004	ND	20	110	90	110	100	70	130
Tin (total)	EMS0217-OCT22	mg/L	0.00006	<0.00006	ND	20	106	90	110	NV	70	130
Titanium (total)	EMS0217-OCT22	mg/L	0.00005	<0.00005	ND	20	105	90	110	NV	70	130
Zinc (total)	EMS0217-OCT22	mg/L	0.002	<0.002	1	20	102	90	110	104	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9419-OCT22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			113	55	120			
Nonylphenol Ethoxylates	GCM0431-OCT22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			115	55	120			
Nonylphenol	GCM0431-OCT22	mg/L	0.001	<0.001			115	55	120			

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-[ENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0410-OCT22	mg/L	2	<2	NSS	20	100	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-[ENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0681-OCT22	No unit	0.05	NA	0		101			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0318-OCT22	mg/L	0.002	<0.002	ND	10	100	80	120	100	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-[ENV]GC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0377-OCT22	mg/L	0.0001	<0.0001	NSS	30	84	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	123	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	113	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0006-NOV22	mg/L	2	< 2	0	10	93	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0004-NOV22	as N mg/L	0.5	<0.5	2	10	98	90	110	106	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	92	60	130	94	50	140
1,2-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	95	60	130	98	50	140
1,4-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	94	60	130	96	50	140
Benzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Chloroform	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
cis-1,2-Dichloroethene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
m-p-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
Methyl ethyl ketone	GCM0375-OCT22	mg/L	0.02	<0.02	ND	30	93	50	140	95	50	140
Methylene Chloride	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
o-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
Styrene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	101	50	140
Tetrachloroethylene (perchloroethylene)	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	100	50	140
Toluene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140
Trichloroethylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS

Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 029796

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: [signature]
Received Date: 10/26/2022 (mm/dd/yy)
Received Time: 17:50 (hr : min)

Received By (signature):
Custody Seal Present: Yes ☐ No ☐
Custody Seal Intact: Yes ☐ No ☐

Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Temperature Upon Receipt (°C): 7, 6, 3

LAB LIMS #: CA40197-Oct22

REPORT INFORMATION

Company: DS Consultants
Contact: Dorothy Santos
Address: 6221 Hwy 7, Unit 16, Vaughan, ON
Phone: 905 329 2735
Fax:
Email: dorothy.santos@dsconsult...

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact: Accounting
Address:
Phone:
Email:

Quotation #:
P.O. #:
Project #: 19-073-100
Site Location/ID: 7675 King St, Bolton

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19

☐ Table 1 ☐ Res/Park Soil Texture:
☐ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine
☐ Table ____ Appx ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☑ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☑ Sanitary
☑ Storm
Municipality: Peel

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M & I: Metals & Inorganics	M & I: Full Metals Suite	M & I: ICP Metals only	SVOC: PAHs only	SVOC: SVOCs	PCB: PCBs (☐ Total ☐ Aroclor)	PHC: F1-F4 + BTEX	PHC: F1-F4 only	VOC: VOCs	VOC: BTEX only	Post: Pesticides	Other: Peel Region San and Storm	Other: PWQO	Other	Other	Sewer Use:	Water Characterization Pkg	SPLP: Specify tests	TCLP: Specify tests	COMMENTS:
1	BH 22-1	Oct 26 22	pm	17	GW	N												✓	✓							Non filtered sample
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Harry Chaitanya Signature: [signature] Date: 10/26/22 (mm/dd/yy)

Relinquished by (NAME): Chaitanya Signature: [signature] Date: 10/26/22 (mm/dd/yy)

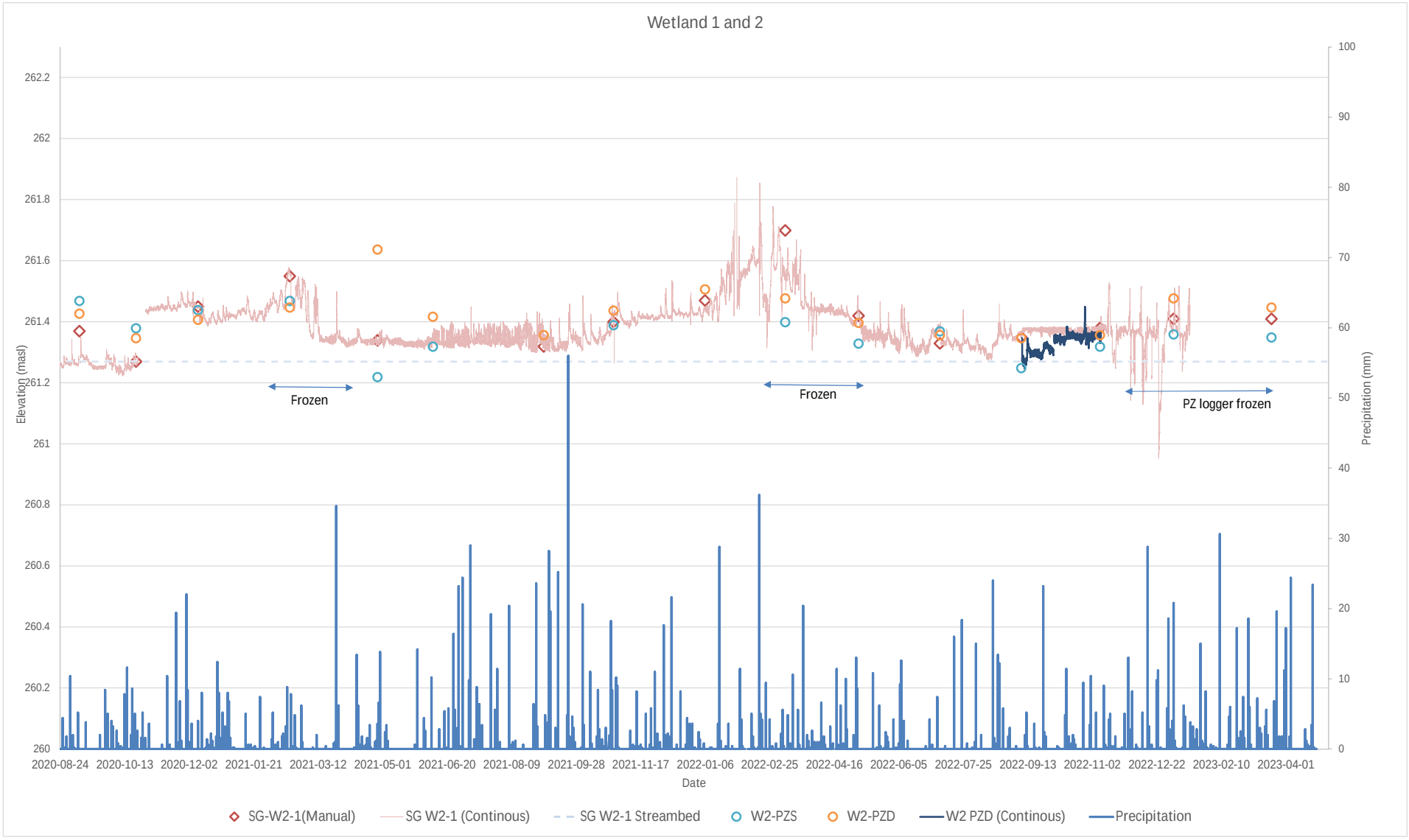
Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.4
Date of Issue: 03 Mar 2020

Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Appendix F

WATER LEVEL HYDROGRAPH



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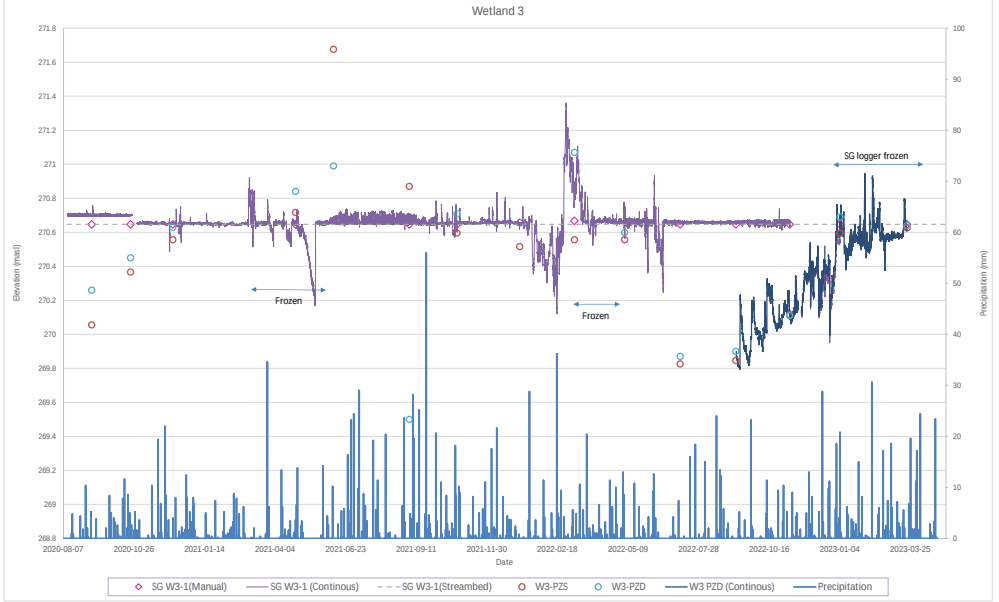
Caledon Station

WETLAND 1 & 2 HYDROGRAPH

August 2020 -April 2023

F-1

WATER LEVEL HYDROGRAPH



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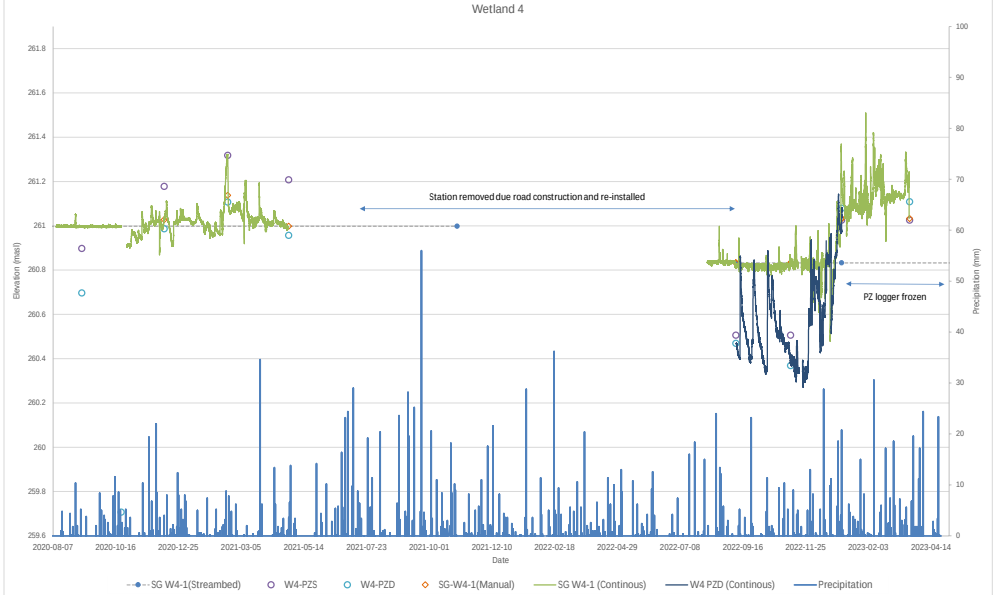
WETLAND 3 HYDROGRAPH

August 2020 - April 2023

WATER LEVEL HYDROGRAPH



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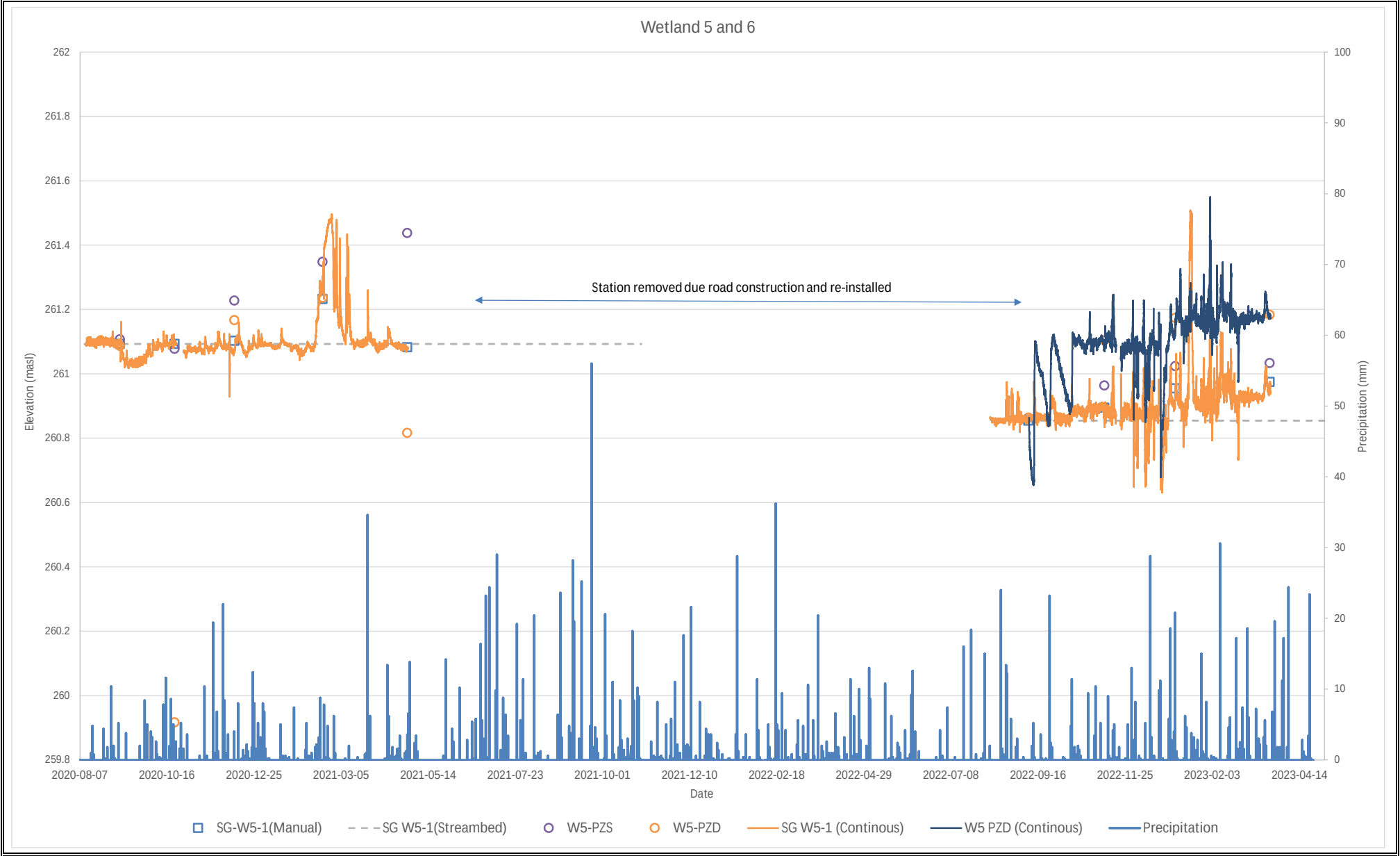
WETLAND 4 HYDROGRAPH

August 2020 - April 2023

F3

WATER LEVEL HYDROGRAPH



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WETLANDS 5 & 6 HYDROGRAPH

August 2020 - April 2023

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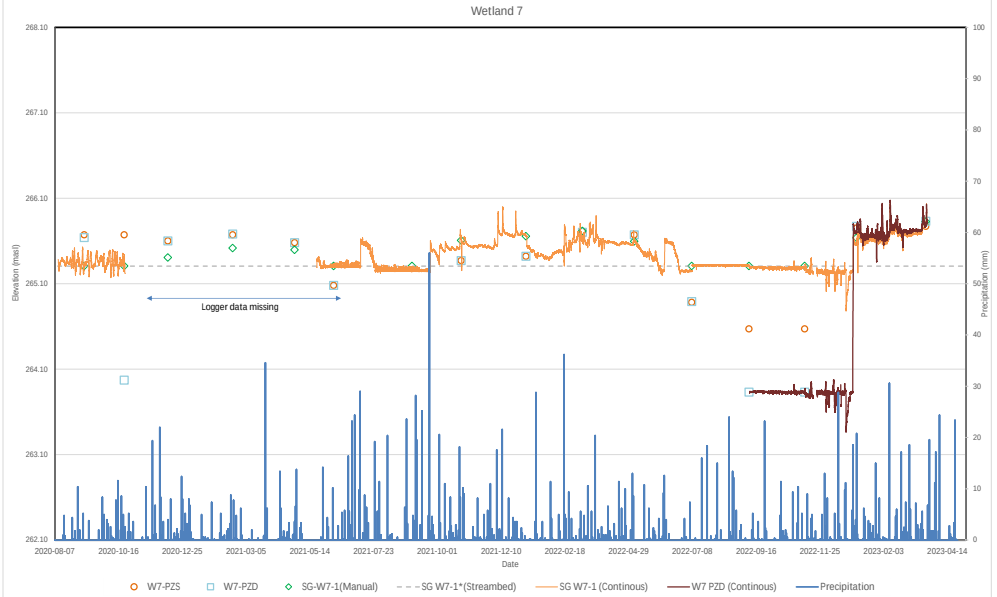
WATER LEVEL HYDROGRAPH



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WETLAND 7 HYDROGRAPH

August 2020 - April 2023

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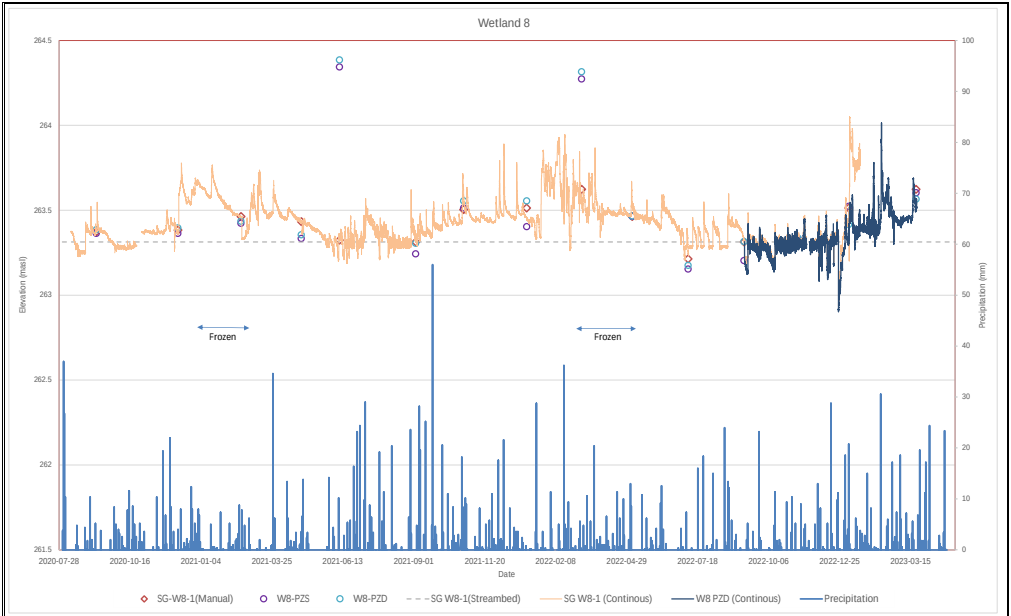
WATER LEVEL HYDROGRAPH



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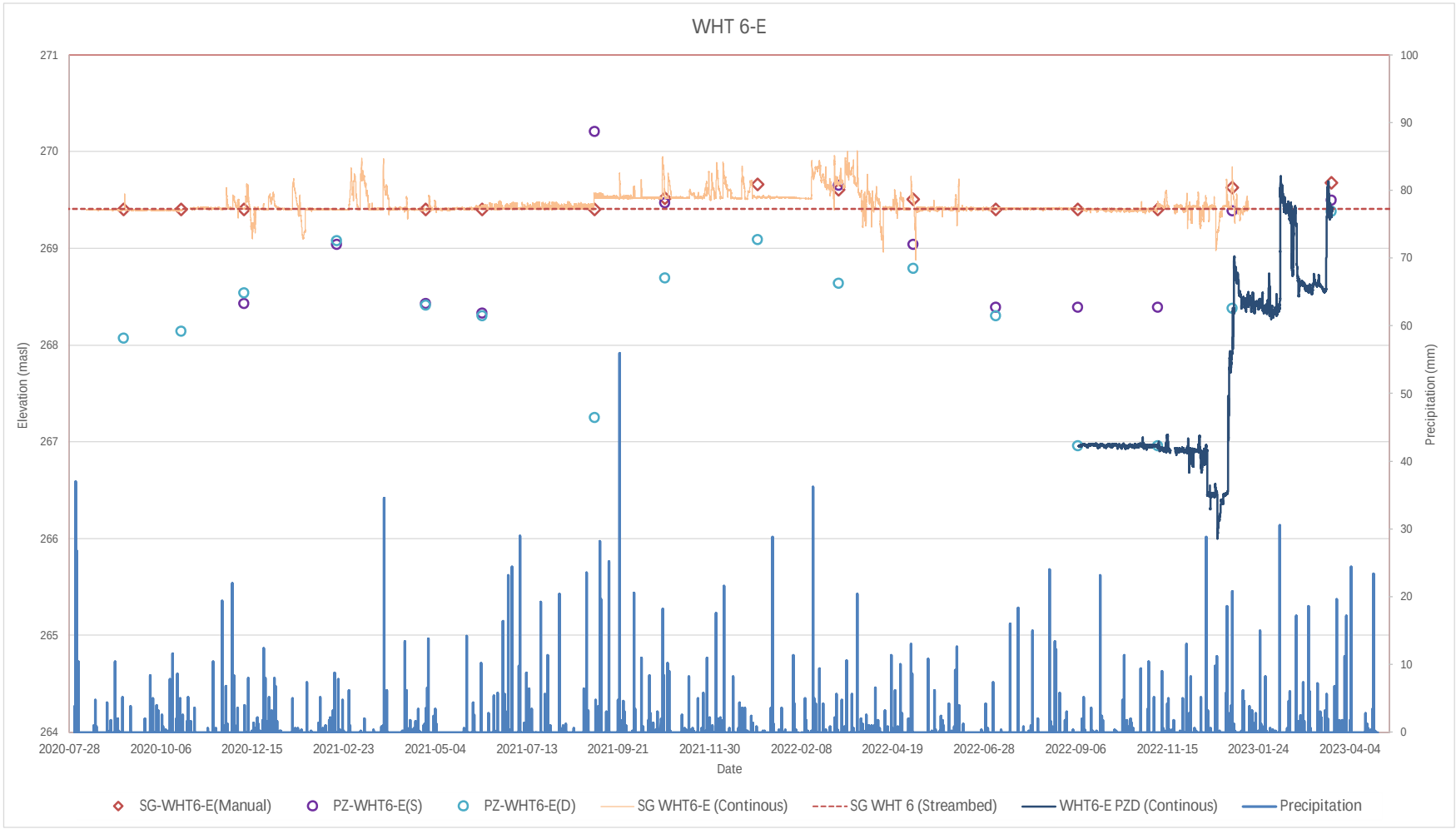
Caledon Station
WETLAND 8 HYDROGRAPH
August 2020 - April 2023
F8

WATER LEVEL HYDROGRAPH



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WHT 6-E HYDROGRAPH

August 2020 - April 2023

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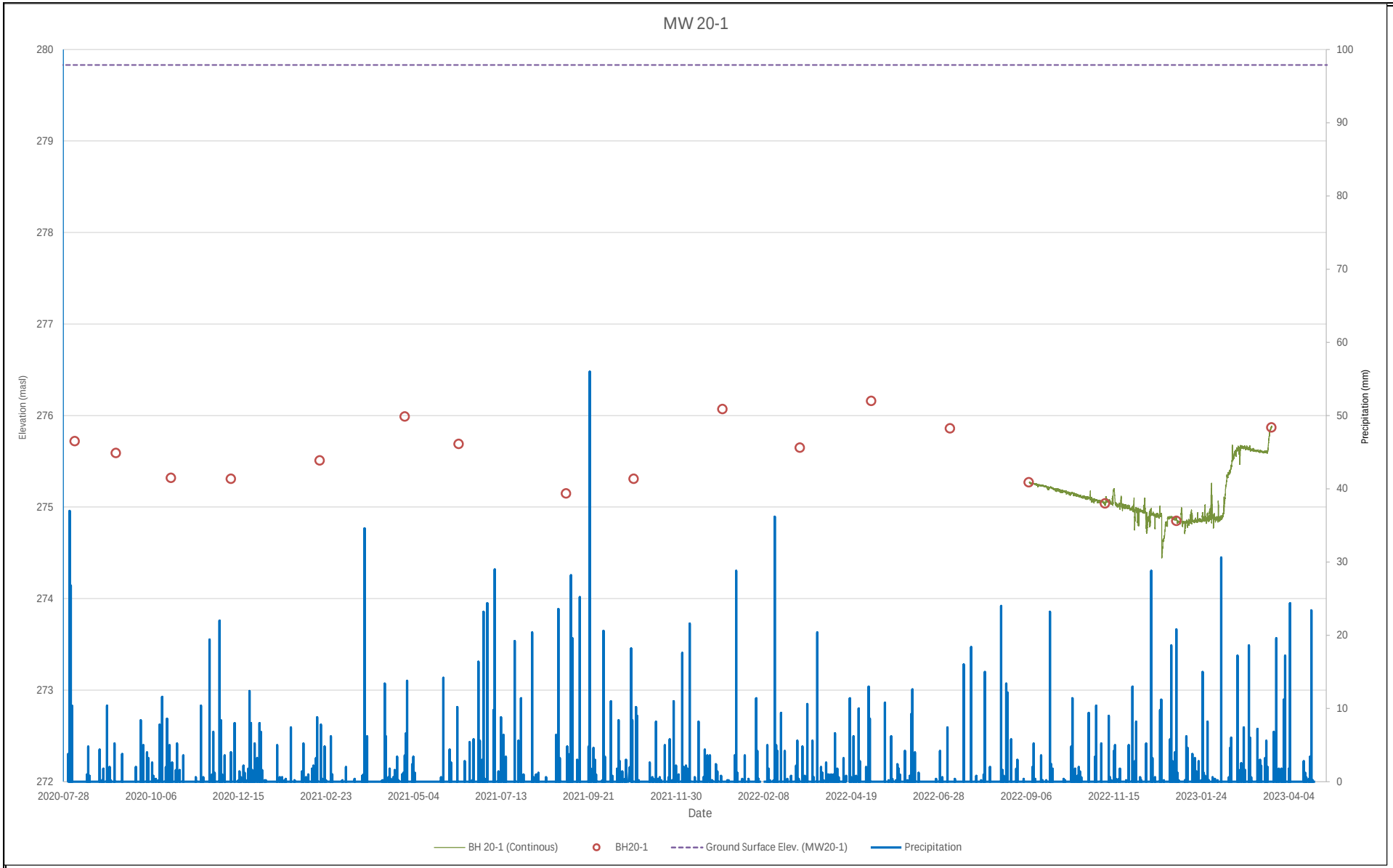
WATER LEVEL HYDROGRAPH



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MW 20-1 HYDROGRAPH

August 2020 - April 2023

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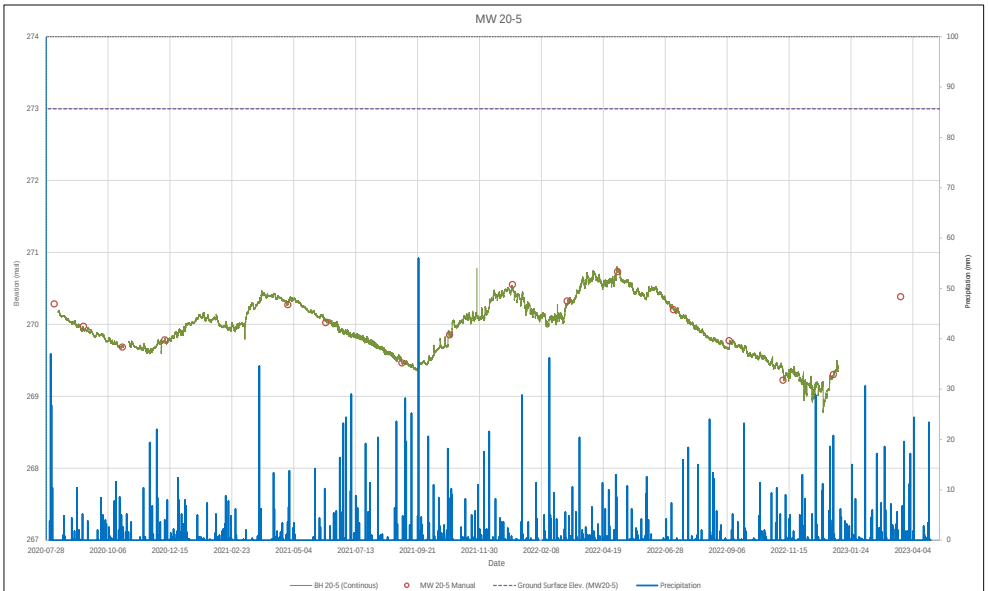
WATER LEVEL HYDROGRAPH



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MW 20-5 HYDROGRAPH

August 2020 - April 2023

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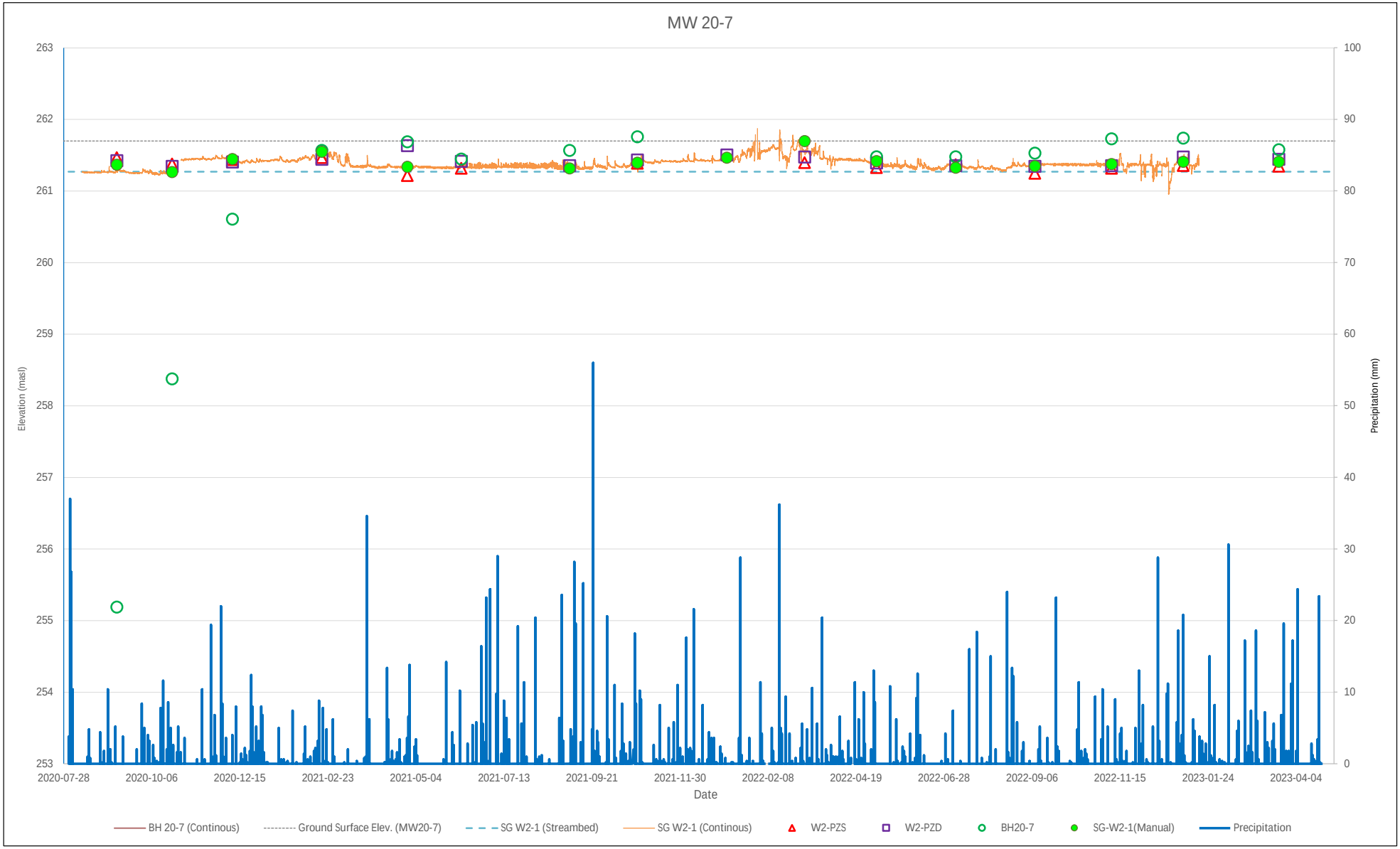
WATER LEVEL HYDROGRAPH



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MW 20-7 HYDROGRAPH

August 2020 - April 2023

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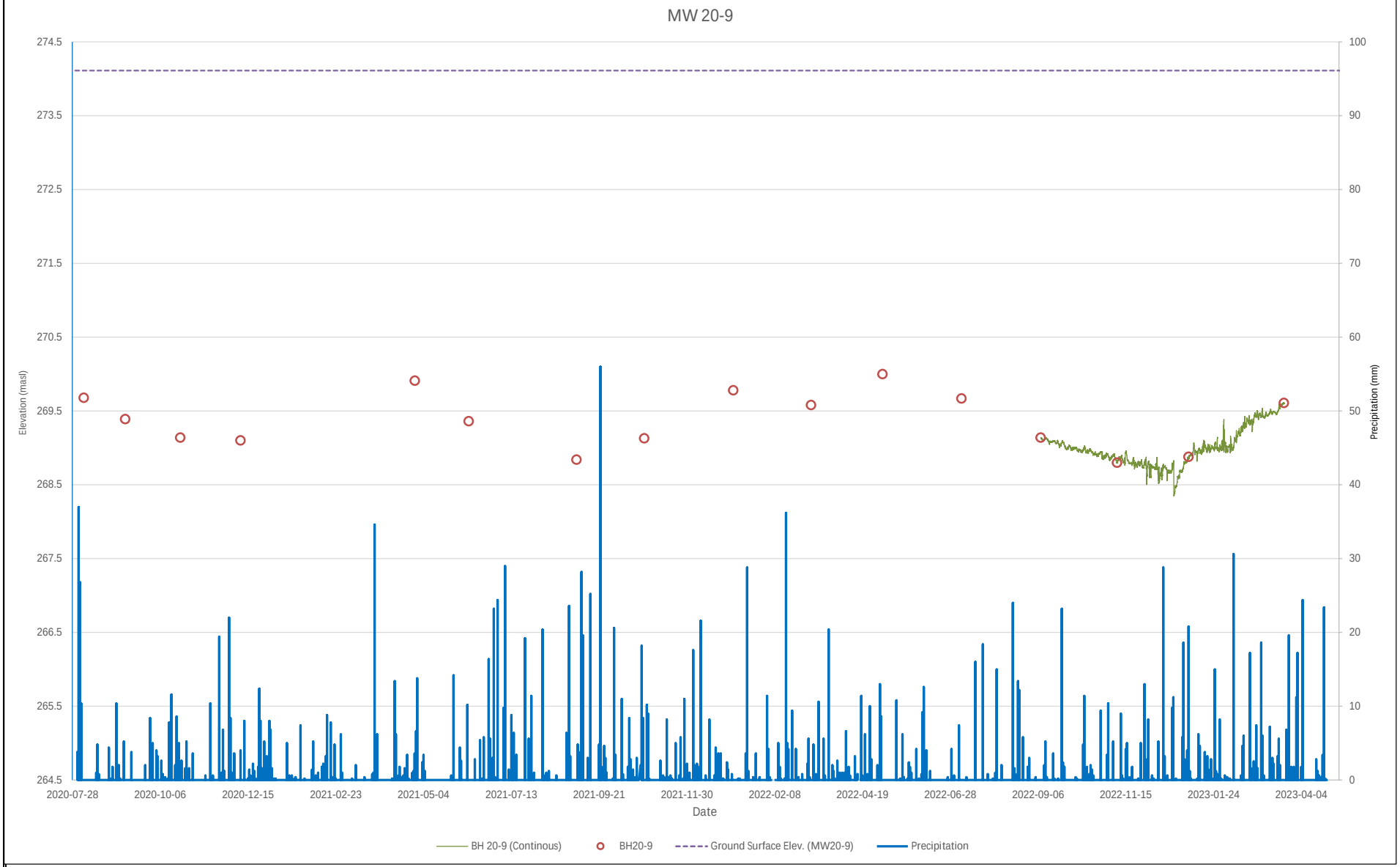
WATER LEVEL HYDROGRAPH



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MW 20-9 HYDROGRAPH

August 2020 - April 2023

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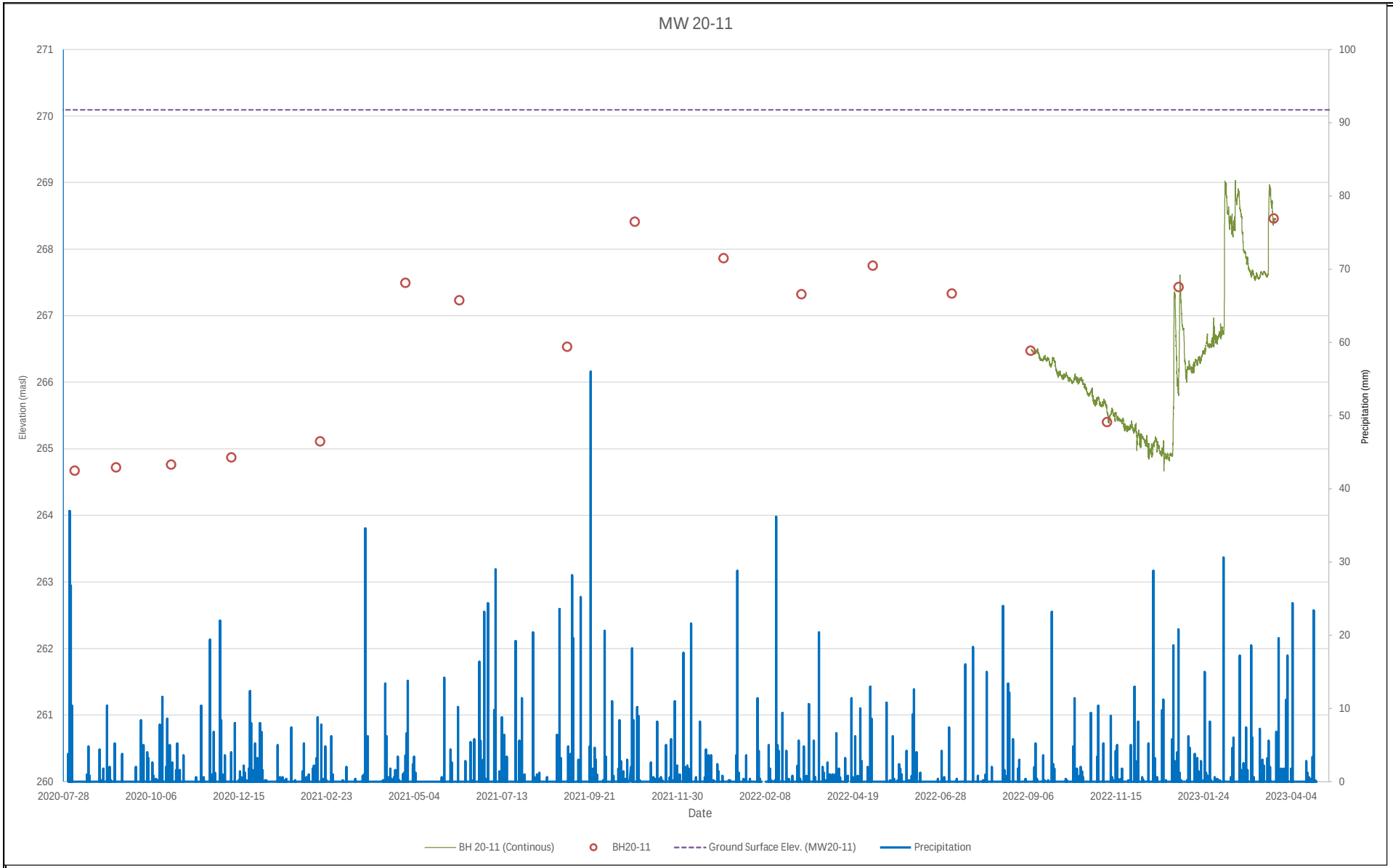
WATER LEVEL HYDROGRAPH



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MW 20-11 HYDROGRAPH
August 2020 - April 2023
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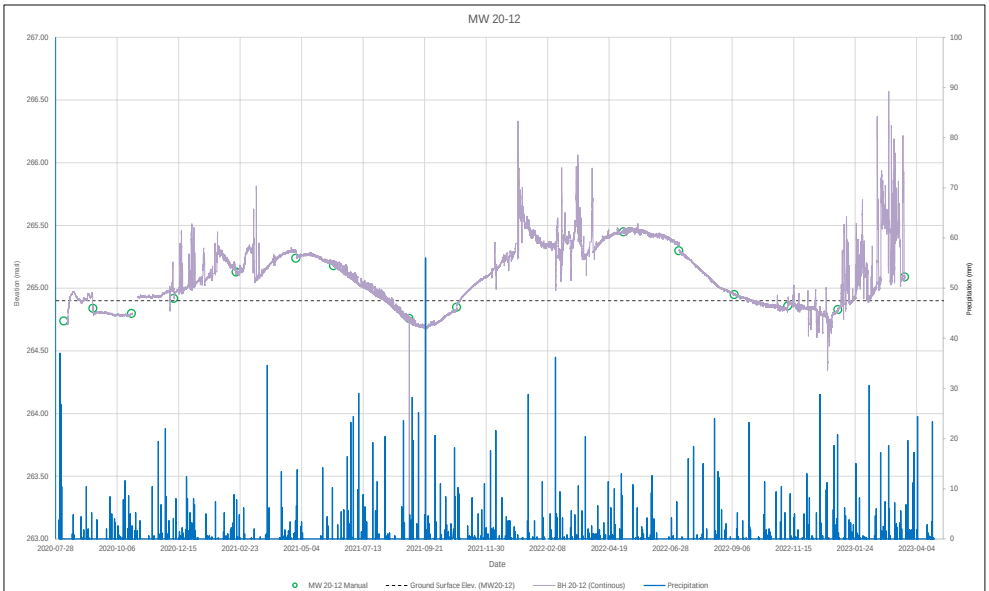
WATER LEVEL HYDROGRAPH



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MW 20-12 HYDROGRAPH

August 2020 - 2023

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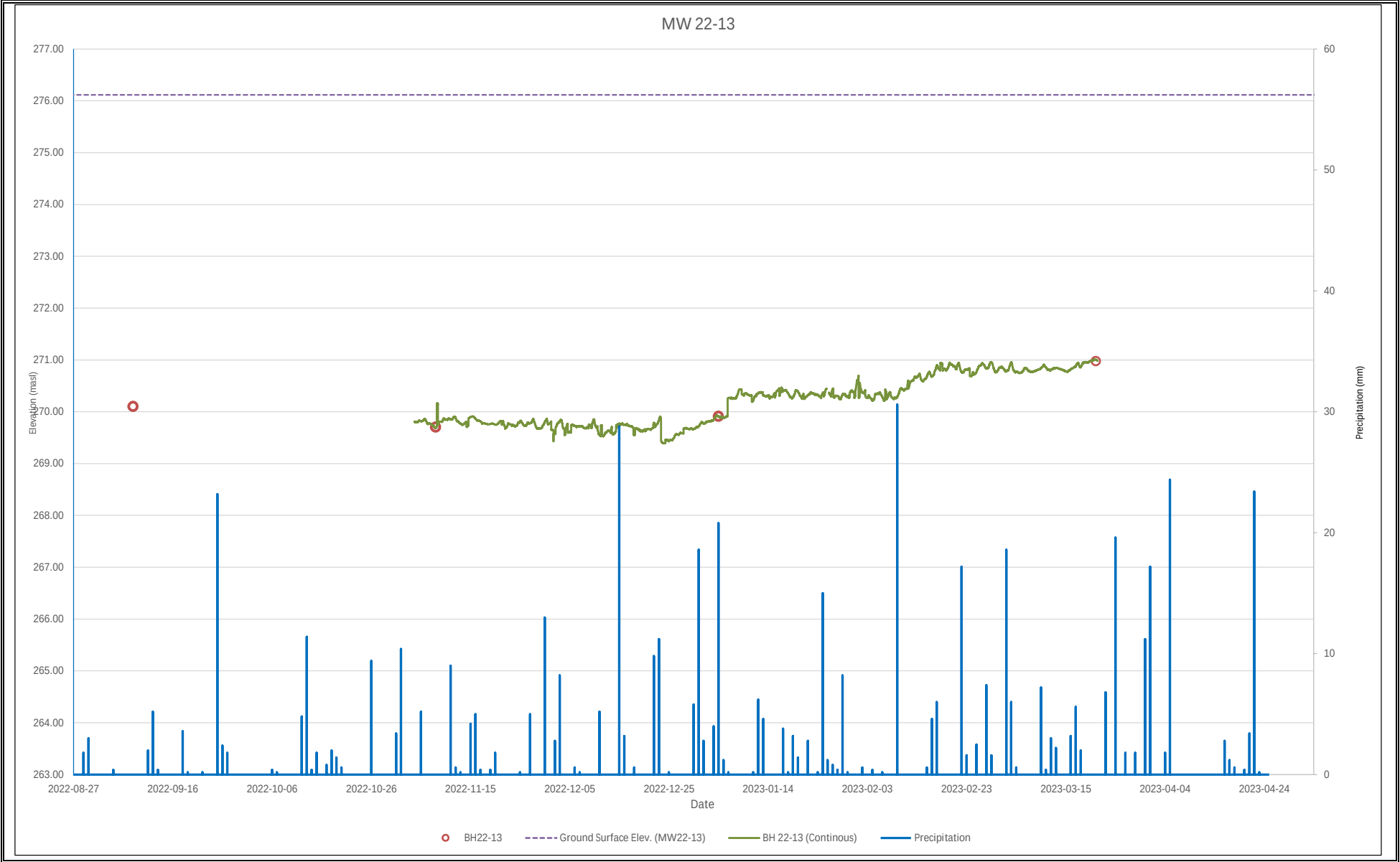
WATER LEVEL HYDROGRAPH



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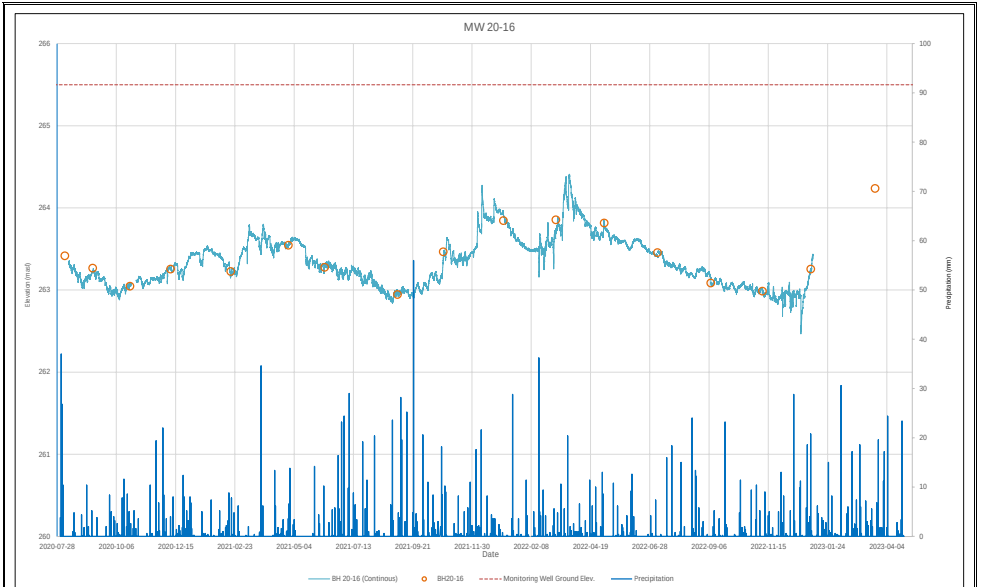
MW 22-13 HYDROGRAPH

August 2022 - April 2023

WATER LEVEL HYDROGRAPH



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MW 20-16 HYDROGRAPH

August 2020 - April 2023

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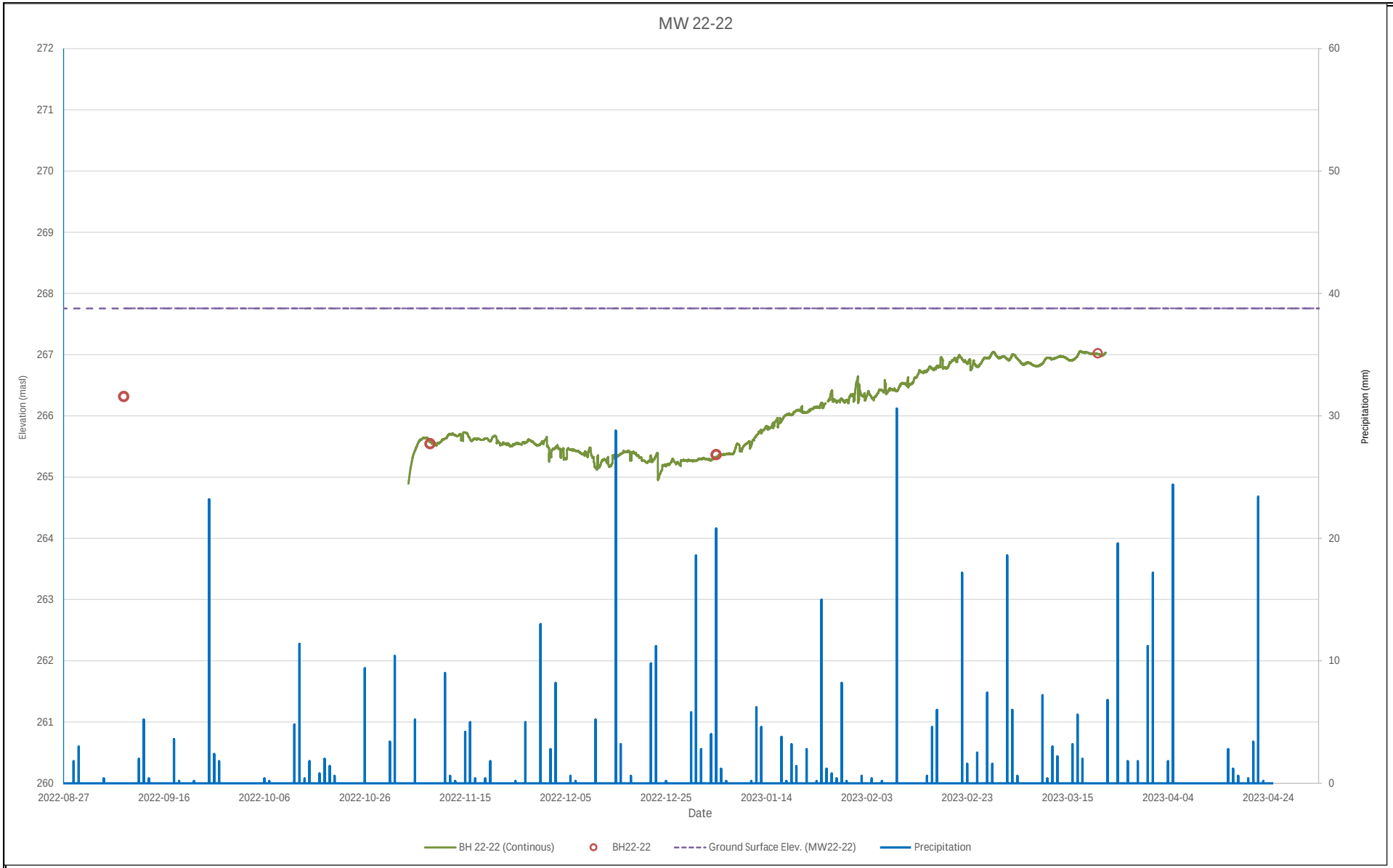
WATER LEVEL HYDROGRAPH



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MW 22-22 HYDROGRAPH

August 2022 - April 2023

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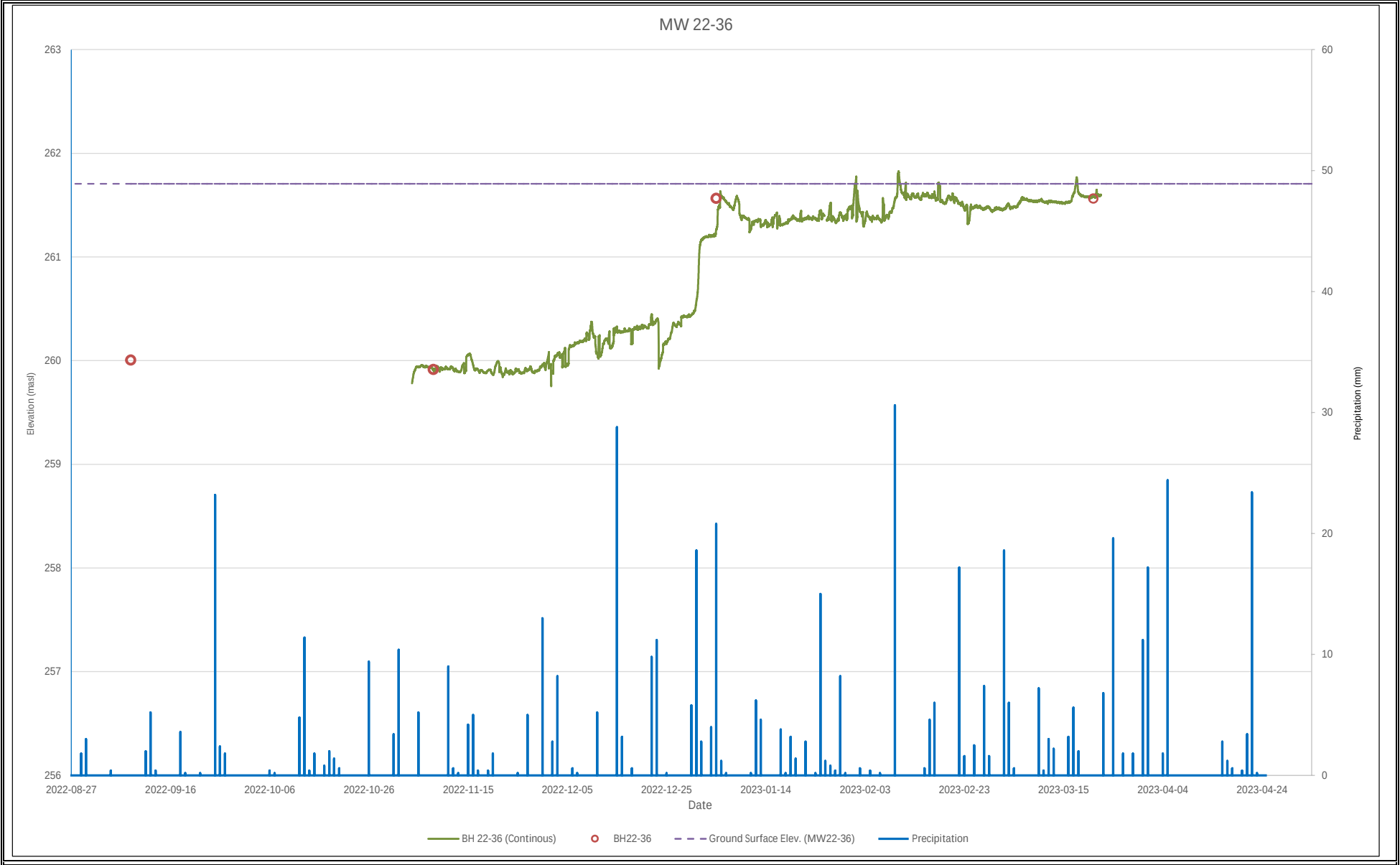
WATER LEVEL HYDROGRAPH



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Caledon Station

MW 22-36 HYDROGRAPH

August 2022 - April 2023

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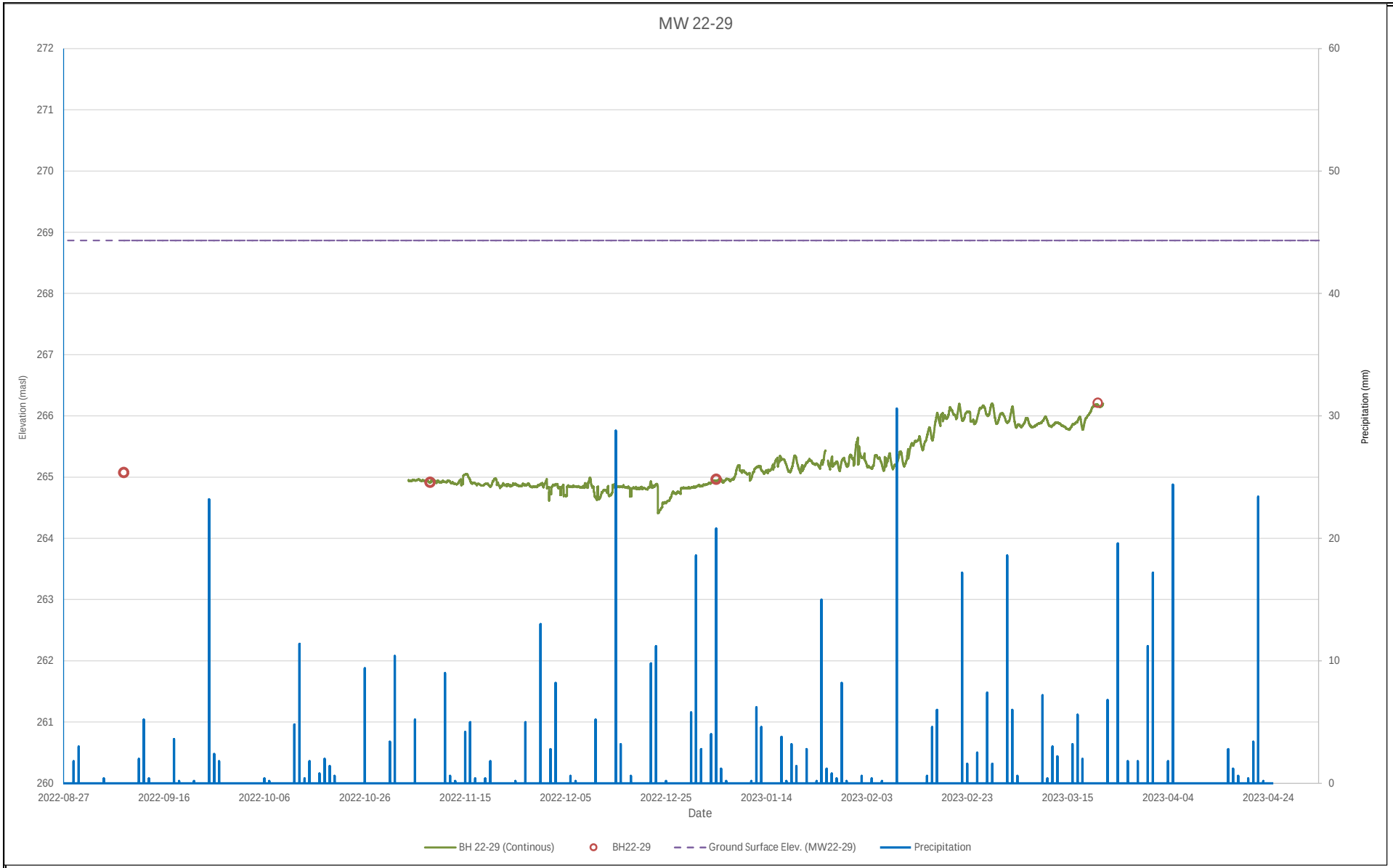
WATER LEVEL HYDROGRAPH



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Caledon Station

MW 22-29 HYDROGRAPH

August 2022 - April 2023

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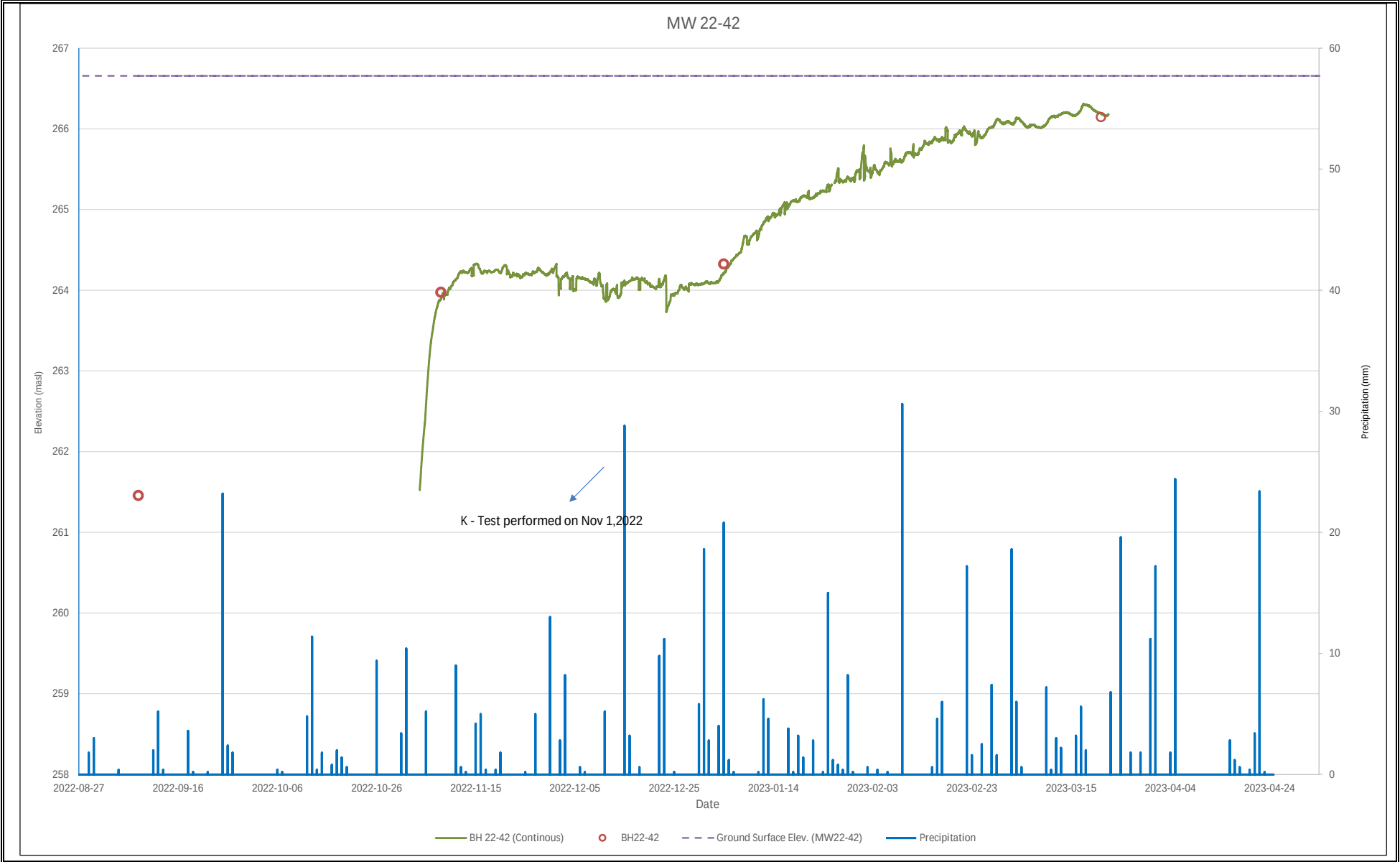
WATER LEVEL HYDROGRAPH



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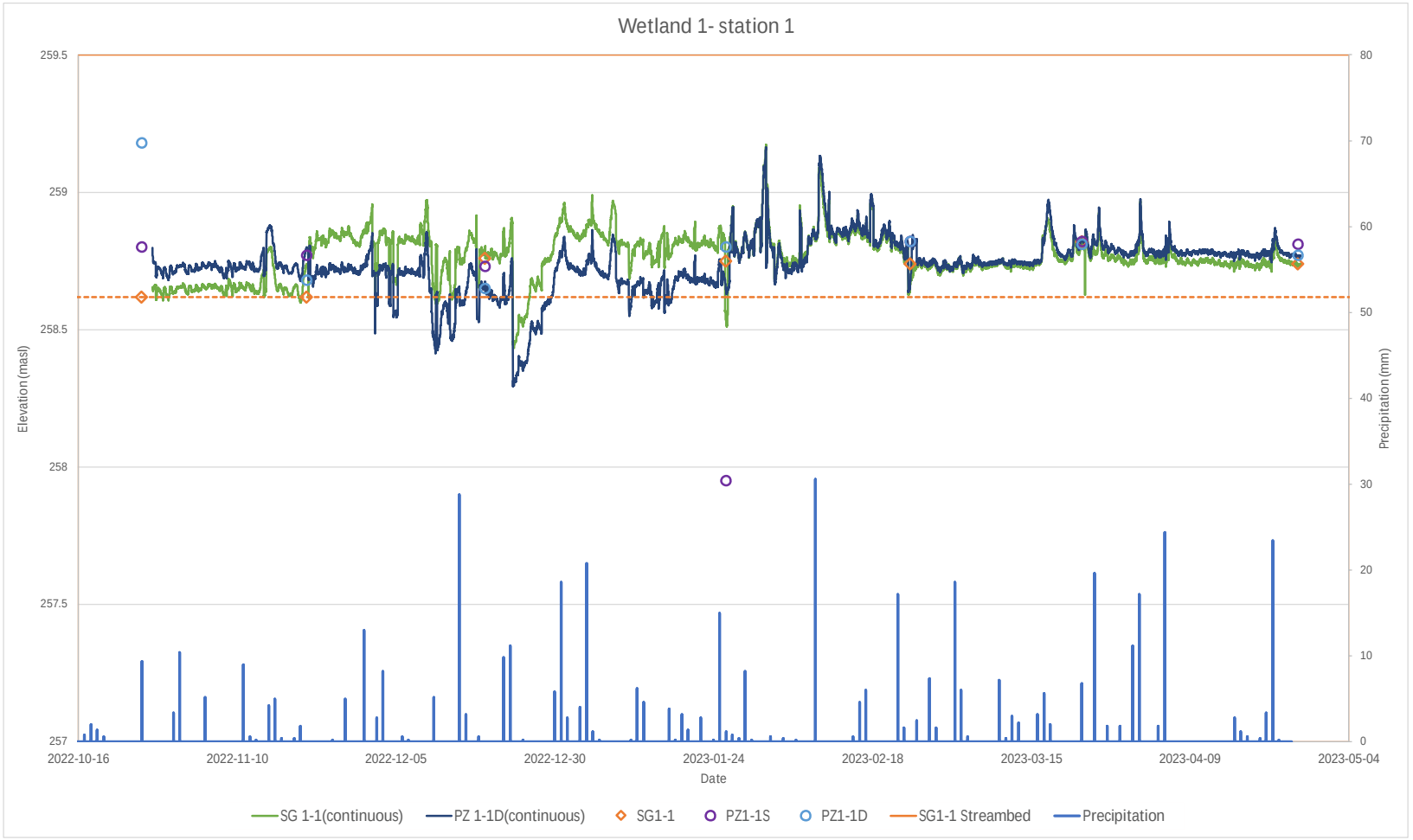
MW 22-42 HYDROGRAPH

August 2022 - April 2023

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.

Geotechnical • Environmental • Materials • Hydrogeology

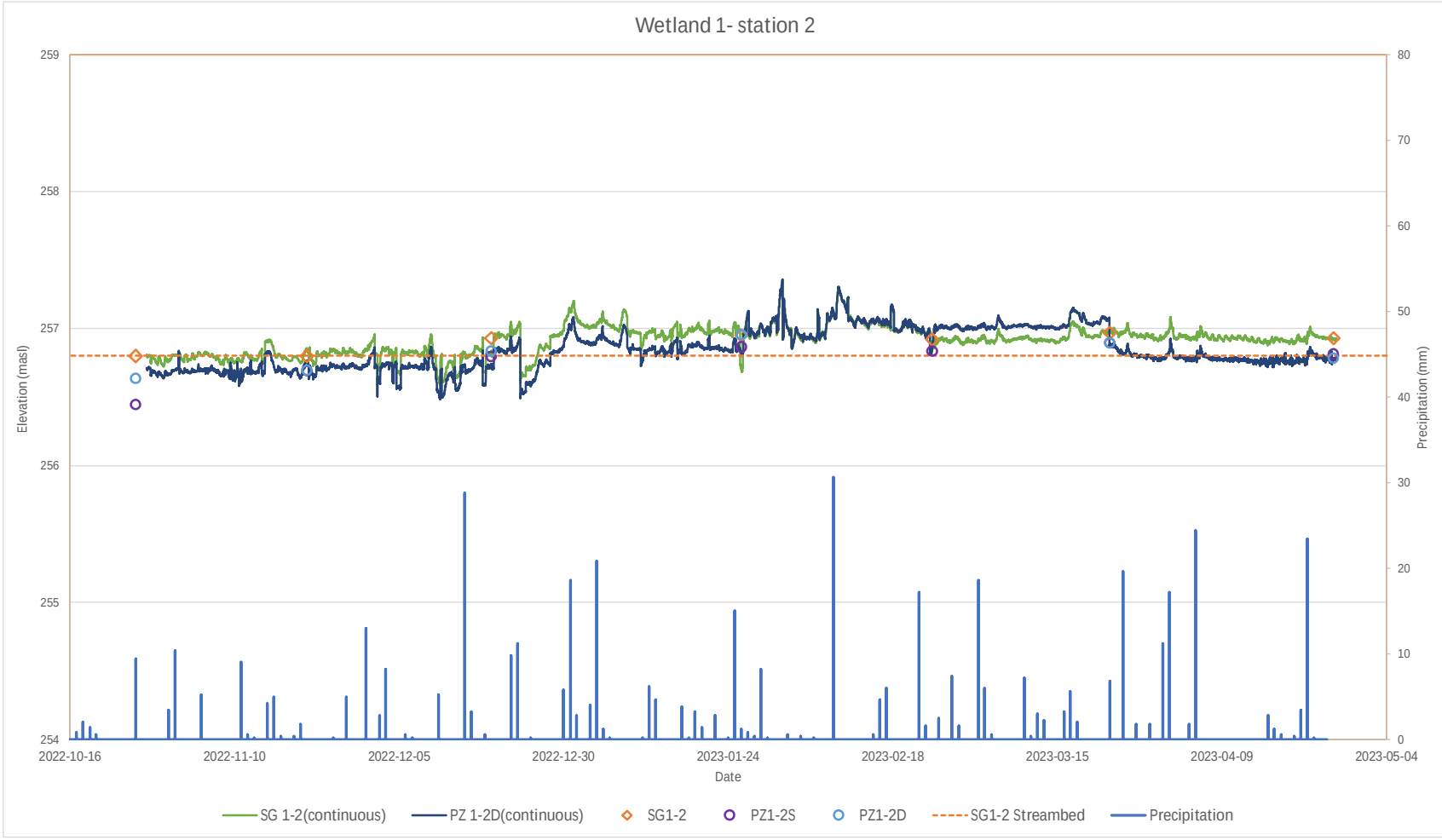
Argo King I & II

WETLAND 1 HYDROGRAPH

October 2022 - May 2022

F-20

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.

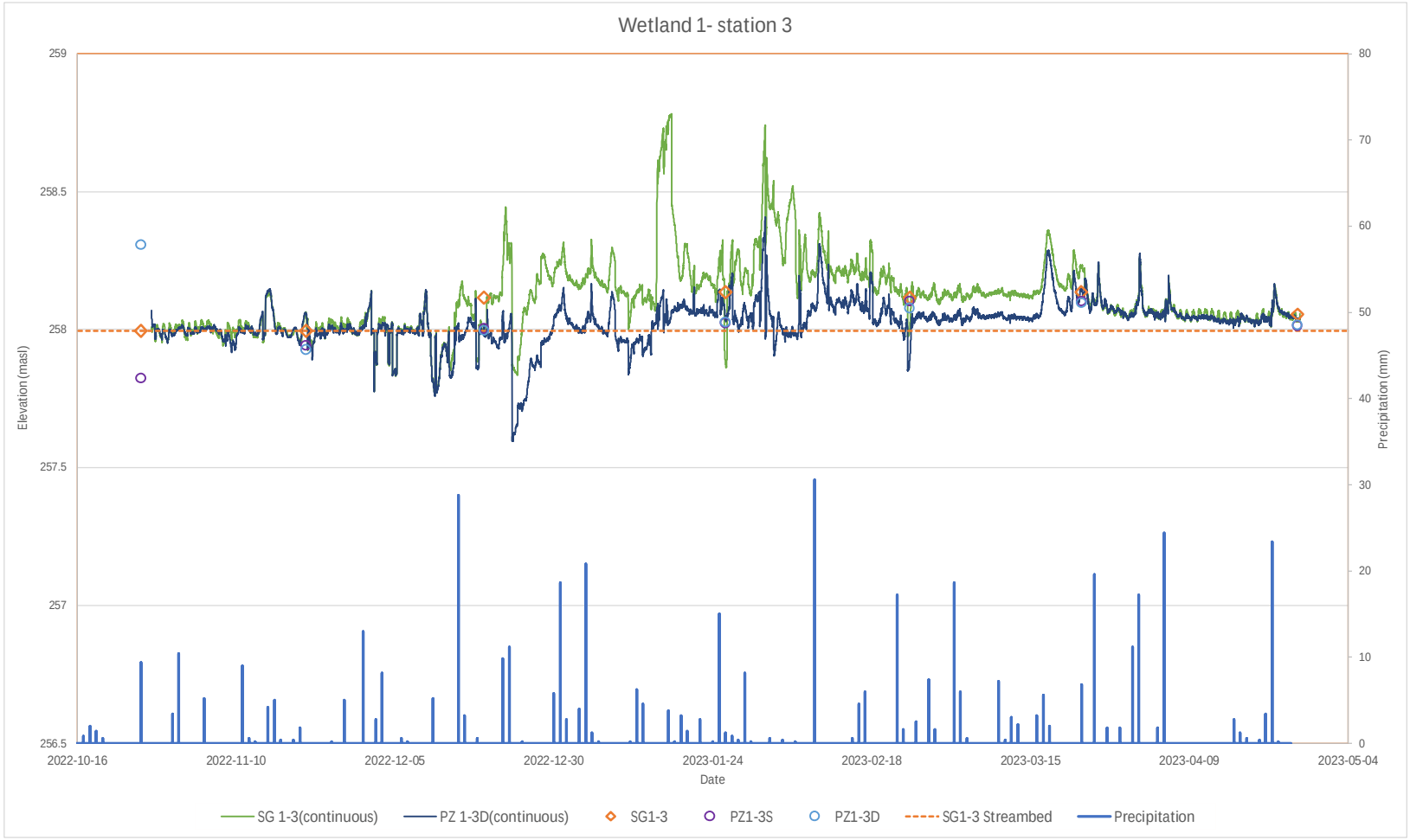
Argo King I & II

WETLAND 1 HYDROGRAPH

October 2022 - May 2022

F-21

WATER LEVEL HYDROGRAPH



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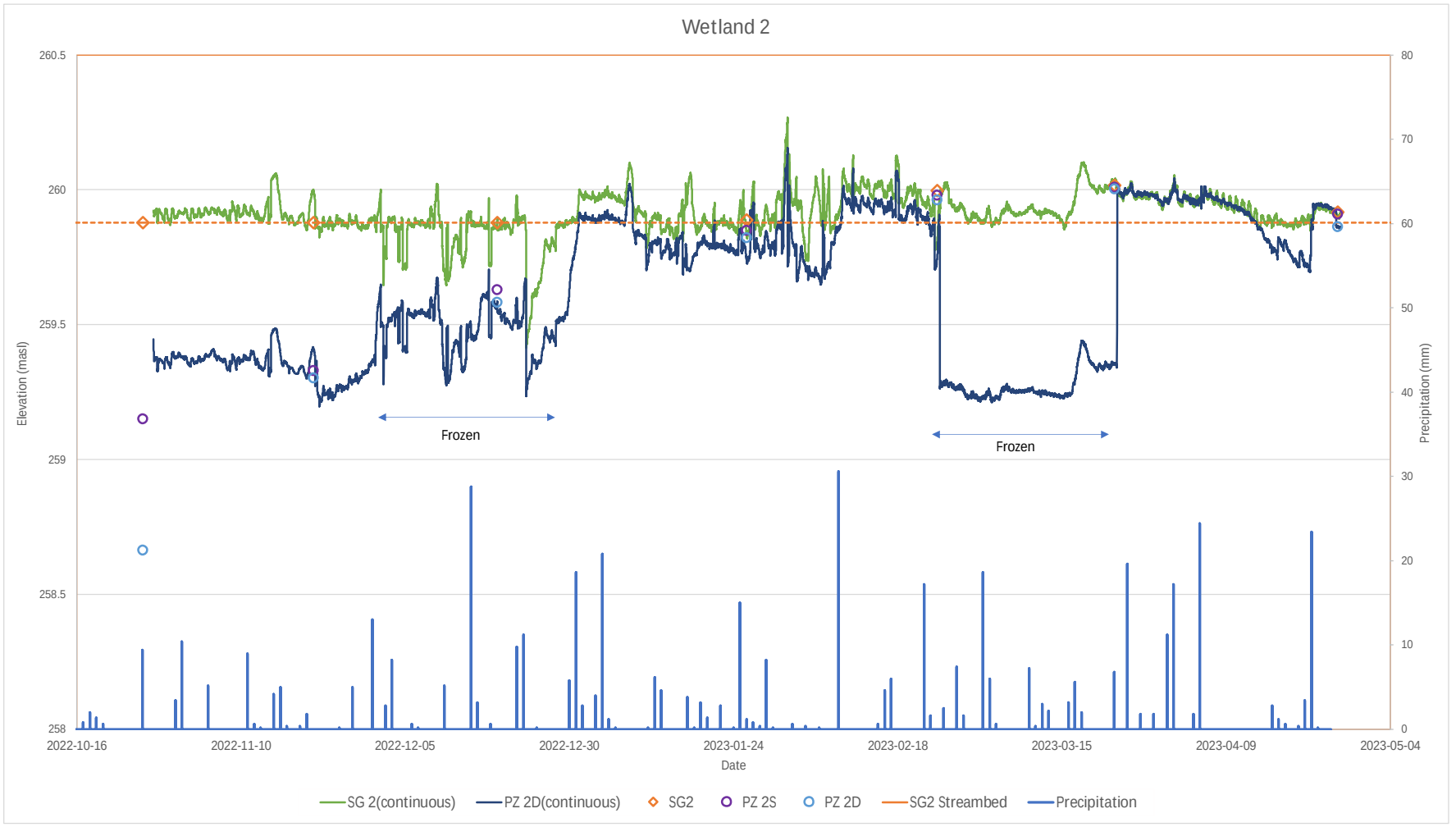
Argo King I & II

WETLAND 1 HYDROGRAPH

October 2022 - May 2022

F-22

WATER LEVEL HYDROGRAPH



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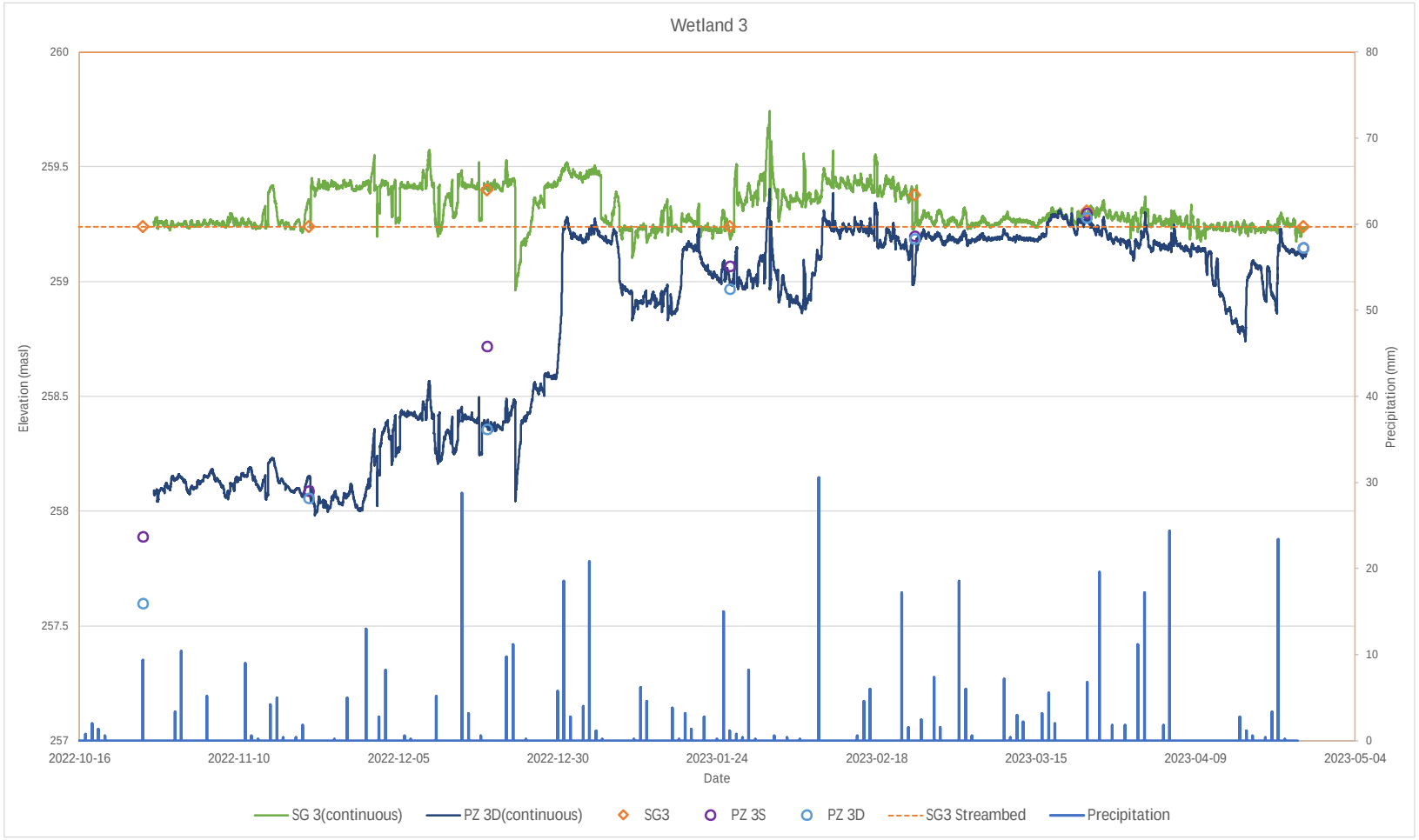
Argo King I & II
WETLAND 2 HYDROGRAPH

October 2022 - May 2022
F-23

WATER LEVEL HYDROGRAPH



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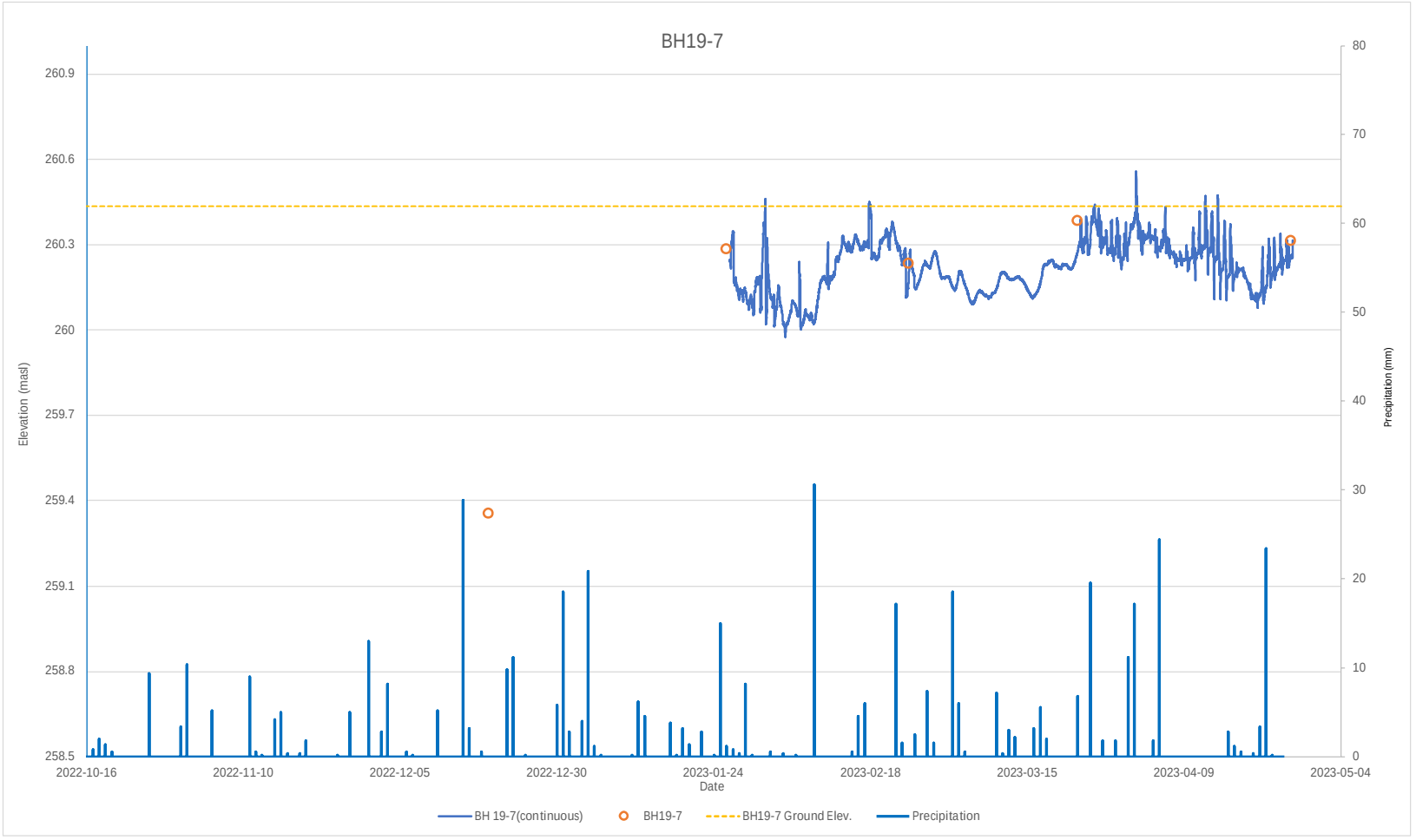
Argo King I & II

WETLAND 3 HYDROGRAPH

October 2022 - May 2022

F-24

WATER LEVEL HYDROGRAPH



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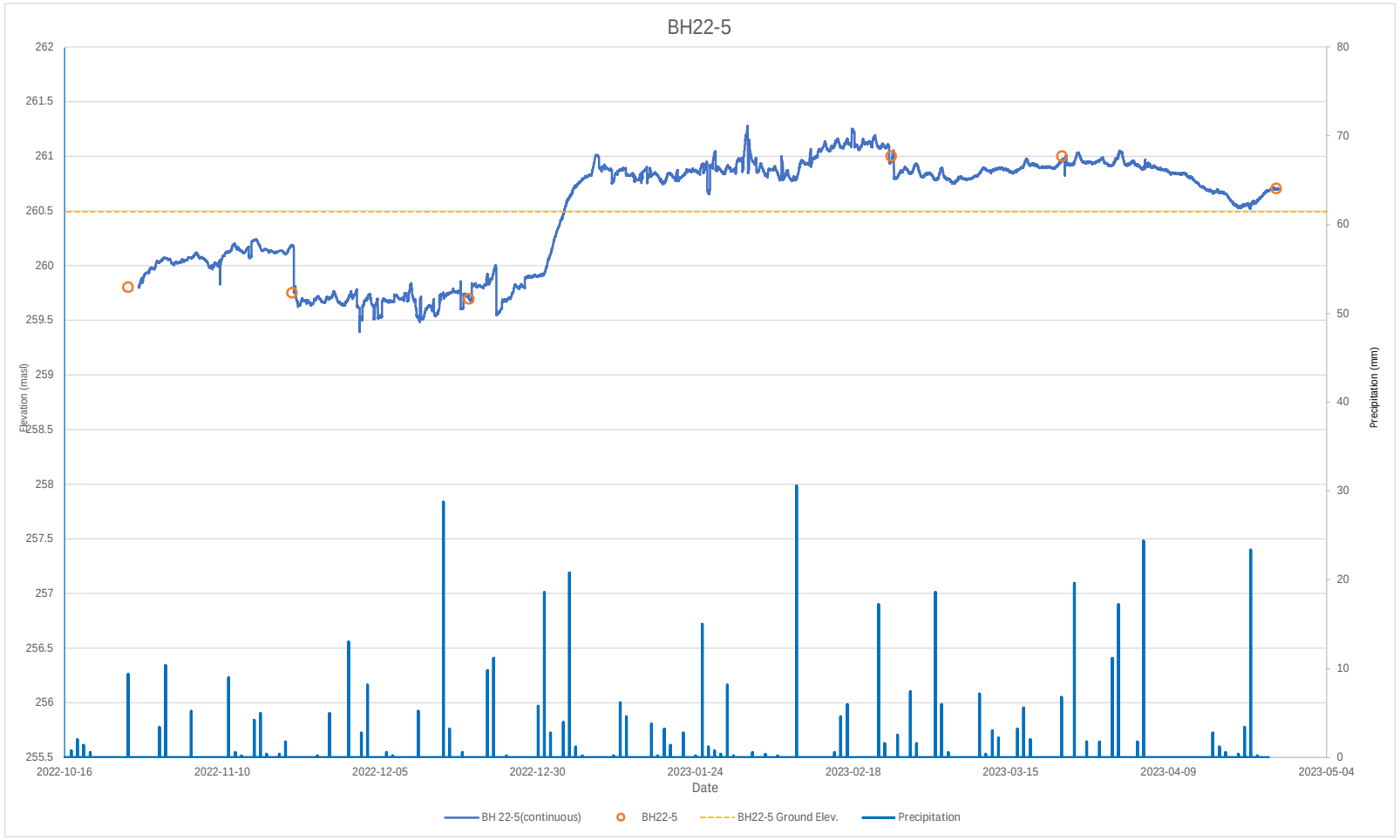
Argo King I & II

BH19-7 HYDROGRAPH

October 2022 - May 2022

F-25

WATER LEVEL HYDROGRAPH



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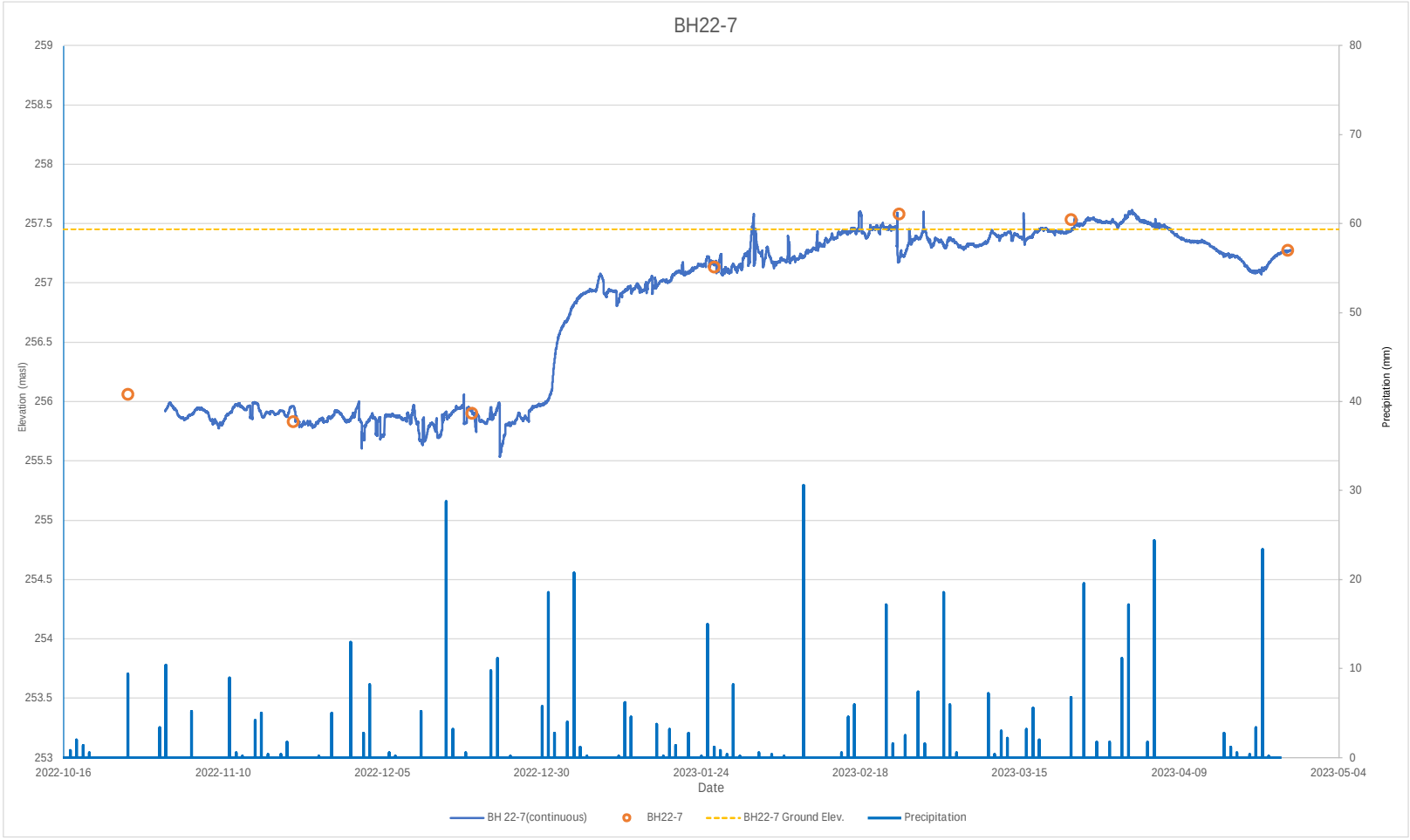
Argo King I & II

BH22-5 HYDROGRAPH

October 2022 - May 2022

F-26

WATER LEVEL HYDROGRAPH



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Argo King I & II

BH22-7 HYDROGRAPH

October 2022 - May 2022

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Appendix G

TABLE 1
CLIMATE NORMALS - PERSON CLIMATE STATION
CALED ON STATION

Month	Thornthwaite (1948)					
	Mean Temperature (°C)	Heat Index	Unadjusted Potential Evapotranspiration (mm)	Daylight Correction Value	Adjusted Potential Evapotranspiration (mm)	Total Precipitation (mm)
January	-5.5	0.0	0.0	0.78	0.0	51.8
February	-4.5	0.0	0.0	0.88	0.0	47.7
March	0.1	0.0	0.2	0.99	0.2	49.8
April	7.1	1.7	30.4	1.12	34.1	68.5
May	13.1	4.3	60.7	1.22	74.1	74.3
June	18.6	7.3	90.2	1.28	115.4	71.5
July	21.5	9.1	106.2	1.25	132.7	75.7
August	20.6	8.5	101.2	1.16	117.4	78.1
September	16.2	5.9	77.2	1.04	80.2	74.5
October	9.5	2.6	42.3	0.92	38.9	61.1
November	3.7	0.6	14.6	0.81	11.8	75.1
December	-2.2	0.0	0.0	0.75	0.0	57.9
TOTALS		**40.1**	**522.9**		**604.8**	**786.0**

Notes: Daylight Correction values obtained from Instruction and Tables For Computing Potential Evapotranspiration and The Water Balance (Thornthwaite & Mather, 1957)

TABLE 2
PRE-DEVELOPMENT WATER BALANCE
CALDON STATION

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Site	Pasture/Shrub, Silty Clay Soils	Soil Moisture Storage (mm)	200.00	200.00	200.00	156.09	99.08	59.83	54.09	76.31	139.58	197.48	200.00	200.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	110.59	112.07	93.70	76.14	38.88	11.82	0.00	0.00	0.00	**551.60**
		P-AET (mm)	49.55	34.41	0.22	-39.09	-36.37	-15.60	-1.64	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-39.09	-75.46	-91.05	-92.69	-70.47	-7.19	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	39.09	36.37	15.60	1.64	-22.22	-63.28	-7.19	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	0.00	50.71	51.80	47.70	234.40
		Infiltration Factor	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-
		Run-Off Coefficient	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	-
		Infiltration (mm)	19.82	13.77	0.09	0.00	0.00	0.00	0.00	0.00	0.00	20.28	20.72	19.08	93.76
		Run-Off (mm)	29.73	20.65	0.13	0.00	0.00	0.00	0.00	0.00	0.00	30.43	31.08	28.62	140.64
		Catchment Area (m^2) = **198234.98**	**Monthly Volumes**												
		AET (m^3)	48.81	6757.08	14685.29	21922.41	22215.71	18573.71	15092.65	7708.02	2343.28	0.00	0.00	0.00	109346.96
		Infiltration (m^3)	3929.32	2728.81	17.43	0.00	0.00	0.00	0.00	0.00	0.00	4020.99	4107.43	3782.32	18586.29
		Run-Off (m^3)	5893.97	4093.21	26.14	0.00	0.00	0.00	0.00	0.00	0.00	6031.49	6161.14	5673.49	27879.44
	Moderately Rooted Crop, Silty Clay Soils	Soil Moisture Storage (mm)	150.00	150.00	150.00	106.09	49.08	9.83	4.09	26.31	89.58	147.48	150.00	150.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	108.98	105.19	85.81	74.77	38.88	11.82	0.00	0.00	0.00	**533.86**
		P-AET (mm)	49.55	34.41	0.22	-37.48	-29.49	-7.71	-0.27	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.48	-66.97	-74.68	-74.94	-52.73	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	37.48	29.49	7.71	0.27	-22.22	-52.73	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	10.55	57.90	51.80	47.70	252.14
		Infiltration Factor	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	-
		Run-Off Coefficient	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	-
		Infiltration (mm)	17.34	12.04	0.08	0.00	0.00	0.00	0.00	0.00	3.69	20.27	18.13	16.70	88.25
		Run-Off (mm)	32.21	22.37	0.14	0.00	0.00	0.00	0.00	0.00	6.86	37.64	33.67	31.01	163.89
		Catchment Area (m^2) = **1099333.54**	**Monthly Volumes**												
		AET (m^3)	270.69	37472.10	81438.87	119806.93	115636.21	94332.64	82193.18	42745.68	12994.90	0.00	0.00	0.00	586891.20
		Infiltration (m^3)	19066.64	13241.29	84.56	0.00	0.00	0.00	0.00	0.00	4059.96	22277.99	19930.92	18353.37	97014.73
		Run-Off (m^3)	35409.48	24590.96	157.05	0.00	0.00	0.00	0.00	0.00	7539.92	41373.42	37014.56	34084.84	180170.22
	Tile Drained Cultivated lands, Silty Clay Soils	Soil Moisture Storage (mm)	150.00	150.00	150.00	106.09	49.08	9.83	4.09	26.31	89.58	147.48	150.00	150.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	108.98	105.19	85.81	74.77	38.88	11.82	0.00	0.00	0.00	**533.86**
		P-AET (mm)	49.55	34.41	0.22	-37.48	-29.49	-7.71	-0.27	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.48	-66.97	-74.68	-74.94	-52.73	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	37.48	29.49	7.71	0.27	-22.22	-52.73	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	10.55	57.90	51.80	47.70	252.14
		Infiltration Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Infiltration (mm)	7.43	5.16	0.03	0.00	0.00	0.00	0.00	0.00	1.58	8.69	7.77	7.16	37.82
		Run-Off (mm)	42.12	29.25	0.19	0.00	0.00	0.00	0.00	0.00	8.97	49.22	44.03	40.55	214.32
		Catchment Area (m^2) = **388529.98**	**Monthly Volumes**												
		AET (m^3)	95.67	13243.51	28782.39	42342.55	40868.52	33339.35	29048.98	15107.32	4592.70	0.00	0.00	0.00	207420.97
		Infiltration (m^3)	2887.97	2005.62	12.81	0.00	0.00	0.00	0.00	0.00	614.95	3374.38	3018.88	2779.93	14694.54
		Run-Off (m^3)	16365.16	11365.18	72.58	0.00	0.00	0.00	0.00	0.00	3484.72	19121.50	17106.98	15752.95	83269.06
	Urban Lawn - Pervious Development	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) **98770.54**	**Monthly Volumes**												
		AET (m^3)	24.32	3366.71	7316.94	10129.43	8644.07	7713.98	7358.41	3840.52	1167.54	0.00	0.00	0.00	49561.91
		Infiltration (m^3)	1468.34	1019.72	6.51	0.00	0.00	0.00	0.00	0.00	1263.01	1715.64	1534.89	1413.41	8421.52
		Run-Off (m^3)	3426.12	2379.35	15.20	0.00	0.00	0.00	0.00	0.00	2947.01	4003.17	3581.42	3297.95	19650.21
	Impervious Development	Catchment Area (m^2) = **31674.33**	**Monthly Volumes**												
		Evaporation from Imperv. (m^3) - 15% of P.	236.61	325.45	353.01	339.71	359.66	371.06	353.96	290.30	356.81	275.09	246.11	226.63	**3734.40**
		Run-Off from Imperv. (m^3) - with 15% evap.	1340.77	1844.24	2000.39	1925.01	2038.08	2102.70	2005.78	1645.01	2021.93	1558.85	1394.62	1284.24	**21161.62**
			Total Catchment Volumes												
		Total ET (m^3)	236.61	325.45	353.01	339.71	359.66	371.06	353.96	290.30	356.81	275.09	246.11	226.63	**3734.40**
		Total AET (m^3)	439.49	60839.40	132223.49	194201.31	187364.50	153959.68	133693.21	69401.55	21098.42	0.00	0.00	0.00	**953221.04**
		Total Infiltration (m^3)	27352.26	18995.43	121.31	0.00	0.00	0.00	0.00	0.00	5937.91	31389.01	28592.12	26329.04	**138717.09**
		Total Runoff (m^3)	62435.50	44272.94	2271.36	1925.01	2038.08	2102.70	2005.78	1645.01	15993.58	72088.43	65258.72	60093.45	**332130.56**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

DS CONSULTANTS LTD.
Geotechnical - Environmental - Materials - Hydrogeology

TABLE 3
POST-DEVELOPMENT WATER BALANCE
CALDON STATION

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 101	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) **23007.39**	Imperv coeff. 0.83					**Monthly Volumes**							
		AET (m^3)	5.67	784.23	1704.39	2359.53	2013.53	1796.88	1714.05	894.60	271.96	0.00	0.00	0.00	11544.84
		Infiltration (m^3)	342.03	237.53	1.52	0.00	0.00	0.00	0.00	0.00	294.20	399.64	357.53	329.24	1961.69
		Run-Off (m^3)	798.07	554.24	3.54	0.00	0.00	0.00	0.00	0.00	686.47	932.49	834.25	768.22	4577.28
	Development - Impervious Area	Catchment Area (m^2) = **112330.17**	**Monthly Volumes**												
		Evaporation from Imperv. (m^3) - 15% of P.	839.11	1154.19	1251.92	1204.74	1275.51	1315.95	1255.29	1029.51	1265.40	975.59	872.81	803.72	**13243.73**
		Run-Off from Imperv. (m^3) - with 15% evap.	4754.94	6540.42	7094.21	6826.87	7227.89	7457.04	7113.31	5833.87	7170.60	5528.33	4945.90	4554.43	**75047.79**
Catchment 102	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) **9000.00**	Imperv coeff. 0.90					**Monthly Volumes**							
		AET (m^3)	2.22	306.78	666.72	923.00	787.65	702.90	670.50	349.95	106.39	0.00	0.00	0.00	4516.10
		Infiltration (m^3)	133.80	92.92	0.59	0.00	0.00	0.00	0.00	0.00	115.09	156.33	139.86	128.79	767.37
		Run-Off (m^3)	312.19	216.81	1.38	0.00	0.00	0.00	0.00	0.00	268.53	364.77	326.34	300.51	1790.53
	Development - Impervious Area	Catchment Area (m^2) = **81000.00**	**Monthly Volumes**												
		Evaporation from Imperv. (m^3) - 15% of P.	605.07	832.28	902.75	868.73	919.76	948.92	905.18	742.37	912.47	703.49	629.37	579.56	**9549.90**
		Run-Off from Imperv. (m^3) - with 15% evap.	3428.73	4716.23	5115.56	4922.78	5211.95	5377.19	5129.33	4206.74	5170.64	3986.42	3566.43	3284.15	**54116.10**
Catchment 103	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) **11002.16**	Imperv coeff. 0.89					**Monthly Volumes**							
		AET (m^3)	2.71	375.02	815.04	1128.33	962.87	859.27	819.66	427.80	130.05	0.00	0.00	0.00	5520.76
		Infiltration (m^3)	163.56	113.59	0.73	0.00	0.00	0.00	0.00	0.00	140.69	191.11	170.97	157.44	938.08
		Run-Off (m^3)	381.64	265.04	1.69	0.00	0.00	0.00	0.00	0.00	328.27	445.92	398.94	367.36	2188.86
	Development - Impervious Area	Catchment Area (m^2) = **89017.52**	**Monthly Volumes**												
		Evaporation from Imperv. (m^3) - 15% of P.	664.96	914.65	992.10	954.71	1010.79	1042.84	994.77	815.85	1002.78	773.12	691.67	636.92	**10495.17**
		Run-Off from Imperv. (m^3) - with 15% evap.	3768.11	5183.04	5621.90	5410.04	5727.83	5909.43	5637.03	4623.12	5682.43	4381.00	3919.44	3609.22	**59472.60**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 3
POST-DEVELOPMENT WATER BALANCE
CALDON STATION

Catchment 104	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 154682.83	Imperv coeff. 0.78					Monthly Volumes							
		AET (m^3)	38.09	5272.55	11458.94	15863.52	13537.32	12080.73	11523.87	6014.57	1828.46	0.00	0.00	0.00	77618.05
		Infiltration (m^3)	2299.54	1596.97	10.20	0.00	0.00	0.00	0.00	0.00	1977.97	2686.84	2403.77	2213.51	13188.80
		Run-Off (m^3)	5365.58	3726.26	23.80	0.00	0.00	0.00	0.00	0.00	4615.27	6269.29	5608.80	5164.86	30773.86
	Development - Impervious Area	Catchment Area (m^2) = 548420.93	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	4096.70	5635.03	6112.15	5881.81	6227.32	6424.75	6128.60	5026.28	6177.96	4763.04	4261.23	3923.95	**64658.83**
		Run-Off from Imperv. (m^3) - with 15% evap.	23214.66	31931.81	34635.52	33330.28	35288.14	36406.92	34728.76	28482.24	35008.45	26990.54	24146.97	22235.73	**366400.02**
Catchment 105	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 123597.96	Imperv coeff. 0.64					Monthly Volumes							
		AET (m^3)	30.43	4212.98	9156.16	12675.60	10816.88	9653.00	9208.05	4805.89	1461.02	0.00	0.00	0.00	62020.02
		Infiltration (m^3)	1837.42	1276.04	8.15	0.00	0.00	0.00	0.00	0.00	1580.48	2146.90	1920.71	1768.69	10538.39
		Run-Off (m^3)	4287.32	2977.43	19.01	0.00	0.00	0.00	0.00	0.00	3687.79	5009.43	4481.66	4126.94	24589.58
	Development - Impervious Area	Catchment Area (m^2) = 219729.71	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	1641.38	2257.72	2448.89	2356.60	2495.03	2574.13	2455.48	2013.82	2475.26	1908.35	1707.30	1572.17	**25906.13**
		Run-Off from Imperv. (m^3) - with 15% evap.	9301.16	12793.76	13877.03	13354.07	14138.51	14586.76	13914.38	11411.66	14026.45	10814.00	9674.70	8908.94	**146801.42**
Catchment 106	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 61710.34	Imperv coeff. 0.78					Monthly Volumes							
		AET (m^3)	15.19	2103.47	4571.52	6328.71	5400.68	4819.58	4597.42	2399.50	729.46	0.00	0.00	0.00	30965.53
		Infiltration (m^3)	917.39	637.11	4.07	0.00	0.00	0.00	0.00	0.00	789.11	1071.91	958.98	883.07	5261.64
		Run-Off (m^3)	2140.59	1486.58	9.49	0.00	0.00	0.00	0.00	0.00	1841.25	2501.12	2237.62	2060.51	12277.16
	Development - Impervious Area	Catchment Area (m^2) = 218791.19	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	1634.37	2248.08	2438.43	2346.54	2484.37	2563.14	2444.99	2005.22	2464.68	1900.20	1700.01	1565.45	**25795.48**
		Run-Off from Imperv. (m^3) - with 15% evap.	9261.43	12739.12	13817.76	13297.03	14078.12	14524.45	13854.95	11362.92	13966.54	10767.81	9633.38	8870.89	**146174.40**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 3
POST-DEVELOPMENT WATER BALANCE
CALDON STATION

Channel 1 & 2	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 26559.05	Imperv coeff. 0.10					Monthly Volumes							
		AET (m^3)	6.54	905.30	1967.50	2723.77	2324.36	2074.26	1978.65	1032.70	313.95	0.00	0.00	0.00	13327.03
		Infiltration (m^3)	394.83	274.20	1.75	0.00	0.00	0.00	0.00	0.00	339.62	461.33	412.73	380.06	2264.52
		Run-Off (m^3)	921.27	639.80	4.09	0.00	0.00	0.00	0.00	0.00	792.44	1076.44	963.03	886.81	5283.87
	Development - Impervious Area	Catchment Area (m^2) = 2951.01	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	22.04	30.32	32.89	31.65	33.51	34.57	32.98	27.05	33.24	25.63	22.93	21.11	**347.92**
		Run-Off from Imperv. (m^3) - with 15% evap.	124.92	171.82	186.37	179.35	189.88	195.90	186.87	153.26	188.38	145.23	129.93	119.65	**1971.57**
Pond 2A	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 5653.57	Imperv coeff. 0.85					Monthly Volumes							
		AET (m^3)	1.39	192.71	418.82	579.80	494.78	441.54	421.19	219.83	66.83	0.00	0.00	0.00	2836.90
		Infiltration (m^3)	84.05	58.37	0.37	0.00	0.00	0.00	0.00	0.00	72.29	98.20	87.86	80.90	482.04
		Run-Off (m^3)	196.11	136.19	0.87	0.00	0.00	0.00	0.00	0.00	168.69	229.14	205.00	188.77	1124.77
	Development - Impervious Area	Catchment Area (m^2) = 32036.92	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	239.32	329.18	357.05	343.60	363.78	375.31	358.01	293.62	360.90	278.24	248.93	229.22	**3777.15**
		Run-Off from Imperv. (m^3) - with 15% evap.	1356.12	1865.35	2023.29	1947.04	2061.42	2126.77	2028.74	1663.84	2045.08	1576.70	1410.59	1298.94	**21403.86**
NHS	Pasture/Shrub, Silty Clay Soils	Soil Moisture Storage (mm)	200.00	200.00	200.00	156.09	99.08	59.83	54.09	76.31	75.00	132.90	135.42	135.42	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	110.59	112.07	93.70	76.14	38.88	11.82	0.00	0.00	0.00	**551.60**
		P-AET (mm)	49.55	34.41	0.22	-39.09	-36.37	-15.60	-1.64	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-39.09	-75.46	-91.05	-92.69	-70.47	-7.19	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	39.09	36.37	15.60	1.64	-22.22	-63.28	-7.19	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	0.00	50.71	51.80	47.70	234.40
		Infiltration Factor	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-
		Run-Off Coefficient	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	-
		Infiltration (mm)	19.82	13.77	0.09	0.00	0.00	0.00	0.00	0.00	0.00	20.28	20.72	19.08	93.76
		Run-Off (mm)	29.73	20.65	0.13	0.00	0.00	0.00	0.00	0.00	0.00	30.43	31.08	28.62	140.64
		Catchment Area (m^2) 97052.63	Imperv coeff. 0.00					Monthly Volumes							
		AET (m^3)	23.90	3308.16	7189.68	10732.86	10876.45	9093.39	7389.12	3773.72	1147.23	0.00	0.00	0.00	53534.50
		Infiltration (m^3)	1923.73	1335.98	8.53	0.00	0.00	0.00	0.00	0.00	0.00	1968.61	2010.93	1851.76	9099.55
		Run-Off (m^3)	2885.59	2003.97	12.80	0.00	0.00	0.00	0.00	0.00	0.00	2952.92	3016.40	2777.65	13649.32
	Development - Impervious Area	Catchment Area (m^2) = 0.00	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		Run-Off from Imperv. (m^3) - with 15% evap.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Total Site			Total Catchment Volumes												
		Total ET (m^3)	9742.95	13401.45	14536.17	13988.38	14810.07	15279.61	14575.30	11953.70	14692.69	11327.65	10134.24	9332.11	**153774.31**
		Total AET (m^3)	126.13	17461.20	37948.77	53315.11	47214.53	41521.55	38322.51	19918.58	6055.35	0.00	0.00	0.00	**261883.71**
		Total Infiltration (m^3)	8096.35	5622.70	35.91	0.00	0.00	0.00	0.00	0.00	5309.45	9180.87	8463.35	7793.47	**44502.08**
		Total Runoff (m^3)	72498.43	87947.87	82448.32	79267.46	83923.73	86584.46	82593.37	67737.65	95647.26	83971.53	75499.37	69523.55	**967642.99**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALDON STATION

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 101	Development - Unconnected Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) **12087.39**	**Monthly Volumes**												
		AET (m^3)	2.98	412.01	895.44	1239.62	1057.85	944.02	900.51	470.00	142.88	0.00	0.00	0.00	**6065.31**
		Infiltration (m^3)	179.69	124.79	0.80	0.00	0.00	0.00	0.00	0.00	154.56	209.96	187.84	172.97	**1030.61**
		Run-Off (m^3)	419.28	291.18	1.86	0.00	0.00	0.00	0.00	0.00	360.65	489.90	438.29	403.60	**2404.76**
	Development - Unconnected Impervious Area	Catchment Area (m^2) = **97050.17**	Imperv coeff. 0.83	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	724.96	997.19	1081.62	1040.86	1102.00	1136.94	1084.54	889.46	1093.27	842.88	754.08	694.39	**11442.22**
		Run-Off from Imperv. (m^3) - with 15% evap.	4108.13	5650.75	6129.20	5898.22	6244.69	6442.68	6145.70	5040.30	6195.20	4776.32	4273.12	3934.90	**64839.22**
	Mitigation - Connected Pervious Park Area	P - Total Precipitation plus irrigation (mm)	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	-
		P-PET (mm)	54.26	40.88	7.24	-37.15	-49.86	-31.88	1.29	27.99	70.37	63.37	56.69	52.21	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.15	-87.01	-118.89	-117.60	-89.61	-19.24	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.85	0.00	0.00	1.29	29.28	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.53	90.08	78.10	74.55	38.88	11.82	0.00	0.00	0.00	**506.38**
		P-AET (mm)	54.26	40.88	7.24	-26.28	-7.23	7.38	6.99	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.28	-33.51	-26.14	-19.15	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.28	7.23	-7.38	-6.99	-19.15	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	0.00	0.00	0.00	0.00	8.84	70.37	63.37	56.69	52.21	**353.85**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	0.00	0.00	0.00	0.00	2.65	21.11	19.01	17.01	15.66	**106.16**
		Run-Off (mm)	37.98	28.62	5.07	0.00	0.00	0.00	0.00	6.19	49.26	44.36	39.68	36.54	**247.70**
		Catchment Area (m^2) **6840.00**	**Monthly Volumes (Pervious Area)**												
		AET (m^3)	1.68	233.15	506.71	715.00	616.17	534.20	509.92	265.96	80.85	0.00	0.00	0.00	**3463.65**
		Infiltration (m^3)	111.34	83.89	14.85	0.00	0.00	0.00	0.00	18.13	144.40	130.03	116.33	107.12	**726.10**
		Run-Off (m^3)	259.78	195.75	34.65	0.00	0.00	0.00	0.00	42.31	336.94	303.41	271.44	249.96	**1694.24**
	Mitigation - Connected Impervious Park Area	Catchment Area (m^2) = **760.00**	Imperv coeff. 0.10	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	5.68	7.81	8.47	8.15	8.63	8.90	8.49	6.97	8.56	6.60	5.91	5.44	**89.60**
		Run-Off Directed to Pervious Area (m^3)	32.17	44.25	48.00	46.19	48.90	50.45	48.13	39.47	48.51	37.40	33.46	30.81	**507.76**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALDON STATION

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 1 (continued)	Mitigation - Pervious Park Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 3840.00	Monthly Volumes												
		AET (m^3)	0.95	130.89	284.47	393.81	336.06	299.90	286.08	149.31	45.39	0.00	0.00	0.00	**1926.87**
		Infiltration (m^3)	57.09	39.64	0.25	0.00	0.00	0.00	0.00	0.00	49.10	66.70	59.67	54.95	**327.41**
		Run-Off Directed to Silva Cells (m3)	133.20	92.50	0.59	0.00	0.00	0.00	0.00	0.00	114.57	155.64	139.24	128.22	**763.96**
		Infiltration via Silva Cells (Sized for 25mm capture) (m3)	133.20	92.50	0.59	0.00	0.00	0.00	0.00	0.00	114.57	155.64	139.24	128.22	**763.96**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Impervious Park Area to Silva Cells	Catchment Area (m^2) = 7260.00	Imperv coeff. 0.65												Monthly Volumes
		Evaporation from Imperv. (m^3) - 15% of P.	54.23	74.60	80.91	77.86	82.44	85.05	81.13	66.54	81.78	63.05	56.41	51.95	**855.95**
		Run-Off Directed to Silva Cells (m^3)	307.32	422.71	458.51	441.23	467.14	481.96	459.74	377.05	463.44	357.30	319.66	294.36	**4850.41**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	307.32	422.71	458.51	441.23	467.14	481.96	459.74	377.05	463.44	357.30	319.66	294.36	**4850.41**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Pervious ROW Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 240.00	Monthly Volumes												
		AET (m^3)	0.06	8.18	17.78	24.61	21.00	18.74	17.88	9.33	2.84	0.00	0.00	0.00	**120.43**
		Infiltration (m^3)	3.57	2.48	0.02	0.00	0.00	0.00	0.00	0.00	3.07	4.17	3.73	3.43	**20.46**
		Run-Off Directed to Silva Cells (m^3)	8.33	5.78	0.04	0.00	0.00	0.00	0.00	0.00	7.16	9.73	8.70	8.01	**47.75**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	8.33	5.78	0.04	0.00	0.00	0.00	0.00	0.00	7.16	9.73	8.70	8.01	**47.75**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Impervious ROW Area to Silva Cells	Catchment Area (m^2) = 7260.00	Imperv coeff. 0.80												Monthly Volumes
		Evaporation from Imperv. (m^3) - 15% of P.	54.23	74.60	80.91	77.86	82.44	85.05	81.13	66.54	81.78	63.05	56.41	51.95	**855.95**
		Run-Off Directed to Silva Cells (m^3)	307.32	422.71	458.51	441.23	467.14	481.96	459.74	377.05	463.44	357.30	319.66	294.36	**4850.41**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	307.32	422.71	458.51	441.23	467.14	481.96	459.74	377.05	463.44	357.30	319.66	294.36	**4850.41**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
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CALDON STATION

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 102	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) **9000.00**	**Monthly Volumes**												
		AET (m^3)	2.22	306.78	666.72	923.00	787.65	702.90	670.50	349.95	106.39	0.00	0.00	0.00	**4516.10**
		Infiltration (m^3)	133.80	92.92	0.59	0.00	0.00	0.00	0.00	0.00	115.09	156.33	139.86	128.79	**767.37**
		Run-Off (m^3)	312.19	216.81	1.38	0.00	0.00	0.00	0.00	0.00	268.53	364.77	326.34	300.51	**1790.53**
	Development - Impervious Area	Catchment Area (m^2) = **81000.00**	Imperv coeff. 0.90	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	605.07	832.28	902.75	868.73	919.76	948.92	905.18	742.37	912.47	703.49	629.37	579.56	**9549.90**
		Run-Off from Imperv. (m^3) - with 15% evap.	3428.73	4716.23	5115.56	4922.78	5211.95	5377.19	5129.33	4206.74	5170.64	3986.42	3566.43	3284.15	**54116.10**
Catchment 103	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) **11002.16**	**Monthly Volumes**												
		AET (m^3)	2.71	375.02	815.04	1128.33	962.87	859.27	819.66	427.80	130.05	0.00	0.00	0.00	**5520.76**
		Infiltration (m^3)	163.56	113.59	0.73	0.00	0.00	0.00	0.00	0.00	140.69	191.11	170.97	157.44	**938.08**
		Run-Off (m^3)	381.64	265.04	1.69	0.00	0.00	0.00	0.00	0.00	328.27	445.92	398.94	367.36	**2188.86**
	Development - Impervious Area	Catchment Area (m^2) = **89017.52**	Imperv coeff. 0.89	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	664.96	914.65	992.10	954.71	1010.79	1042.84	994.77	815.85	1002.78	773.12	691.67	636.92	**10495.17**
		Run-Off from Imperv. (m^3) - with 15% evap.	3768.11	5183.04	5621.90	5410.04	5727.83	5909.43	5637.03	4623.12	5682.43	4381.00	3919.44	3609.22	**59472.60**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALDON STATION

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 104	Development - Unconnected Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) **55992.83**	**Monthly Volumes**												
		AET (m^3)	13.79	1908.58	4147.96	5742.35	4900.30	4373.04	4171.47	2177.18	661.87	0.00	0.00	0.00	**28096.55**
		Infiltration (m^3)	832.40	578.08	3.69	0.00	0.00	0.00	0.00	0.00	716.00	972.60	870.13	801.26	**4774.14**
		Run-Off (m^3)	1942.26	1348.85	8.61	0.00	0.00	0.00	0.00	0.00	1670.66	2269.39	2030.30	1869.60	**11139.67**
	Development - Unconnected Impervious Area	Catchment Area (m^2) = **452310.93**	Imperv coeff. 0.78	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	3378.76	4647.49	5041.01	4851.03	5135.99	5298.82	5054.57	4145.43	5095.28	3928.32	3514.46	3236.28	**53327.46**
		Run-Off from Imperv. (m^3) - with 15% evap.	19146.32	26335.80	28565.70	27489.20	29103.95	30026.66	28642.59	23490.77	28873.27	22260.48	19915.25	18338.95	**302188.93**
	Mitigation - Connected Pervious Park Area	P - Total Precipitation plus irrigation (mm)	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	-
		P-PET (mm)	54.26	40.88	7.24	-37.15	-49.86	-31.88	1.29	27.99	70.37	63.37	56.69	52.21	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.15	-87.01	-118.89	-117.60	-89.61	-19.24	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.85	0.00	0.00	1.29	29.28	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.53	90.08	78.10	74.55	38.88	11.82	0.00	0.00	0.00	**506.38**
		P-AET (mm)	54.26	40.88	7.24	-26.28	-7.23	7.38	6.99	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.28	-33.51	-26.14	-19.15	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.28	7.23	-7.38	-6.99	-19.15	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	0.00	0.00	0.00	0.00	8.84	70.37	63.37	56.69	52.21	**353.85**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	0.00	0.00	0.00	0.00	2.65	21.11	19.01	17.01	15.66	**106.16**
		Run-Off (mm)	37.98	28.62	5.07	0.00	0.00	0.00	0.00	6.19	49.26	44.36	39.68	36.54	**247.70**
		Catchment Area (m^2) **15030.00**	**Monthly Volumes (Pervious Area)**												
		AET (m^3)	3.70	512.32	1113.43	1571.11	1353.95	1173.84	1120.48	584.42	177.67	0.00	0.00	0.00	**7610.91**
		Infiltration (m^3)	244.65	184.34	32.63	0.00	0.00	0.00	0.00	39.85	317.31	285.73	255.63	235.39	**1595.52**
		Run-Off (m^3)	570.84	430.13	76.14	0.00	0.00	0.00	0.00	92.98	740.38	666.70	596.46	549.25	**3722.88**
	Mitigation - Connected Impervious Park Area	Catchment Area (m^2) = **1670.00**	Imperv coeff. 0.10	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	12.47	17.16	18.61	17.91	18.96	19.56	18.66	15.31	18.81	14.50	12.98	11.95	**196.89**
		Run-Off Directed to Pervious Area (m^3)	70.69	97.24	105.47	101.49	107.46	110.86	105.75	86.73	106.60	82.19	73.53	67.71	**1115.73**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALDON STATION

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 104 (continued)	Mitigation - Connected Pervious Pond Area	P - Total Precipitation plus irrigation (mm)	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	-
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	**849.27**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	**254.78**
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	**594.49**
		Catchment Area (m^2) 27400.00	Monthly Volumes (Pervious Area)												
		AET (m^3)	6.75	933.96	2029.80	3162.17	3636.19	3215.52	2198.62	1065.40	323.89	0.00	0.00	0.00	**16572.29**
		Infiltration (m^3)	755.28	761.49	520.94	138.65	60.31	223.01	473.34	609.53	1044.88	880.49	787.72	725.37	**6981.01**
		Run-Off (m^3)	1762.33	1776.81	1215.53	323.51	140.73	520.36	1104.45	1422.23	2438.05	2054.47	1838.02	1692.54	**16289.03**
	Mitigation - Connected Impervious Pond Area	Catchment Area (m^2) = 27400.00	Imperv coeff. 0.50	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	204.68	281.54	305.37	293.87	311.13	320.99	306.20	251.12	308.66	237.97	212.90	196.05	**3230.46**
		Run-Off Directed to Pervious Area (m^3)	1159.84	1595.37	1730.45	1665.24	1763.05	1818.95	1735.11	1423.02	1749.08	1348.49	1206.42	1110.93	**18305.94**
	Mitigation - Connected Pervious Rear Yard Area	P - Total Precipitation plus irrigation (mm)	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	-
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	**849.27**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	**254.78**
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	**594.49**
		Catchment Area (m^2) 23850.00	Monthly Volumes (Pervious Area)												
		AET (m^3)	5.87	812.96	1766.81	2752.47	3165.08	2798.91	1913.76	927.37	281.92	0.00	0.00	0.00	**14425.15**
		Infiltration (m^3)	657.43	662.83	453.45	120.69	52.50	194.12	412.01	530.56	909.50	766.41	685.66	631.39	**6076.54**
		Run-Off (m^3)	1534.00	1546.60	1058.04	281.60	122.50	452.94	961.36	1237.96	2122.17	1788.28	1599.88	1473.25	**14178.59**
	Mitigation - Connected Impervious Roof Area	Catchment Area (m^2) = 23850.00	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	178.16	245.06	265.81	255.79	270.82	279.40	266.52	218.59	268.67	207.14	185.31	170.65	**2811.92**
		Run-Off Directed to Pervious Area (m^3)	1009.57	1388.67	1506.25	1449.48	1534.63	1583.28	1510.30	1238.65	1522.46	1173.78	1050.12	967.00	**15934.19**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
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CALDON STATION

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 104 (continued)	Mitigation - Impervious Park Area to Silva Cells	Catchment Area (m^2) = 27670.00	Imperv coeff. 0.65									Monthly Volumes			
		Evaporation from Imperv. (m^3) - 15% of P.	206.69	284.31	308.38	296.76	314.19	324.15	309.21	253.60	311.70	240.31	215.00	197.98	**3262.29**
		Run-Off Directed to Pervious Area (m^3)	1171.27	1611.09	1747.50	1681.64	1780.43	1836.87	1752.20	1437.04	1766.31	1361.78	1218.31	1121.88	**18486.33**
		Infiltration via Silva Cells (Sized for 25mm capture) (m3)	1171.27	1611.09	1747.50	1681.64	1780.43	1836.87	1752.20	1437.04	1766.31	1361.78	1218.31	1121.88	**18486.33**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Pervious Park Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 28530.00	Monthly Volumes												
		AET (m^3)	7.02	972.48	2113.51	2925.90	2496.85	2228.19	2125.49	1109.34	337.24	0.00	0.00	0.00	**14316.02**
		Infiltration (m^3)	424.13	294.55	1.88	0.00	0.00	0.00	0.00	0.00	364.82	495.57	443.36	408.26	**2432.57**
		Run-Off (m^3)	989.64	687.28	4.39	0.00	0.00	0.00	0.00	0.00	851.25	1156.32	1034.50	952.62	**5675.99**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	989.64	687.28	4.39	0.00	0.00	0.00	0.00	0.00	851.25	1156.32	1034.50	952.62	**5675.99**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Impervious ROW Area to Silva Cells	Catchment Area (m^2) = 15520.00	Imperv coeff. 0.80									Monthly Volumes			
		Evaporation from Imperv. (m^3) - 15% of P.	115.93	159.47	172.97	166.45	176.23	181.82	173.44	142.24	174.83	134.79	120.59	111.05	**1829.81**
		Run-Off Directed to Pervious Area (m^3)	656.96	903.65	980.17	943.23	998.63	1030.30	982.80	806.03	990.72	763.82	683.35	629.26	**10368.91**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	656.96	903.65	980.17	943.23	998.63	1030.30	982.80	806.03	990.72	763.82	683.35	629.26	**10368.91**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Pervious ROW Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 3880.00	Monthly Volumes												
		AET (m^3)	0.96	132.25	287.43	397.91	339.56	303.03	289.06	150.87	45.86	0.00	0.00	0.00	**1946.94**
		Infiltration (m^3)	57.68	40.06	0.26	0.00	0.00	0.00	0.00	0.00	49.61	67.40	60.30	55.52	**330.82**
		Run-Off (m^3)	134.59	93.47	0.60	0.00	0.00	0.00	0.00	0.00	115.77	157.26	140.69	129.55	**771.92**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	134.59	93.47	0.60	0.00	0.00	0.00	0.00	0.00	115.77	157.26	140.69	129.55	**771.92**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALDON STATION

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 105	Development - Unconnected Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) **39952.96**	**Monthly Volumes**												
		AET (m^3)	9.84	1361.84	2959.72	4097.38	3496.55	3120.33	2976.50	1553.50	472.27	0.00	0.00	0.00	**20047.93**
		Infiltration (m^3)	593.95	412.48	2.63	0.00	0.00	0.00	0.00	0.00	510.89	693.98	620.87	571.73	**3406.53**
		Run-Off (m^3)	1385.87	962.45	6.15	0.00	0.00	0.00	0.00	0.00	1192.08	1619.29	1448.69	1334.03	**7948.57**
	Development - Unconnected Impervious Area	Catchment Area (m^2) = **194074.71**	Imperv coeff. 0.64	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	1449.74	1994.12	2162.96	2081.45	2203.72	2273.59	2168.78	1778.69	2186.25	1685.54	1507.96	1388.60	**22881.41**
		Run-Off from Imperv. (m^3) - with 15% evap.	8215.18	11300.00	12256.79	11794.89	12487.74	12883.65	12289.78	10079.27	12388.76	9551.39	8545.11	7868.76	**129661.31**
	Mitigation - Connected Pervious Park Area	P - Total Precipitation plus irrigation (mm)	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	-
		P-PET (mm)	54.26	40.88	7.24	-37.15	-49.86	-31.88	1.29	27.99	70.37	63.37	56.69	52.21	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.15	-87.01	-118.89	-117.60	-89.61	-19.24	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.85	0.00	0.00	1.29	29.28	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.53	90.08	78.10	74.55	38.88	11.82	0.00	0.00	0.00	**506.38**
		P-AET (mm)	54.26	40.88	7.24	-26.28	-7.23	7.38	6.99	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.28	-33.51	-26.14	-19.15	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.28	7.23	-7.38	-6.99	-19.15	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	0.00	0.00	0.00	0.00	8.84	70.37	63.37	56.69	52.21	**353.85**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	0.00	0.00	0.00	0.00	2.65	21.11	19.01	17.01	15.66	**106.16**
		Run-Off (mm)	37.98	28.62	5.07	0.00	0.00	0.00	0.00	6.19	49.26	44.36	39.68	36.54	**247.70**
		Catchment Area (m^2) **67770.00**	**Monthly Volumes (Pervious Area)**												
		AET (m^3)	16.69	2310.02	5020.42	7084.12	6104.93	5292.84	5052.22	2635.12	801.09	0.00	0.00	0.00	**34317.44**
		Infiltration (m^3)	1103.10	831.20	147.14	0.00	0.00	0.00	0.00	179.67	1430.73	1288.34	1152.61	1061.38	**7194.17**
		Run-Off (m^3)	2573.90	1939.46	343.32	0.00	0.00	0.00	0.00	419.23	3338.38	3006.13	2689.42	2476.55	**16786.40**
	Mitigation - Connected Impervious Park Area	Catchment Area (m^2) = **7530.00**	Imperv coeff. 0.10	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	56.25	77.37	83.92	80.76	85.50	88.21	84.15	69.01	84.83	65.40	58.51	53.88	**887.79**
		Run-Off Directed to Pervious Area (m^3)	318.74	438.43	475.56	457.64	484.52	499.88	476.84	391.07	480.68	370.59	331.55	305.30	**5030.79**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALDON STATION

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 105 (continued)	Mitigation - Connected Pervious Pond Area	P - Total Precipitation plus irrigation (mm)	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	**-**
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	**-**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**-**
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	**849.27**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	**254.78**
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	**594.49**
		Catchment Area (m^2) 10700.00	Monthly Volumes (Pervious Area)												
		AET (m^3)	2.63	364.72	792.66	1234.86	1419.97	1255.70	858.58	416.05	126.48	0.00	0.00	0.00	**6471.66**
		Infiltration (m^3)	294.95	297.37	203.43	54.14	23.55	87.09	184.84	238.03	408.04	343.84	307.61	283.27	**2726.16**
		Run-Off (m^3)	688.21	693.86	474.68	126.34	54.96	203.20	431.30	555.40	952.09	802.29	717.77	660.96	**6361.05**
	Mitigation - Connected Impervious Pond Area	Catchment Area (m^2) = 10700.00	Imperv coeff. 0.50	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	79.93	109.94	119.25	114.76	121.50	125.35	119.57	98.07	120.54	92.93	83.14	76.56	**1261.53**
		Run-Off Directed to Pervious Area (m^3)	452.93	623.01	675.76	650.29	688.49	710.32	677.58	555.70	683.03	526.60	471.12	433.83	**7148.67**
	Mitigation - Connected Pervious Rear Yard Area	P - Total Precipitation plus irrigation (mm)	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	**-**
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	**-**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**-**
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	**849.27**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	**254.78**
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	**594.49**
		Catchment Area (m^2) 4250.00	Monthly Volumes (Pervious Area)												
		AET (m^3)	1.05	144.87	314.84	490.48	564.01	498.76	341.03	165.25	50.24	0.00	0.00	0.00	**2570.52**
		Infiltration (m^3)	117.15	118.11	80.80	21.51	9.36	34.59	73.42	94.54	162.07	136.57	122.18	112.51	**1082.82**
		Run-Off (m^3)	273.35	275.60	188.54	50.18	21.83	80.71	171.31	220.60	378.17	318.67	285.09	262.53	**2526.58**
	Mitigation - Connected Impervious Roof Area	Catchment Area (m^2) = 4250.00	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	31.75	43.67	47.37	45.58	48.26	49.79	47.49	38.95	47.88	36.91	33.02	30.41	**501.08**
		Run-Off Directed to Pervious Area (m^3)	179.90	247.46	268.41	258.29	273.47	282.14	269.13	220.72	271.30	209.16	187.13	172.32	**2839.43**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALDON STATION

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 105 (continued)	Mitigation - Pervious Park Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 285.00	Monthly Volumes												
		AET (m^3)	0.07	9.71	21.11	29.23	24.94	22.26	21.23	11.08	3.37	0.00	0.00	0.00	**143.01**
		Infiltration (m^3)	4.24	2.94	0.02	0.00	0.00	0.00	0.00	0.00	3.64	4.95	4.43	4.08	**24.30**
		Run-Off (m^3)	9.89	6.87	0.04	0.00	0.00	0.00	0.00	0.00	8.50	11.55	10.33	9.52	**56.70**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	9.89	6.87	0.04	0.00	0.00	0.00	0.00	0.00	8.50	11.55	10.33	9.52	**56.70**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Impervious Park Area to Silva Cells	Catchment Area (m^2) = 615.00	Imperv coeff. 0.65												
		Evaporation from Imperv. (m^3) - 15% of P.	4.59	6.32	6.85	6.60	6.98	7.20	6.87	5.64	6.93	5.34	4.78	4.40	**72.51**
		Run-Off Directed to Pervious Area (m^3)	26.03	35.81	38.84	37.38	39.57	40.83	38.94	31.94	39.26	30.27	27.08	24.94	**410.88**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	26.03	35.81	38.84	37.38	39.57	40.83	38.94	31.94	39.26	30.27	27.08	24.94	**410.88**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Pervious ROW Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 640.00	Monthly Volumes												
		AET (m^3)	0.16	21.82	47.41	65.64	56.01	49.98	47.68	24.89	7.57	0.00	0.00	0.00	**321.14**
		Infiltration (m^3)	9.51	6.61	0.04	0.00	0.00	0.00	0.00	0.00	8.18	11.12	9.95	9.16	**54.57**
		Run-Off (m^3)	22.20	15.42	0.10	0.00	0.00	0.00	0.00	0.00	19.10	25.94	23.21	21.37	**127.33**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	22.20	15.42	0.10	0.00	0.00	0.00	0.00	0.00	19.10	25.94	23.21	21.37	**127.33**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Impervious ROW Area to Silva Cells	Catchment Area (m^2) = 2560.00	Imperv coeff. 0.80												
		Evaporation from Imperv. (m^3) - 15% of P.	19.12	26.30	28.53	27.46	29.07	29.99	28.61	23.46	28.84	22.23	19.89	18.32	**301.82**
		Run-Off Directed to Pervious Area (m^3)	108.36	149.06	161.68	155.58	164.72	169.95	162.11	132.95	163.42	125.99	112.72	103.80	**1710.34**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	108.36	149.06	161.68	155.58	164.72	169.95	162.11	132.95	163.42	125.99	112.72	103.80	**1710.34**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALDON STATION

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 106	Development - Unconnected Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) **56130.34**	**Monthly Volumes**												
		AET (m^3)	13.82	1913.27	4158.15	5756.45	4912.34	4383.78	4181.71	2182.53	663.50	0.00	0.00	0.00	**28165.55**
		Infiltration (m^3)	834.44	579.50	3.70	0.00	0.00	0.00	0.00	0.00	717.75	974.98	872.27	803.23	**4785.87**
		Run-Off (m^3)	1947.03	1352.16	8.64	0.00	0.00	0.00	0.00	0.00	1674.76	2274.96	2035.29	1874.19	**11167.02**
	Development - Unconnected Impervious Area	Catchment Area (m^2) = **209771.19**	Imperv coeff. 0.78	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	1566.99	2155.40	2337.90	2249.80	2381.95	2457.47	2344.19	1922.55	2363.07	1821.86	1629.92	1500.91	**24732.02**
		Run-Off from Imperv. (m^3) - with 15% evap.	8879.61	12213.93	13248.10	12748.84	13497.73	13925.66	13283.76	10894.47	13390.74	10323.89	9236.23	8505.17	**140148.13**
	Mitigation - Connected Pervious Park Area	P - Total Precipitation plus irrigation (mm)	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	-
		P-PET (mm)	54.26	40.88	7.24	-37.15	-49.86	-31.88	1.29	27.99	70.37	63.37	56.69	52.21	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.15	-87.01	-118.89	-117.60	-89.61	-19.24	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.85	0.00	0.00	1.29	29.28	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.53	90.08	78.10	74.55	38.88	11.82	0.00	0.00	0.00	**506.38**
		P-AET (mm)	54.26	40.88	7.24	-26.28	-7.23	7.38	6.99	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.28	-33.51	-26.14	-19.15	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.28	7.23	-7.38	-6.99	-19.15	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	0.00	0.00	0.00	0.00	8.84	70.37	63.37	56.69	52.21	**353.85**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	0.00	0.00	0.00	0.00	2.65	21.11	19.01	17.01	15.66	**106.16**
		Run-Off (mm)	37.98	28.62	5.07	0.00	0.00	0.00	0.00	6.19	49.26	44.36	39.68	36.54	**247.70**
		Catchment Area (m^2) **3420.00**	**Monthly Volumes (Pervious Area)**												
		AET (m^3)	0.84	116.57	253.35	357.50	308.08	267.10	254.96	132.98	40.43	0.00	0.00	0.00	**1731.82**
		Infiltration (m^3)	55.67	41.95	7.43	0.00	0.00	0.00	0.00	9.07	72.20	65.02	58.17	53.56	**363.05**
		Run-Off (m^3)	129.89	97.87	17.33	0.00	0.00	0.00	0.00	21.16	168.47	151.70	135.72	124.98	**847.12**
	Mitigation - Connected Impervious Park Area	Catchment Area (m^2) = **380.00**	Imperv coeff. 0.10	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	2.84	3.90	4.24	4.08	4.31	4.45	4.25	3.48	4.28	3.30	2.95	2.72	**44.80**
		Run-Off Directed to Pervious Area (m^3)	16.09	22.13	24.00	23.09	24.45	25.23	24.06	19.74	24.26	18.70	16.73	15.41	**253.88**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
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CALDON STATION

Catchments and Hydrologic Components			Month											Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 106 (continued)	Mitigation - Pervious ROW Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 2160.00	Monthly Volumes												
		AET (m^3)	0.53	73.63	160.01	221.52	189.04	168.70	160.92	83.99	25.53	0.00	0.00	0.00	**1083.86**
		Infiltration (m^3)	32.11	22.30	0.14	0.00	0.00	0.00	0.00	0.00	27.62	37.52	33.57	30.91	**184.17**
		Run-Off (m^3)	74.93	52.03	0.33	0.00	0.00	0.00	0.00	0.00	64.45	87.54	78.32	72.12	**429.73**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	74.93	52.03	0.33	0.00	0.00	0.00	0.00	0.00	64.45	87.54	78.32	72.12	**429.73**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
	Mitigation - Impervious ROW Area to Silva Cells	Catchment Area (m^2) = 8640.00	Imperv coeff. 0.80	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	64.54	88.78	96.29	92.66	98.11	101.22	96.55	79.19	97.33	75.04	67.13	61.82	**1018.66**
		Run-Off Directed to Pervious Area (m^3)	365.73	503.06	545.66	525.10	555.94	573.57	547.13	448.72	551.53	425.22	380.42	350.31	**5772.38**
		Infiltration via Silva Cells (Sized for 25mm capture) (m3)	365.73	503.06	545.66	525.10	555.94	573.57	547.13	448.72	551.53	425.22	380.42	350.31	**5772.38**
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Channels	Mitigation - Connected Impervious Area	Catchment Area (m^2) = 2951.01	Imperv coeff. 0.10	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	22.04	30.32	32.89	31.65	33.51	34.57	32.98	27.05	33.24	25.63	22.93	21.11	**347.92**
		Run-Off Directed to Pervious Area (m^3)	124.92	171.82	186.37	179.35	189.88	195.90	186.87	153.26	188.38	145.23	129.93	119.65	**1971.57**
	Mitigation - Connected Pervious Area	P - Total Precipitation plus irrigation (mm)	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	-
		P-PET (mm)	54.26	40.88	7.24	-37.15	-49.86	-31.88	1.29	27.99	70.37	63.37	56.69	52.21	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.15	-87.01	-118.89	-117.60	-89.61	-19.24	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.85	0.00	0.00	1.29	29.28	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.53	90.08	78.10	74.55	38.88	11.82	0.00	0.00	0.00	**506.38**
		P-AET (mm)	54.26	40.88	7.24	-26.28	-7.23	7.38	6.99	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.28	-33.51	-26.14	-19.15	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.28	7.23	-7.38	-6.99	-19.15	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	0.00	0.00	0.00	0.00	8.84	70.37	63.37	56.69	52.21	**353.85**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	0.00	0.00	0.00	0.00	2.65	21.11	19.01	17.01	15.66	**106.16**
		Run-Off (mm)	37.98	28.62	5.07	0.00	0.00	0.00	0.00	6.19	49.26	44.36	39.68	36.54	**247.70**
		Catchment Area (m^2) 26559.05	Monthly Volumes (Pervious Area)												
		AET (m^3)	6.54	905.30	1967.50	2776.27	2392.52	2074.26	1979.97	1032.70	313.95	0.00	0.00	0.00	**13449.00**
		Infiltration (m^3)	432.31	325.75	57.66	0.00	0.00	0.00	0.00	70.41	560.70	504.90	451.71	415.95	**2819.39**
		Run-Off (m^3)	1008.71	760.07	134.55	0.00	0.00	0.00	0.00	164.30	1308.31	1178.10	1053.98	970.56	**6578.59**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE 4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALDON STATION

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Ponds	Mitigation - Connected Impervious Area	Catchment Area (m^2) = 18845.25	Imperv coeff. 0.50					Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	140.77	193.63	210.03	202.12	213.99	220.77	210.60	172.72	212.29	163.67	146.43	134.84	**2221.85**
		Run-Off from Imperv. (m^3) - with 15% evap.	797.72	1097.26	1190.17	1145.32	1212.60	1251.04	1193.38	978.73	1202.99	927.47	829.76	764.08	**12590.51**
	Mitigation - Connected Pervious Area	P - Total Precipitation plus irrigation (mm)	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	-
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	**849.27**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	**254.78**
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	**594.49**
		Catchment Area (m^2) 18845.25	Monthly Volumes (Pervious Area)												
		AET (m^3)	4.64	642.36	1396.06	2174.89	2500.91	2211.58	1512.17	732.76	222.76	0.00	0.00	0.00	**11398.14**
		Infiltration (m^3)	519.47	523.74	358.29	95.36	41.48	153.38	325.55	419.22	718.65	605.58	541.78	498.90	**4801.42**
		Run-Off (m^3)	1212.10	1222.06	836.02	222.51	96.79	357.89	759.62	978.19	1676.85	1413.03	1264.16	1164.10	**11203.31**
NHS	Development - Pervious Landscape	Soil Moisture Storage (mm)	200.00	200.00	200.00	156.09	99.08	59.83	54.09	76.31	75.00	132.90	135.42	135.42	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	110.59	112.07	93.70	76.14	38.88	11.82	0.00	0.00	0.00	**551.60**
		P-AET (mm)	49.55	34.41	0.22	-39.09	-36.37	-15.60	-1.64	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-39.09	-75.46	-91.05	-92.69	-70.47	-7.19	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	39.09	36.37	15.60	1.64	-22.22	-63.28	-7.19	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	0.00	50.71	51.80	47.70	**234.40**
		Infiltration Factor	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-
		Run-Off Coefficient	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	-
		Infiltration (mm)	19.82	13.77	0.09	0.00	0.00	0.00	0.00	0.00	0.00	20.28	20.72	19.08	**93.76**
		Run-Off (mm)	29.73	20.65	0.13	0.00	0.00	0.00	0.00	0.00	0.00	30.43	31.08	28.62	**140.64**
		Catchment Area (m^2) 97052.63	Imperv coeff. 0.00					Monthly Volumes							
		AET (m^3)	23.90	3308.16	7189.68	10732.86	10876.45	9093.39	7389.12	3773.72	1147.23	0.00	0.00	0.00	**53534.50**
		Infiltration (m^3)	1923.73	1335.98	8.53	0.00	0.00	0.00	0.00	0.00	0.00	1968.61	2010.93	1851.76	**9099.55**
		Run-Off (m^3)	2885.59	2003.97	12.80	0.00	0.00	0.00	0.00	0.00	0.00	2952.92	3016.40	2777.65	**13649.32**
	Development - Impervious Area	Catchment Area (m^2) = 0.00	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		Run-Off from Imperv. (m^3) - with 15% evap.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Total Site			Total Catchment Volumes												
		Total ET (m^3)	9644.41	13265.91	14389.15	13846.89	14660.28	15125.07	14427.88	11832.80	14544.08	11213.08	10031.74	9237.72	**152219.01**
		Total AET (m^3)	129.38	17910.85	38926.02	55997.48	52519.28	45890.25	39799.50	20431.51	6211.28	0.00	0.00	0.00	**277815.55**
		Total Infiltration (m^3)	13856.98	12478.02	6296.85	4655.73	4660.79	5307.60	5871.83	5819.79	14248.45	15887.54	14463.44	13318.65	**116865.68**
		Total Runoff (m^3)	66833.08	80778.44	75357.16	69268.11	72710.69	76180.36	74556.24	63489.02	90655.80	77379.42	69601.77	64092.75	**880902.84**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

APPENDIX 6
Wastewater

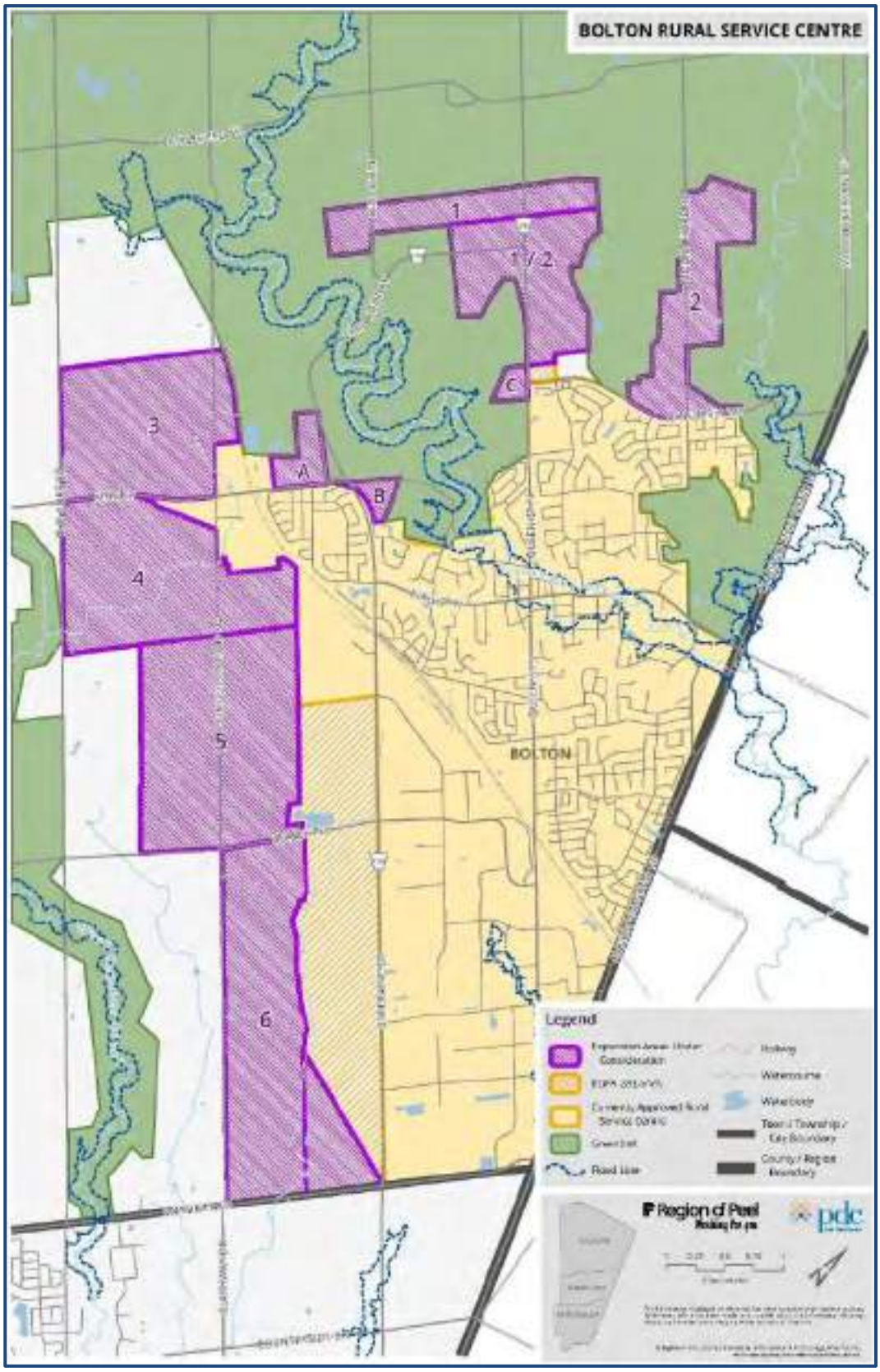

FIGURE 1 BOLTON RESIDENTIAL EXPANSION AREA OPTIONS

4.4.2.6 Option 3

Option 3 is located at the northwest corner of Humber Station Road and King Street. The ground elevations range between 265 m and 280 m.

Wastewater servicing of Option 3 requires an extension of the existing system towards the existing Coleraine Trunk Sewer, which presently conveys all of Bolton's wastewater flow to the lake-based system. Twinning of a section of the Coleraine Trunk sewer will be required. A high level analysis was performed on the ground elevation of the area and it was determined that it can be serviced by gravity in its entirety, therefore eliminating the need for a pumping station.

It is also important to note that the new infrastructure required minimizes the need to work through the urban core, thus lowering the potential for conflict with existing utilities and social impact.

The projects required as part of the wastewater servicing strategy for Option 3 are presented in Table 17.

TABLE 17 WASTEWATER PROJECTS FOR SERVICING OPTION 3

BRES ID	Description	Size/Capacity	Length (m)
Opt3 - WW1	New gravity sewer on King & Coleraine from Option 3 to ex. Coleraine Trunk Sewer south of rail	450 mm	2624
Opt3 - WW2	Twinning of Coleraine Trunk Sewer from south of rail to 700 m north of George Bolton Pkwy	525 mm	2908

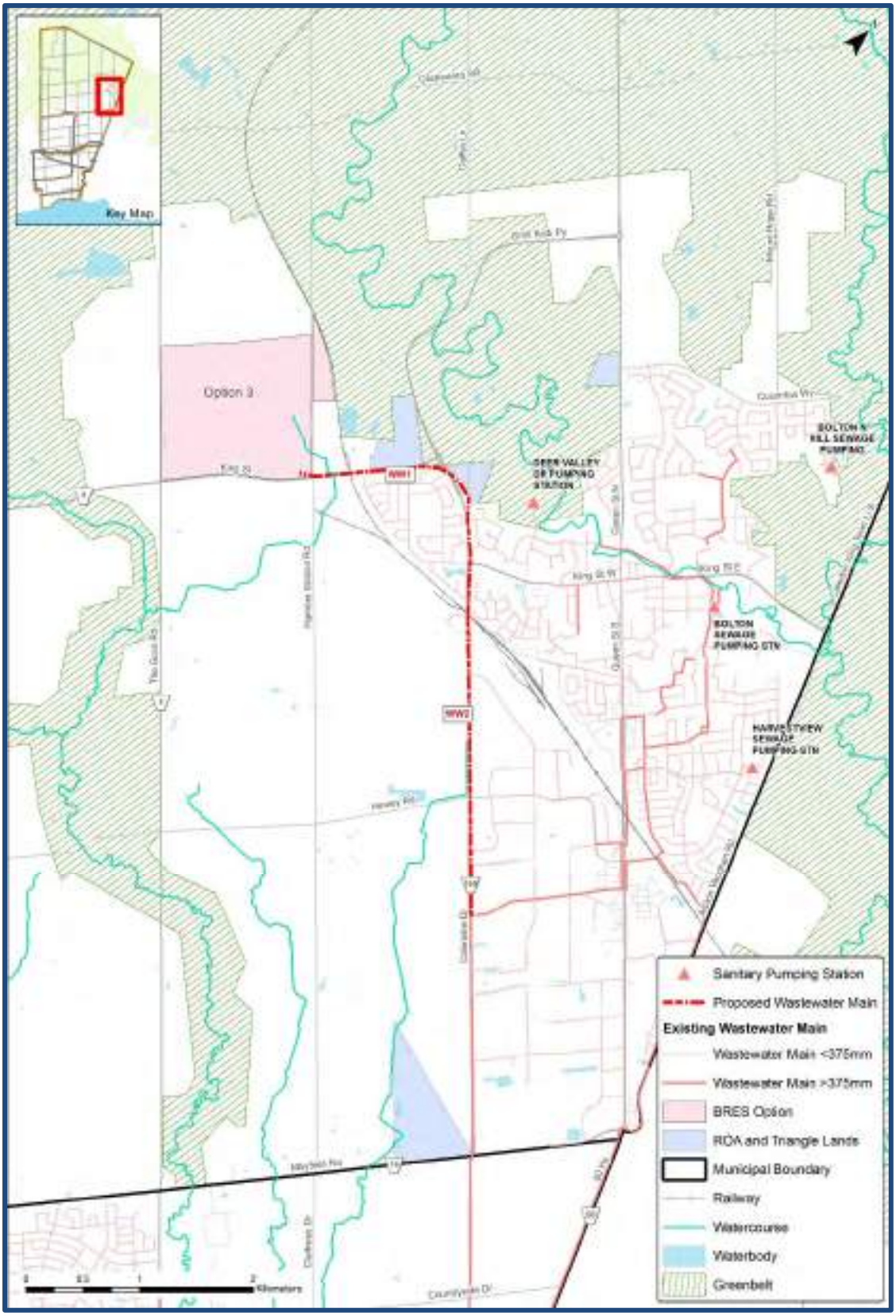

FIGURE 14 WASTEWATER SERVICING OPTION 3

4.4.2.7 Option 4

Option 4 is located at the southeast corner of King St. and The Gore Rd. Ground elevations range between 252 m and 262 m, with a topography allowing for a gravity system without any pumping requirements.

Option 4 can be serviced through a new wastewater gravity sewer on Humber Station Road to the future Holland extension, and then east on the Holland extension to Coleraine Drive. The first section of sewer will need to be more than 5 m deep, further downstream it can be shallower as it approaches Healey Road and the existing sewer on Coleraine. This Option also requires twinning of the Coleraine Trunk sewer to the extension of McEwan Drive.

This servicing strategy minimizes the need to work through the urban core, thus lowering the potential for conflict with existing utilities and social impact.

The projects required as part of the wastewater servicing strategy for Option 4 are presented in Table 18.

TABLE 18 WASTEWATER PROJECTS FOR SERVICING OPTION 4

BRES ID	Description	Size/Capacity	Length (m)
Opt4 - WW1	New gravity sewer on Humber Station Rd from 890 m north of Healey Rd to 790 m north of Healey Rd	450 mm	790
Opt4 - WW2	New gravity sewer on Holland Dr extension from Humber Station Rd to 690 m easterly	450 mm	690
Opt4 – WW3	New gravity sewer on Holland Dr extension from Coleraine Dr to 680 m westerly	450 mm	680
Opt4 – WW4	Twinning of Coleraine Trunk Sewer from Holland Dr extension to McEwan Dr	525 mm	2080

It is anticipated that the new infrastructure will require a few minor creek crossings along Humber Station Road and Healey Road.

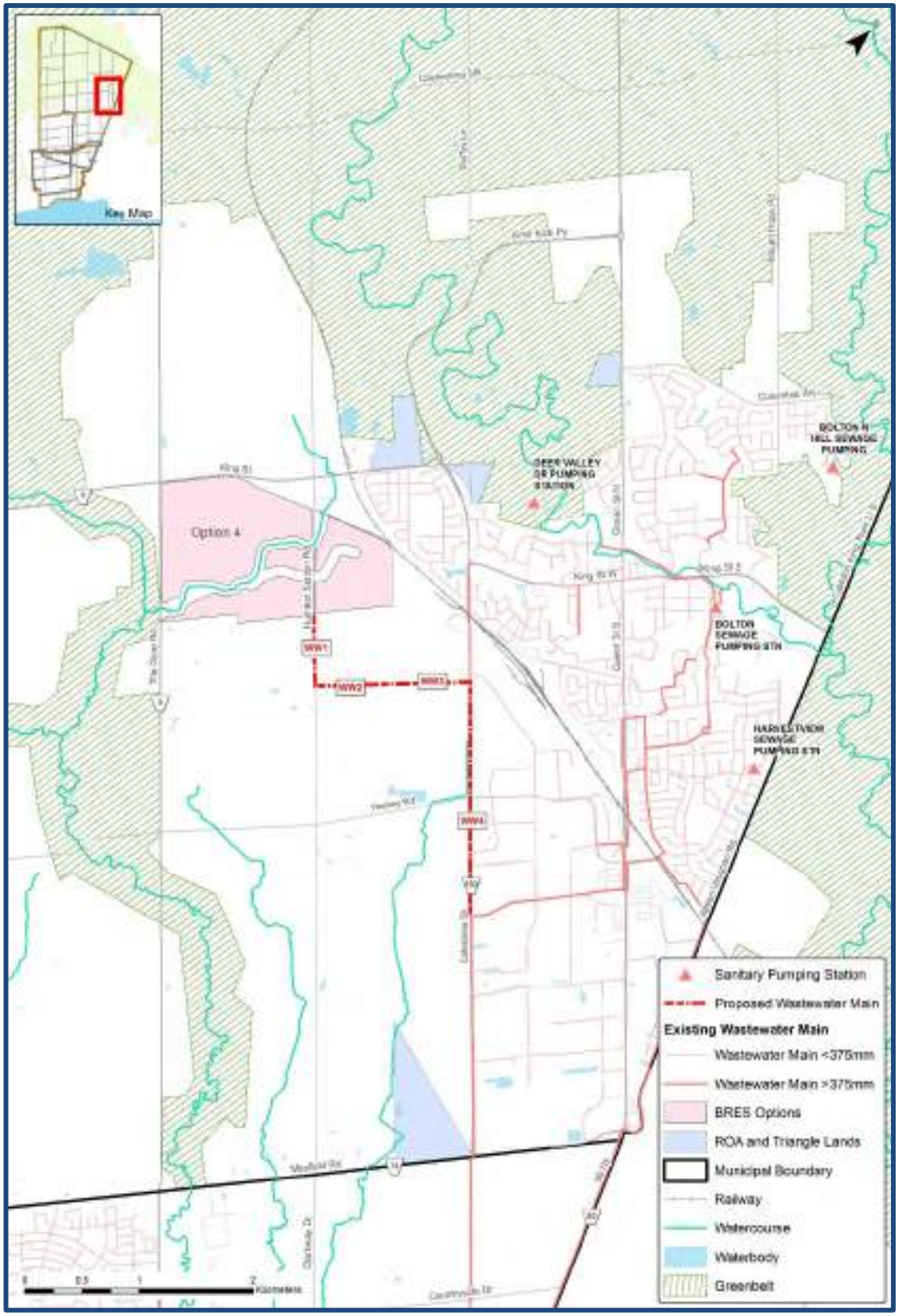

FIGURE 15 WASTEWATER SERVICING OPTION 4

URBANTECH

l/c/d
l/c/d
l/s/ha
%
'own is NOT increased)

SANITARY SEWER DESIGN SHEET

Macville Argo

Region of Peel

PROJECT DETAILS		DESIGN CRITERIA				
		Min. Flow =	13	l/s		
		Min Diameter =	200	mm	Daily Per Capital Flow (Residential) =	290.0 l/c/d
Project No:	15-458	Mannings 'n'=	0.013		Daily Per Capital Flow (Non-Residential) =	270.0 l/c/d
Date:	######	Min. Velocity =	0.75	m/s	Extraneous Flows =	0.260 l/s/ha
Designed by:	E.L.	Max. Velocity =	3.00	m/s	Max. Peaking Factor =	4.00
Checked by:	S.H.				Min. Peaking Factor=	2.00
		Factor of Safety =	30	%		

NOMINAL PIPE SIZE USED

IPUT				RESIDENTIAL							NON-RESIDENTIAL					FLOW CALCULATIONS							PIPE DATA					
D/S INVERT (m)	MIN DROP @ D/S MH (m)	U/S MH RIM EL. (M)	STREET	FROM MH	TO MH	AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	POP.	ACCUM. POP.	EXTRANEOUS FLOW (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RESIDENTIAL FLOW (l/s)	MIN. FLOW (l/s)	NON RESIDENTIAL FLOW (l/s)	DESIGN FLOW (l/s)	SLOPE (%)	PIPE DIA (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)
			STREET 'S'	21A	20A	17.10	17.10	524		3.6	1887	1887	4.20	4.20	150	630	630	5.5	2,517	3.51	22.2	22.2	6.9	34.6	0.50	300	68.4	0.97	0.96	51%
					20A	2.80	2.80	527		2.6	1355	1355						0.7	1,355	3.71	16.9	16.9		17.6					
			STREET 'S'	20A	30A	5.20	25.10	134		3.6	483	3725		4.20			630	7.6	4,355	3.30	41.3	41.3	6.5	55.4	0.60	300	74.9	1.06	1.13	74%
			STREET 'JJ'	30A	40A		25.10					3725		4.20			630	7.6	4,355	3.30	41.3	41.3	6.5	55.4	0.50	375	124.0	1.12	1.08	45%
			SPEERS	1F	40A	13.35	13.35	341		3.6	1228	1228	2.05	2.05	293	600	600	4.0	1,828	3.62	14.9	14.9	6.8	25.7	0.50	250	42.0	0.86	0.88	61%
			STREET 'Y'	40A	6A	11.20	49.65	334		3.6	1203	6156		6.25			1230	14.5	7,386	3.08	63.7	63.7	11.9	90.1	0.50	375	124.0	1.12	1.20	73%
			STREET 'I'	1A	3A	23.10	23.10	730		3.6	2628	2628						6.0	2,628	3.49	30.8	30.8		36.8	0.50	300	68.4	0.97	0.96	54%
			STREET 'I'	3A	5A		23.10					2628						6.0	2,628	3.49	30.8	30.8		36.8	0.50	300	68.4	0.97	0.96	54%
			STREET 'I'	5A	6A	14.60	37.70	485		3.6	1746	4374						9.8	4,374	3.30	48.4	48.4		58.2	0.50	375	124.0	1.12	1.08	47%
			STREET 'I'	6A	7A		87.35					10530		6.25			1230	24.3	11,760	2.88	101.9	101.9	11.1	137.4	0.50	450	201.6	1.27	1.33	68%
			STREET 'EE'	7A	8A	6.10	93.45	208		3.6	749	11279		6.25			1230	25.9	12,509	2.86	108.2	108.2	11.0	145.1	0.50	450	201.6	1.27	1.36	72%
			STREET 'I'	8A	9A		93.45					11279		6.25			1230	25.9	12,509	2.86	108.2	108.2	11.0	145.1	0.50	450	201.6	1.27	1.36	72%
			SPEERS		9A	1.50	1.50	213		2.6	548	548						0.4	548	3.95	7.3	13.0		13.4	0.50					
			SPEERS		9A	3.40	3.40	88		3.6	317	317						0.9	317	4.00	4.3	13.0		13.9	0.50					
					9A	2.30	2.30	426		2.5	1080	1080						0.6	1,080	3.78	13.7	13.7		14.3	0.50					
					9A	6.60	6.60	233		3.6	839	839	0.40	0.40				1.8	839	3.85	10.8	13.0		14.8	0.50					
			STREET 'I'	9A	100A		107.25					14063		6.65			1230	29.6	15,293	2.77	130.7	130.7	10.6	171.0	0.50	525	304.1	1.40	1.42	56%
			KING STREET	100A	101A		107.25					14063		6.65			1230	29.6	15,293	2.77	130.7	130.7	10.6	171.0	0.50	525	304.1	1.40	1.42	56%
			KING STREET	101A	5	3.50	110.75	546	0	2.5	1388	15451	0.00	6.65	0	0	1230	30.5	16,681	2.73	141.7	141.7	10.5	182.7	0.50	525	304.1	1.40	1.45	60%
			HUMBER STATION		10A	1.05	1.05	136		2.5	343	343	3.35	3.35	179	600	600	1.1	943	3.82	4.4	13.0	7.2	21.3						
			HUMBER STATION	10A	13A	12.20	13.25	2422		2.5	6062	6405	4.30	7.65			600	5.4	7,005	3.11	66.8	66.8	5.8	78.0	0.50	375	124.0	1.12	1.16	63%
			HUMBER STATION	13A	15A	5.05	18.30	969		2.4	2371	8776	5.65	13.30	24	138	738	8.2	9,514	2.98	87.7	87.7	6.9	102.7	0.50	450	201.6	1.27	1.25	51%
			HUMBER STATION	15A	16A	3.50	21.80	345		2.5	865	9641	2.90	16.20			738	9.9	10,379	2.94	95.1	95.1	6.8	111.8	0.50	450	201.6	1.27	1.28	55%
			HUMBER STATION	16A	5	0.00	21.80	0	0	0.0	0	9641	0.00	16.20	0	0	738	9.9	10,379	2.94	95.1	95.1	6.8	111.8	0.50	450	201.6	1.27	1.28	55%
			HUMBER STATION	5	CSSP	0.00	132.55	0	0	0.0	0	25092	0.00	22.85	0	0	1968	40.4	27,060	2.52	212.4	212.4	15.5	268.3	0.50	600	434.2	1.54	1.58	62%

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l/c/d

l/s/ha

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'own is NOT increased)

SANITARY SEWER DESIGN SHEET

Macville Argo

Region of Peel

PROJECT DETAILS	
Project No:	15-458
Date:	######
Designed by:	E.L.
Checked by:	S.H.

DESIGN CRITERIA					
Min. Flow =	13	l/s			
Min Diameter =	200	mm	Daily Per Capital Flow (Residential) =	290.0	l/c/d
Mannings 'n'=	0.013		Daily Per Capital Flow (Non-Residential) =	270.0	l/c/d
Min. Velocity =	0.75	m/s	Extraneous Flows =	0.260	l/s/ha
Max. Velocity =	3.00	m/s	Max. Peaking Factor =	4.00	
			Min. Peaking Factor=	2.00	
Factor of Safety =	30	%			

NOMINAL PIPE SIZE USED

IPUT																										
						RESIDENTIAL							NON-RESIDENTIAL					FLOW CALCULATIONS							PIPE DATA					
D/S INVERT (m)	MIN DROP @ D/S MH (m)	U/S MH RIM EL. (M)	STREET	FROM MH	TO MH	AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	POP.	ACCUM. POP.	EXTRANEOUS FLOW (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RESIDENTIAL FLOW (l/s)	MIN. FLOW (l/s)	NON RESIDENTIAL FLOW (l/s)	DESIGN FLOW (l/s)	SLOPE (%)	PIPE DIA (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)
			EXTERNAL LANDS																											
			BRES-1 LANDS	OPT1	Emil	114.70	114.70		97		11126	11126						29.8	11,126	2.91	108.6	108.6		138.4	0.50	450	201.6	1.27	1.33	69%
			ROUNDING OUT	Emil	5	22.00	136.70		60		1320	12446						35.5	12,446	2.86	119.5	119.5		155.0	0.50	450	201.6	1.27	1.38	77%
			ULTIMATE SAN TRUNK																											
			HUMBER STATION RD	5	6C	100.00	369.25		60		6000	43538		22.85			1968	101.9	45,506	2.30	336.5	336.5	14.2	452.6	0.75	675	728.0	2.03	2.10	62%
			HUMBER STATION RD	6C	7C	103.00	472.25		60		6180	49718		22.85			1968	128.7	51,686	2.25	375.7	375.7	13.8	518.2	0.50	750	787.2	1.78	1.87	66%
			HUMBER STATION RD	7C	8C	81.00	553.25		60		4860	54578		22.85			1968	149.8	56,546	2.22	405.8	405.8	13.6	569.2	0.50	750	787.2	1.78	1.91	72%
			HUMBER STATION RD	8C	9C	81.00	634.25		60		4860	59438		22.85			1968	170.8	61,406	2.18	435.5	435.5	13.4	619.7	1.00	750	1113.3	2.52	2.55	56%
			HUMBER STATION RD	9C	10C	81.00	715.25		60		4860	64298		22.85			1968	191.9	66,266	2.15	464.7	464.7	13.2	669.8	0.75	750	964.1	2.18	2.29	69%
			HUMBER STATION RD	10C	EX 1A		715.25					64298		22.85			1968	191.9	66,266	2.15	464.7	464.7	13.2	669.8	0.75	750	964.1	2.18	2.29	69%
			HUMBER STATION RD	EX 1A	EX 2A		715.25					64298		22.85			1968	191.9	66,266	2.15	464.7	464.7	13.2	669.8	0.30	1200	2135.4	1.89	1.64	31%
			COLERAINE ROAD	EXT.	MH 118	95.00	95.00	4000		3.61	14440	14440						24.7	14,440	2.79	135.5	135.5		160.2	0.30	525	235.6	1.09	1.14	68%
			WHITE BELT LANDS	WBL	OUT	120.30	120.30		60		7218	7218						31.3	7,218	3.09	75.0	75.0		106.2	0.30	450	156.2	0.98	1.03	68%

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APPENDIX 7
R.J. Burnside & Associates Water Modelling

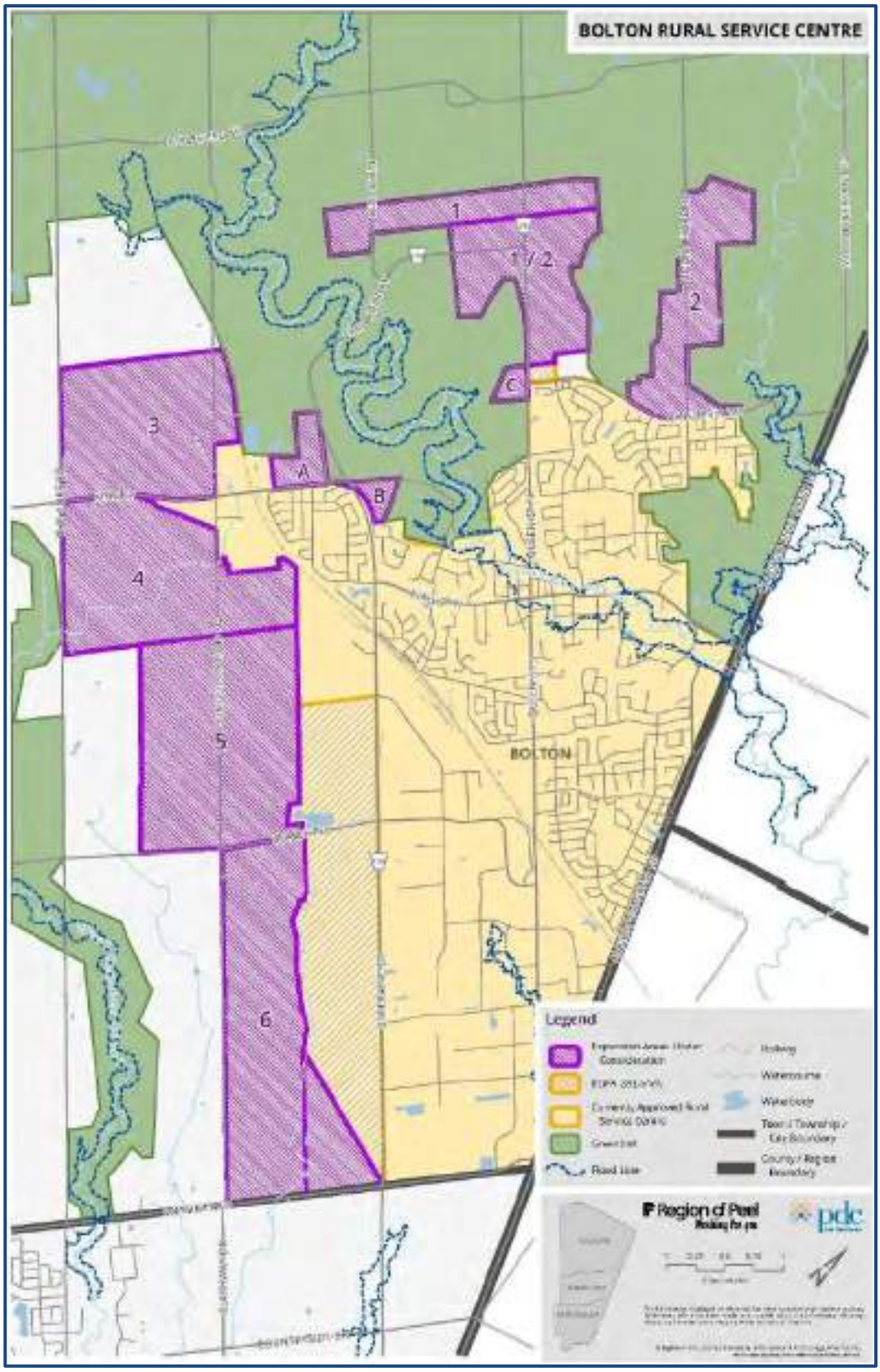

FIGURE 1 BOLTON RESIDENTIAL EXPANSION AREA OPTIONS

3.4.3.6 Option 3

Option 3 is located at the northwest corner of Humber Station Road and King Street. The ground elevations range between 265 m and 280 m, and as such fall in Zone 7. The top water level required to maintain adequate pressures is approximately 328 m.

Water servicing of Option 3 requires the creation of a new pressure zone system due to the range of elevations within the area. To achieve this, a new Zone 7 pumping station is required. Based on previous studies, it was confirmed that the preferred location for a new station is near the intersection of Chickadee Lane and Glasgow Road. An extension of the system through a 400 m (Zone 6) watermain from the 1050 mm watermain on Coleraine, would provide water to the station, from there, a new 400 mm (Zone 7) 19eedermain from the proposed Zone 7 pumping station along King Street and Emil Kolb Parkway to the proposed Option 3 storage facility is also required. The proposed location for the elevated tank is a site west of Gore Rd, one which appears to be farm land and has an elevation of 283 m.

A high level evaluation of the storage requirements was undertaken. Based on the ground elevations and environmental features around Option 3, an elevated floating storage facility was selected as the preferred storage servicing strategy. In-ground storage was also considered as an option for provision of storage; however, with a pumped system there must be sufficient pump capacity to supply peak hour demands or maximum day demands plus fire demands. This could result in a larger investment in a pumping facility and larger pipes servicing the area. Furthermore, standby power at the pumping station would also be required. These impacts were considered and it is recognized that elevated floating storage provides a more robust and reliable system and provides a better solution to long term requirements when considering the surrounding areas that could potentially develop.

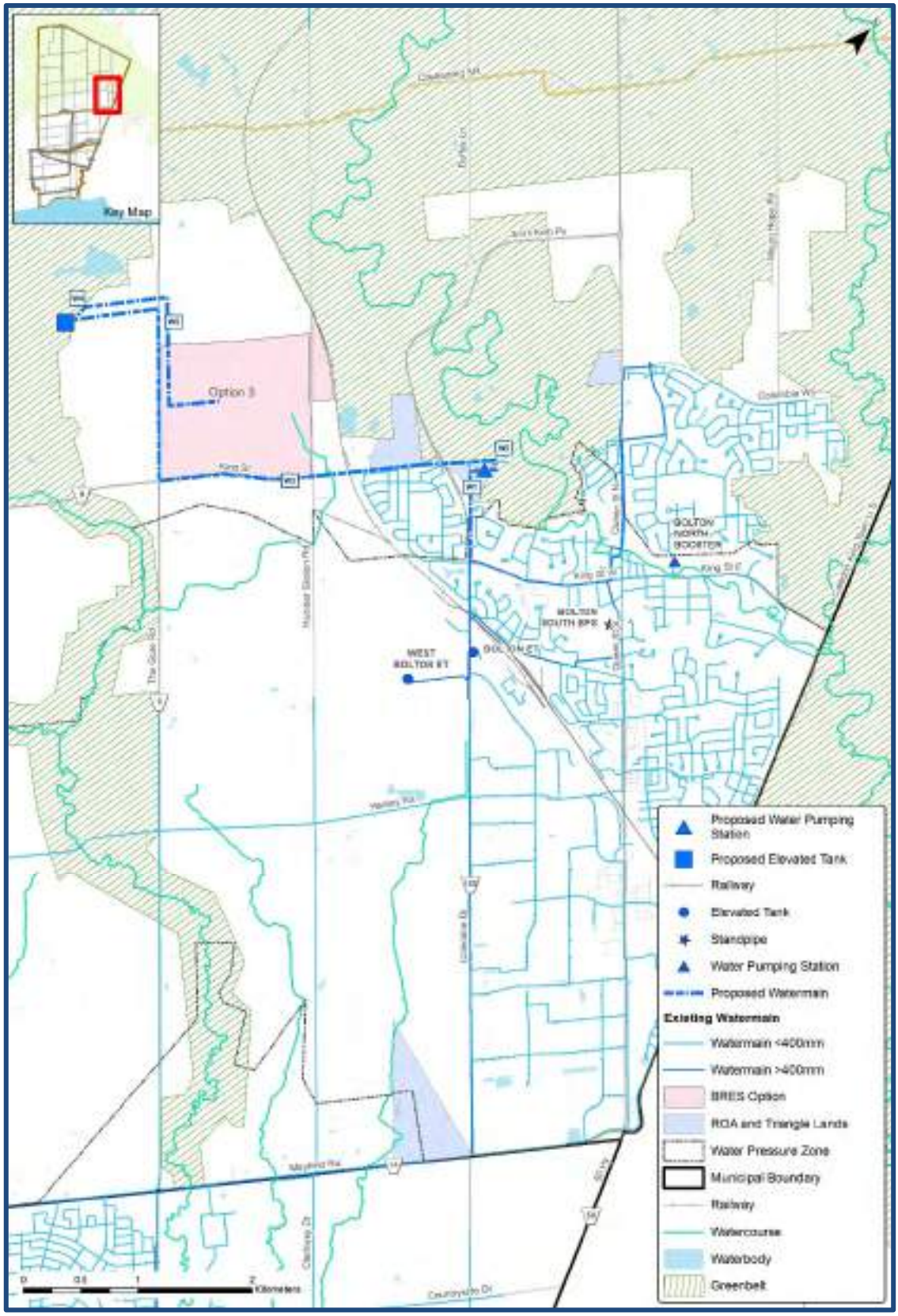

FIGURE 6 WATER SERVICING OPTION 3

The projects required as part of the water servicing strategy for Option 3 are presented in Table 6.

TABLE 6 WATER PROJECTS FOR SERVICING OPTION 3

BRES ID	Description	Size/Capacity	Length (m)
Opt3 - W0	Class EA for elevated tank and booster station		
Opt3 - W1	Z6 Feedermain, from ex. 1050 mm at Coleraine King, east to Future Z7 BPS	400 mm	1038
Opt3 - W2	Z7 BPS, at King and Coleraine (greenfield)	79 L/s	
Opt3 - W3	Z7 Feedermain on King/Gore, from Z7 BPS to E.T. outside	400 mm	5176
Opt3 - W4	E.T. for Option 3 (TWL=327.7m)	5.1 ML	
Opt3 - W5	Z7 Feedermain, from E.T. to distribution	400 mm	2165

It is anticipated that the crossing of the Humber River along Emil Kolb Parkway will require either extensive trenchless installation or could potentially be suspended from the future bridge. Either method of installation will incur additional costs for construction and permitting, as this section crosses TRCA lands.

Servicing Option 3 provides an opportunity to service the Rounding Out Areas A and B without additional infrastructure as well as the potential to re-align the pressure zone boundary to shift some of the existing Zone 6 properties which currently experience low pressures to Zone 7. It has been demonstrated that these properties would benefit from an enhanced Zone 7 service.

3.4.3.7 Option 4

Option 4 is located at the southeast corner of King Street and The Gore Road. Ground elevations range between 252 m and 262 m, and as such most of the land falls in Zone 6 with the top part of the area in Zone 7.

Option 4 falls between two zones, therefore the servicing strategy will involve two components:

Zone 6 Servicing of Option 4:

The lower part of Option 4 can be serviced through an extension of the existing Zone 6 infrastructure. A new 300 mm (Zone 6) watermain is required from the proposed 600 mm watermain on Holland Road Extension to Option 4. This watermain is a candidate for oversizing as it could serve as a feedermain to a larger service area in the future.

Zone 7 Servicing of Option 4:

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Technical Memorandum

Date: May 15, 2023 **Project No.:** 300034976.0001

Project Name: Bolton Option 3 Lands Preliminary Water Modelling

Client Name: Bolton Option 3 Landowners Group

Submitted To: Ms. Miriam Polga, P.Eng., Region of Peel

Submitted By: Rachel Walton, P.Eng., MASc.

Reviewed By: Jeff Langlois, P.Eng., MBA

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by the Bolton Option 3 Landowners Group (BO3LG) to complete a preliminary hydraulic water modelling analysis of the proposed Option 3 lands being considered as part of the urban boundary expansion of the Bolton settlement area in the Town of Caledon (Town). The water distribution system in Bolton is part of the Region of Peel (Region) water distribution system.

As dictated by the Ontario Growth Plan, the Region must plan for its share of growth to 2041. The projected growth numbers are dictated by the Province of Ontario and allocated by the Region to the lower tier Municipalities through Regional Council direction and Regional Official Plan Amendment. The Town previously completed the Bolton Residential Expansion Study (BRES) to determine the best approach to meet their urban boundary expansion needs. The BRES examined six different options for expansion of the Bolton settlement area and examined how each area could be serviced. The location of the BRES Option 3 lands is shown in Figure 1.

As determined in the BRES, the Option 3 lands are generally outside of the range of elevations associated with Pressure Zone 6 of the existing water distribution infrastructure in Bolton. As such, development of the Option 3 lands will ultimately require the development of a new pressure Zone 7. Previous studies completed in support of BRES identified a new Zone 7 booster pumping station at King Street and Coleraine Drive. Ultimately, floating storage is proposed in the form of an elevated tank (ET) to provide storage for flow equalization, fire demands and emergencies. The ET is to be situated in the vicinity of the northwest corner of the Option 3 lands.

The purpose of this preliminary modelling exercise and supporting technical memorandum is to determine interim alternative water servicing arrangements, which leverage the existing Zone 6 water supply to allow some portion of the Option 3 lands to be developed prior to the design and construction of the ultimate Zone 7 servicing solution. Water supply to the zone in the interim scenario would be principally through a new Zone 7 booster pumping station. Options investigated included providing water supply to meet fire demands on an interim basis through pumped, as opposed to floating, storage.

2.0 Background Documents

The following reports have been referenced to complete the hydraulic modelling discussed in this memorandum:

- Bolton Residential Expansion Study Infrastructure Report, prepared by GM BluePlan dated June 16, 2014;
- Region of Peel 2013 Water and Wastewater Master Plan for the Lake-Based Systems, Volume III – Water Master Plan, prepared by GM BluePlan and AECOM, dated March 31, 2014;
- Proposed Regional Official Plan Amendment, An Amendment to Establish the Bolton (2031) Residential Expansion Area Planning Justification Report, prepared by Meridian Planning, dated October 2014;
- Region of Peel 2020 Water and Wastewater Master Plan for the Lake Based Systems, prepared by GM BluePlan and Region of Peel, June 2020; and
- Ministry of the Environment, Conservation and Parks (MECP), “Guidelines for the Design of Water Distribution Systems”, 2008.

2.1 System Pressure

As per the Region of Peel 2020 Water and Wastewater Master Plan for the Lake-Based Systems, Volume III – Water Master Plan, prepared by GM BluePlan and Region of Peel, dated June 2020, a minimum operating pressure of 40 psi and a maximum operating pressure of 100 psi shall be maintained within the water distribution system under maximum day demand and a minimum operating pressure of 40 psi shall be maintained under peak hour demand. The allowable operating pressure during fire flow conditions is a minimum of 20 psi.

2.2 Roughness Coefficient (“C” Value)

The friction factors “C” used in the model are based on the Ministry of Environment, Conservation and Parks (MECP) Design Guidelines for Drinking Water Systems (2008), and are as follows:

- 150 mm diameter: C=100
- 200 mm or 250 mm diameter: C=110
- 300 mm to 600 mm diameter: C=120
- > 600 mm diameter: C=130

2.3 Peaking Factor

Peaking factors have been referenced from the 2020 Water and Wastewater Master Plan. The peaking factors used in the modelling are as follows:

- Residential Maximum Day Factor (MDF) = 1.8
- Non-Residential Maximum Day Factor (MDF) = 1.4
- Peak Hour Factor (PHF) = 3

2.4 Water Demand

The population yield for the Option 3 lands is based on the current proposed Block Plan as determined by Urbantech. The proposed Block Plan includes employment and mixed-use lands. The estimated yields are as follows:

- Residential 25,092 persons
- Employment 1,968 jobs

The demands for the Option 3 lands have been calculated based on the following per capita demands:

- Residential 270 L/cap/d
- Employment 250 L/cap/d

These per capita demands are referenced from the 2020 Water and Wastewater Master Plan. Refer to Appendix A for the demand calculations.

The calculated Option 3 lands demands are:

- Average Day Demand (ADD) = 84.1 L/s
- Maximum Day Demand (MDD) = 149.1 L/s
- Peak Hour Demand (PHD) = 252.3 L/s

Given the likelihood of further refinement of the concept plans through the approval process, for preliminary modelling purposes it has been assumed that the demands have an even distribution across the Option 3 lands. Therefore, the residential and employment demands have been divided evenly between each junction in the model.

There are existing areas within Bolton Pressure Zone 6 that have ground elevations within the Pressure Zone 7 servicing range. As such, the development of Bolton Pressure Zone 7 will allow for these existing lands to move into the new Pressure Zone, thereby providing pressure improvements for existing residents.

The existing land area that would be brought into Pressure Zone 7 was estimated based on the existing Pressure Zone 6 elevation boundary of 259.1 m. Using the existing topography, an approximate total land area of 137 ha has been established. Two existing areas have been identified, west of Coleraine Drive, and largely on the south side of King Street and east of

Highway 50, south of Columbia Way. These are areas where the Region has reported complaints by residents of inadequate pressure from time to time. While the Region has made improvements to the system to work towards addressing these concerns, the pressure remains at the lower end of the Region's preferred operating range, primarily due to elevation.

The existing population for these areas was taken from the population target set out in the Population Allocation 2031/2051 Plan (February 2021). A population density of 65 people per hectare was assumed in the allocation plan. An employment density of 25 jobs per hectare was assumed.

The total estimate population yields for the existing lands are as follows:

- Residential West of Coleraine Drive 2,860
- Employment West of Coleraine Drive 500

The calculated existing demands contributing to Option 3 Lands are:

- Average Day Demand (ADD) = 10.4 L/s
- Maximum Day Demand (MDD) = 18.1 L/s
- Peak Hour Demand (PHD) = 31.2 L/s

2.5 Fire Flow

The required fire flow for the Option 3 lands is 220 L/s while maintaining a minimum system operating pressure of 20 psi, as per Bolton Residential Expansion Study Infrastructure Report, prepared by GM BluePlan dated June 16, 2014.

3.0 Existing Water Distribution System

Bolton receives water supply from the Tullamore Pumping Station and Reservoir, through a transmission main along Mayfield Road and Coleraine Drive. Bolton's water distribution system is serviced in two pressure zones, Zone 5 and Zone 6. Zone 5 is serviced through Zone 6 by pressure reducing valves at the Bolton Zone 5 Standpipes. The Standpipes have a high-water level (HWL) of 274.1 m. Storage for Zone 6 is supplied by the Bolton ET and the North Bolton ET. The HWL of both ET's is 297 m. The Zone 6 ET water level ranges from 295 m to 297 m.

The existing ground elevations within the Option 3 lands range from approximately 262 m to 280 m. These elevations fall outside of the range of elevations capable of being serviced by Zone 6 while maintaining adequate operating pressures within the system. The Region of Peel reports operating pressure issues within an existing residential subdivision fronting on King Street in close proximity to the Option 3 lands.

A new pressure Zone 7 with an ET having a HWL of 327.7 m would adequately service all of the Option 3 lands, as well as address existing operating pressure issues for some existing residents.

4.0 Hydraulic Modelling

The hydraulic model was developed using Infowater modelling software. The Option 3 lands water system layout shown in the model is slightly different than the current proposed road network, however these differences are not anticipated to impact the modelling results. The layout of the watermains can be updated as the design progresses.

As identified through previous studies undertaken by the Town of Caledon and Region of Peel, sufficient supply is available to service the domestic and fire flow requirements associated with the Bolton residential expansion. Therefore, supply constraints have not been reviewed. The servicing constraints are based on supply pressure and hydraulic losses, which is dependent on watermain size and ground elevations within the serviced area.

The existing Zone 6 Bolton ET's have been shown schematically in the model as a reservoir and set at a HWL of 297 m during regular operating scenarios. Although the existing elevated tanks and booster pumping station are shown schematically in relatively close proximity to the Option 3 lands, the pipe lengths have been modelled with the actual lengths to properly reflect the friction losses and actual location of the existing and proposed infrastructure.

Several scenarios were developed to simulate operating pressures under Maximum Day Demand and Maximum Day plus Fire Flow. Model outputs are summarized on the attached figures to demonstrate what portion of the lands may be serviced in an interim water servicing situation.

4.1 Maximum Day Demand and Peak Hour Demand Scenarios

Scenario 1 was developed to estimate operating pressures within the Option 3 lands under MDD assuming a supply from Zone 6 without a booster pumping station or Zone 7 ET in place. This scenario would also simulate an emergency situation under an interim condition with no floating storage, and a Zone 7 Booster Pumping Station out of service. Map 1 in Appendix B shows the expected operating pressures under this scenario. The figure shows that only the southern and eastern periphery of the Option 3 Lands can be serviced by Zone 6 while maintaining pressures above 35 psi under MDD conditions. If a smaller area of the Option 3 lands is serviced, the MDD will be reduced, which in turn would reduce the friction losses in the watermain, resulting in potentially higher pressure in the development while being serviced from Zone 6.

Discussion is required with the Region to confirm the range of acceptable operating pressures during an emergency situation with the pumping station out of service until repair of the pumping station could be facilitated. It is proposed that residual operating pressures in the 20 to 30 psi range, consistent with a fire flow scenario would be appropriate on an emergency basis allowing more of the Option 3 lands to be serviced.

Scenario 2 was developed to estimate pressures within the Option 3 lands under MDD assuming a supply from Zone 6 and including a booster pumping station, but without a Zone 7

ET in place. To represent the booster pumping station, a single equivalent pump was input into the model. In reality, the booster pumping station would include several pumps to deliver the range of flows experienced within the zone at acceptable pressures. A typical pumping system arrangement would include a jockey pump, an ADD pump, large domestic service pumps, and if required a fire pump, all with built-in redundancy as per the Region and MECP Drinking Water Guideline requirements. The specific pumping arrangement would be determined during detailed design. Map 2 in Appendix B shows the expected operating pressures under Scenario 2. The equivalent pump was set to deliver the required MDD of 167.2 L/s at a total dynamic head (TDH) of 30.5 m to the Option 3 lands. The system can supply the MDD to the entirety of the Option 3 lands while maintaining system pressures between 40 psi and 100 psi.

4.2 Fire Flow Scenario

In all fire flow scenarios simulated, the Zone 6 ET has been set to the lower HWL limit of 295 m.

Scenario 3 was developed to estimate the fire flows that would be available assuming a fire pump is in place at the proposed Booster Pumping Station. A fire pump was modelled with a capacity of 387.25 L/s (MDD + 220 L/s fire flow) at a TDH of 30.5 m. A single equivalent pump was used to represent the pumping system. The specific pumping arrangement and design points would be determined during detailed design. Map 3 in Appendix B shows available fire flow under Scenario 7. The fire flow in some of the system falls slightly below the 220 L/s requirement while maintaining 20 psi. It is anticipated that the sizing of the internal watermains could be increased to achieve a 220 L/s fire flow. There are some locations of dead end watermains that fall well below the 220 L/s fire flow requirement. The watermains in these locations have been modelled as 200 mm diameter mains. It is not recommended to increase the diameter of a dead-end watermain above 200 mm diameter given concerns around the maintenance of chlorine residual.

Scenario 4 was developed to estimate available fire flows under the ultimate build out scenario for the Option 3 lands and to determine the required internal watermain sizes to deliver 220 L/s while maintaining a system pressure of 20 psi. This scenario assumes that the Zone 7 ET and the Zone 7 Booster Station are engaged in the model, with the HWL of 327.7 m. Map 4 in Appendix B shows the available fire flows under Scenario 4. The figure shows the internal watermain sizing recommended to deliver 220 L/s and maintain a minimum system pressure of 20 psi. These internal sizes are used in all the other scenarios unless otherwise noted.

5.0 Conclusion

A hydraulic model of the proposed water distribution system has been developed for the Option 3 lands. Various scenarios have been modelled to determine how much of the Option 3 lands can be reasonably serviced on an interim basis without the construction of a Zone 7 ET.

Almost the entirety of the Option 3 lands as summarized below can be serviced under all modelling scenarios if a new Booster Pumping Station is constructed in the vicinity of Coleraine Drive and King Street. The Booster Pumping Station will require appropriately sized booster

pumps to provide the ADD, MDD and PHD within the 40 psi to 100 psi pressure range. The Booster Pumping Station will also require a fire pump to provide the Option 3 Lands with 220 L/s of fire flow. The specific arrangement of the Booster Pumping Station would be determined during detailed design.

The MDD scenarios modelled show that the entirety of the Option 3 lands can be serviced within the recommended pressure range of 40 psi to 100 psi with a MDD pump at the Booster Pumping Station.

A fire flow scenario of the ultimate build out of the Option 3 lands, including the Zone 7 ET, was simulated to determine preliminary watermain sizes for the Option 3 lands. These watermain sizes were then used to determine the extent of Option 3 lands that could be serviced on an interim basis with an available fire flow of 220 L/s at 20 psi with no ET in place with a fire pump at the Zone 7 Booster Pumping Station.

Based on the modelling performed, with a fire pump in place at the Zone 7 Booster Pumping Station, the entirety of the Option 3 lands may be serviced, with the exception of a small area in the Northwest portion of the Block Plan which would require oversizing of dead end watermains as highlighted above.

R.J. Burnside & Associates Limited

Jeff Langlois, P.Eng., MBA
Water & Wastewater Specialist

Rachel Walton, P.Eng., MASc.
Project Engineer

RW/JLL:sm

Enclosures Appendix A: Demands
Appendix B: Figures

cc: Mr. Aaron Wisson, Argo Development Corporation (enc.) (Via Email)
Mr. Dave Leighton, C.E.T., Urbantech Consulting (enc.) (Via Email)

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Appendix A

Demands

Bolton Option 3 Zone 7 Demand Calculations

Prepared by:	RW
Checked by:	JLL
Project No:	300034976
Date:	5/10/2023

Assumptions

Water Demands From the Region of Peel 2020 Water & Wastewater Master Plan for the Lake-Based System

Residential	Residential Per Capita Flow	270	L/person/day
	Max Day Factor	1.8	
	Peak Hour Factor	3	
Employment	Employment Per Capita Flow	250	L/employee/day
	Max Day Factor	1.4	
	Peak Hour Factor	3	

Fire Flow

220 L/s From Bolton Residential Expansion Study Infrastructure Report, June 16, 2014

Residential Population 25092

Employment Population 1968

Population Based on Updated Option 3 Block Plan and Region of Peel Standards (Novemeber 2022) Densities

	Demand (L/s)		
	Residential	**Employment**	**Total**
ADD	78.4	5.7	84.1
MDD	141.1	8.0	149.1
PHD	235.2	17.1	252.3

Bolton Existing Lands Zone 7 Demand Calculations

Prepared by:	RW
Checked by:	JLL
Project No:	300034976
Date:	4/27/2021

Assumptions

Water Demands From the Region of Peel 2020 Water & Wastewater Master Plan for the Lake-Based System

Residential	Residential Per Capita Flow	270	L/person/day
	Max Day Factor	1.8	
	Peak Hour Factor	3	
Employment	Employment Per Capita Flow	250	L/employee/day
	Max Day Factor	1.4	
	Peak Hour Factor	3	

Fire Flow

220 L/s	From Bolton Residential Expansion Study Infrastructure Report, June 16, 2014

Density

Unit Type	People Per Unit (ppu)*	People Per Hectare (pp/ha)**
Townhomes	3.1	65
Single Detached	3.7	65
Mixed Use	1.99	65
Employment		25

*from development plan
** from BRES Population Allocation 2031-2051 Plan
BRES assumptions used in absences of a development plan

Demand Allocation

Unit Type	Total Area (ha)*	# of units	Population	L/ha/s			L/s		
				ADD	MDD	PHD	ADD	MDD	PHD
Single Detached West of Coleraine Drive	44	N/A	2860				8.9	16.1	26.8
Industrial West of Coleraine Drive	20	N/A	500				1.4	2.0	4.3
Total	**64**		**3360**				**10.4**	**18.1**	**31.2**

*area estimated based on existing land area exceeding 259 m, based on existing ground elevation

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Figures

Junction
Pressure (psi)

- less than 20.00
- 20.00 ~ 40.00
- 40.00 ~ 70.00
- 70.00 ~ 80.00
- 80.00 ~ 100.00
- > 100
- Domain

Pipe
Diameter (mm)

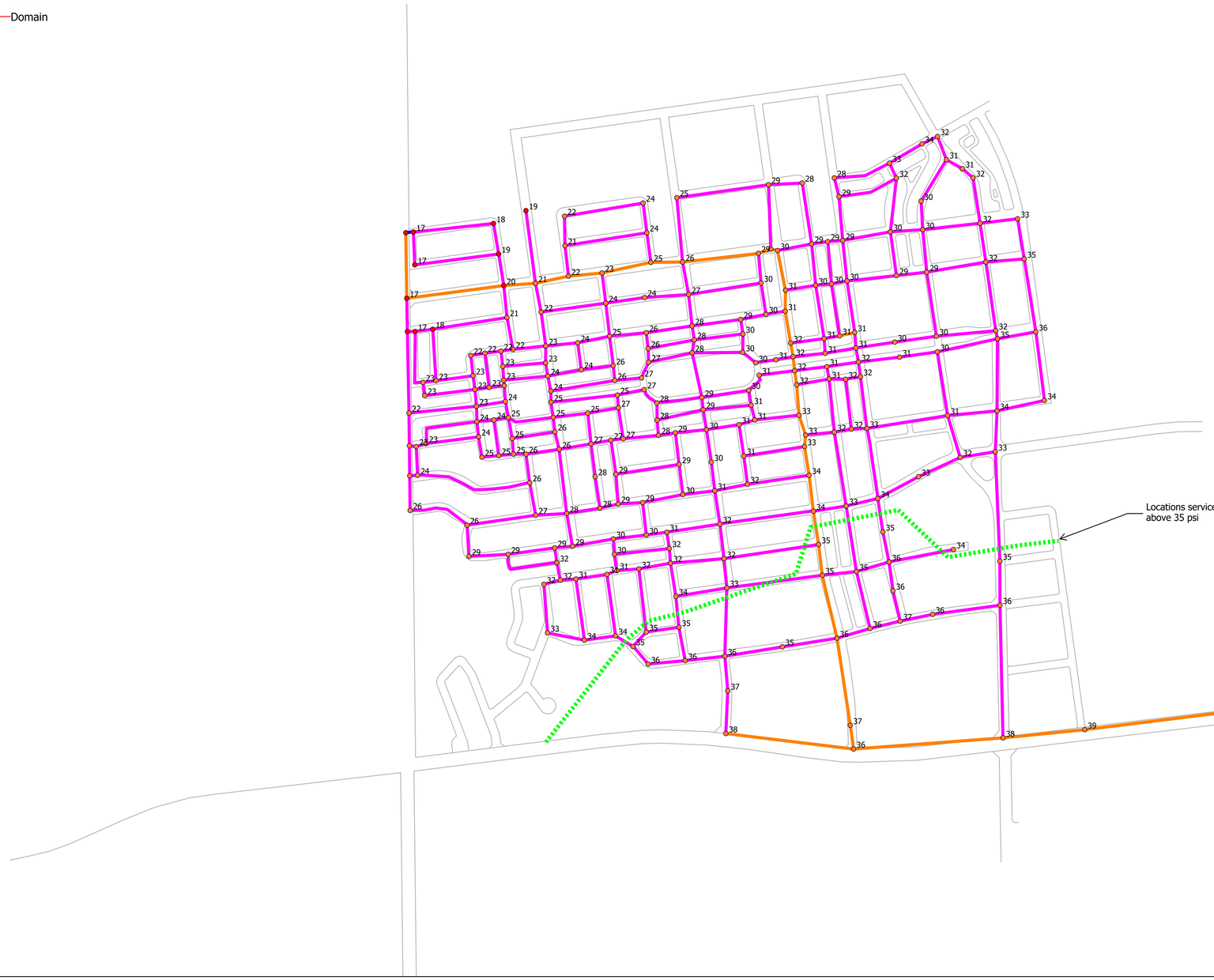
- 150
- 200
- 300
- 400
- 600
- 1050
- Domain

Pump
Type

- Active
- Domain

Reservoir
Type

- Active
- Domain



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Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting: m	False Northing: m
Page Orientation: °	Scale Factor:

True North

0 100 200 300 400 500 600 700 800
Metres

BURNSIDE

Client
BOLTON OPTION 3 LANDOWNERS GROUP

Map Title
BOLTON ZONE 7 OPTION 3
OPTION 3 - MDD SERVICED OFF ZONE 6
SCENARIO 1

Drawn	Checked	Date	Map No.
RW	JLL	2023/05/10	1
Scale		Project No.	
H 1:5000		300034976	

File Path: C:\Users\RWatson\Documents\230510 Bolton OP3 Inflowater Update\230510 Bolton OP3 Inflowater Update.aprx Print Date: 2023/05/10 Time: 04:29 PM

Junction
Pressure (psi)

- less than 20.00
- 20.00 ~ 40.00
- 40.00 ~ 70.00
- 70.00 ~ 80.00
- 80.00 ~ 100.00
- > 100
- Domain

Pipe
Diameter (mm)

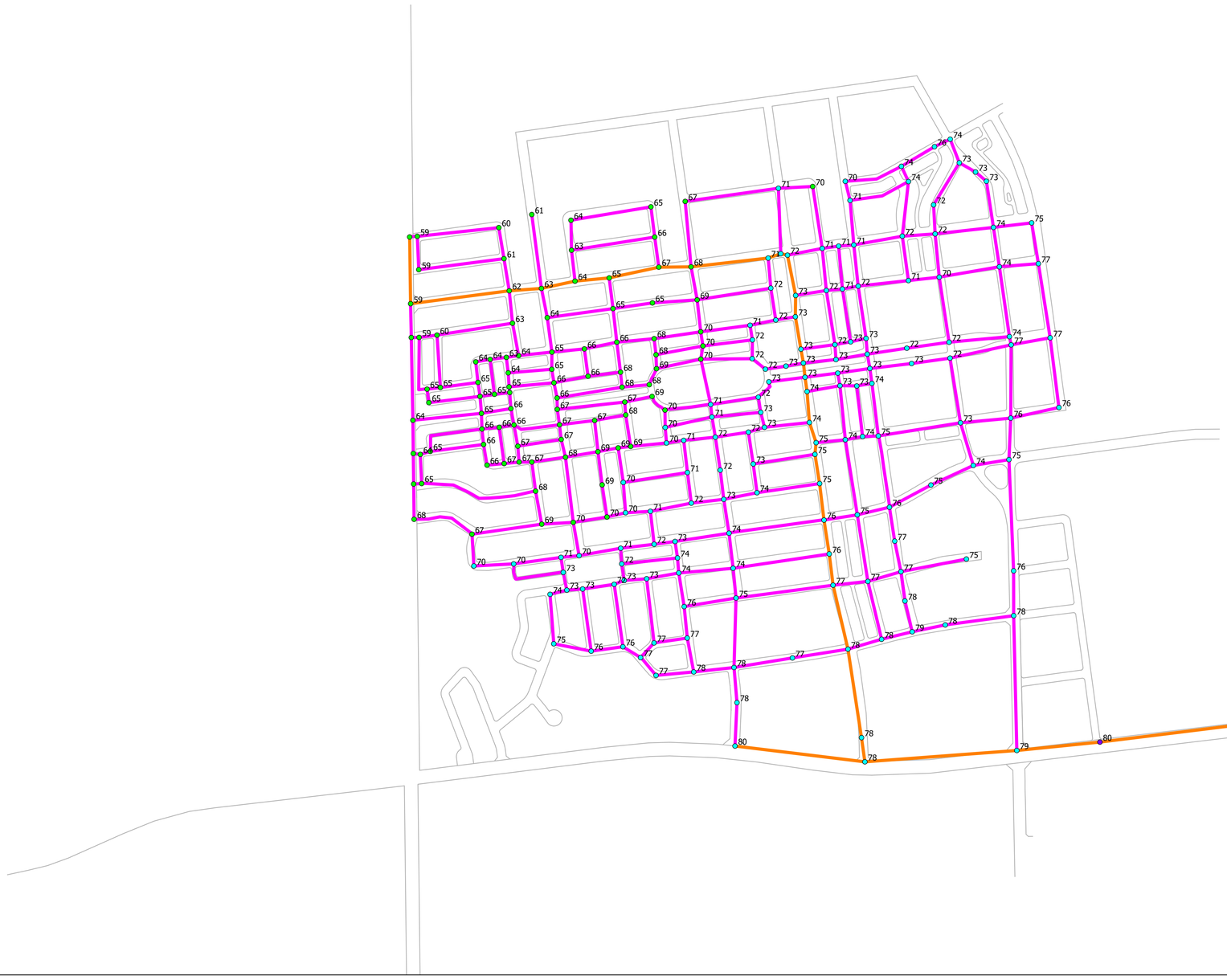
- 150
- 200
- 300
- 400
- 600
- 1050
- Domain

Pump
Type

- Active
- Domain

Reservoir
Type

- Active
- Domain



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Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting: m	False Northing: m
Page Orientation: °	Scale Factor:

True North

0 100 200 300 400 500 600 700 800
Metres

BURNSIDE

Client
BOLTON OPTION 3 LANDOWNERS GROUP

Map Title
BOLTON ZONE 7 OPTION 3
OPTION 3 - MDD WITH BOOSTER PUMPING STATION
SCENARIO 2

Drawn	Checked	Date	Map No.
RW	JLL	2023/05/15	2
Scale		Project No.	
H 1:5000		300034976	

File Path: C:\Users\RWatson\Documents\23\0010 Bolton OPS Inflowater Update\23\0010 Bolton OPS Inflowater Update.aprx Print Date: 2023/05/15 Time: 09:47 AM

Junction
Hydrant Design Flow (L/s)

- less than 0.0
- 0.0 ~ 100.0
- 100.0 ~ 150.0
- 150.0 ~ 220.0
- > 220
- Domain

Pipe
Diameter (mm)

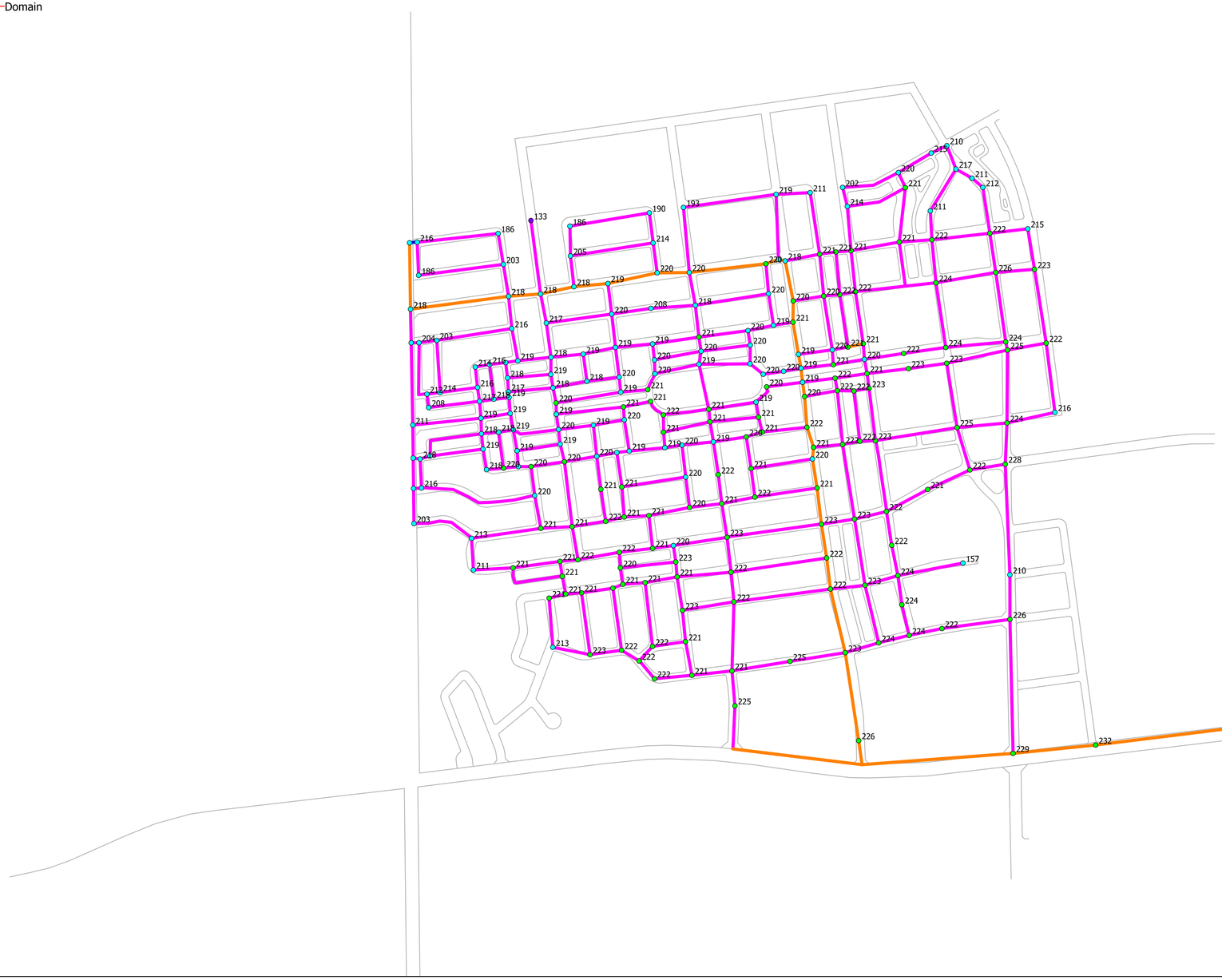
- 150
- 200
- 300
- 400
- 600
- 1050
- Domain

Pump
Type

- Active
- Domain

Reservoir
Type

- Active
- Domain



Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting: m	False Northing: m
Page Orientation: °	Scale Factor:

True North

0 100 200 300 400 500 600 700 800
Metres

BURNSIDE

Client
BOLTON OPTION 3 LANDOWNERS GROUP

Map Title
BOLTON ZONE 7 OPTION 3

OPTION 3 - MDD + FIRE FLOW WITH BOOSTER PUMPING STATION
SCENARIO 4

Drawn	Checked	Date	Map No.
RW	JLL	2023/05/10	3
Scale		Project No.	
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File Path: C:\Users\RWatson\Documents\230515 Bolton OP3 Infowater Update\230515 Bolton OP3 Infowater Update.apvx Print Date: 2023/05/15 Time: 08:02 PM

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Datum:	
Coord. System:	
Projection:	
Central Meridian:	
False Easting: m	False Northing: m
Page Orientation: °	Scale Factor:

True North

0 100 200 300 400 500 600 700 800
Metres

BURNSIDE

Client
BOLTON OPTION 3 LANDOWNERS GROUP

Map Title
BOLTON ZONE 7 OPTION 3
OPTION 3 - MDD WITH BOOSTER PUMPING STATION
SCENARIO 4

Drawn	Checked	Date	Map No.
RW	JLL	2023/05/15	4
Scale		Project No.	
H 1:5000		300034976	

File Path: C:\Users\RWatson\Documents\230515 Bolton OP3 Infowater Update\230515 Bolton OP3 Infowater Update.apvx Print Date: 2023/05/15 Time: 09:29 AM