P.O. Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

Item No. Info Item 2
North West Community Council
September 25, 2023

TO: Chair and Members of North West Community Council

SUBMITTED BY: [redacted]

Cathie O'Toole, Chief Administrative Officer

DATE: August 21, 2023

SUBJECT: **Bedford West Water Quality Monitoring Spring 2023 Results**

INFORMATION REPORT

ORIGIN

Bedford Municipal Planning Strategy, Bedford West Secondary Planning Strategy, Policies BW-3, BW-4, and BW-5. Development Agreements between the Halifax Regional Municipality and West Bedford Holdings Ltd, and between Halifax Regional Municipality and Cresco Ltd.

LEGISLATIVE AUTHORITY

The Halifax Regional Municipality Charter, Part VIII, Planning and Development, Section 240, Development Agreements.

BACKGROUND

The Bedford West area is one of three areas designated as existing growth areas under the Regional Plan for serviced development (municipal water and wastewater systems). The Bedford West area is approximately 1,052 hectares (2,600 acres) in size and located on the west side of the Bicentennial Highway, in the vicinity of Hammonds Plains Road and Kearney Lake Road. In 2006, the Bedford West Secondary Planning Strategy (BWSPS) was adopted with the policy directive to enable new mixed-use communities while ensuring their design considered protection of the natural environment. *Figure 1* illustrates the areas encompassed by the BWSPS. Sub Areas 2 to 9 have approved development agreements and are either constructed or under construction. Sub Areas 1, 10 and 12 are Special Planning Areas designated through the Province of Nova Scotia's *Housing in the Halifax Regional Municipality Act*.

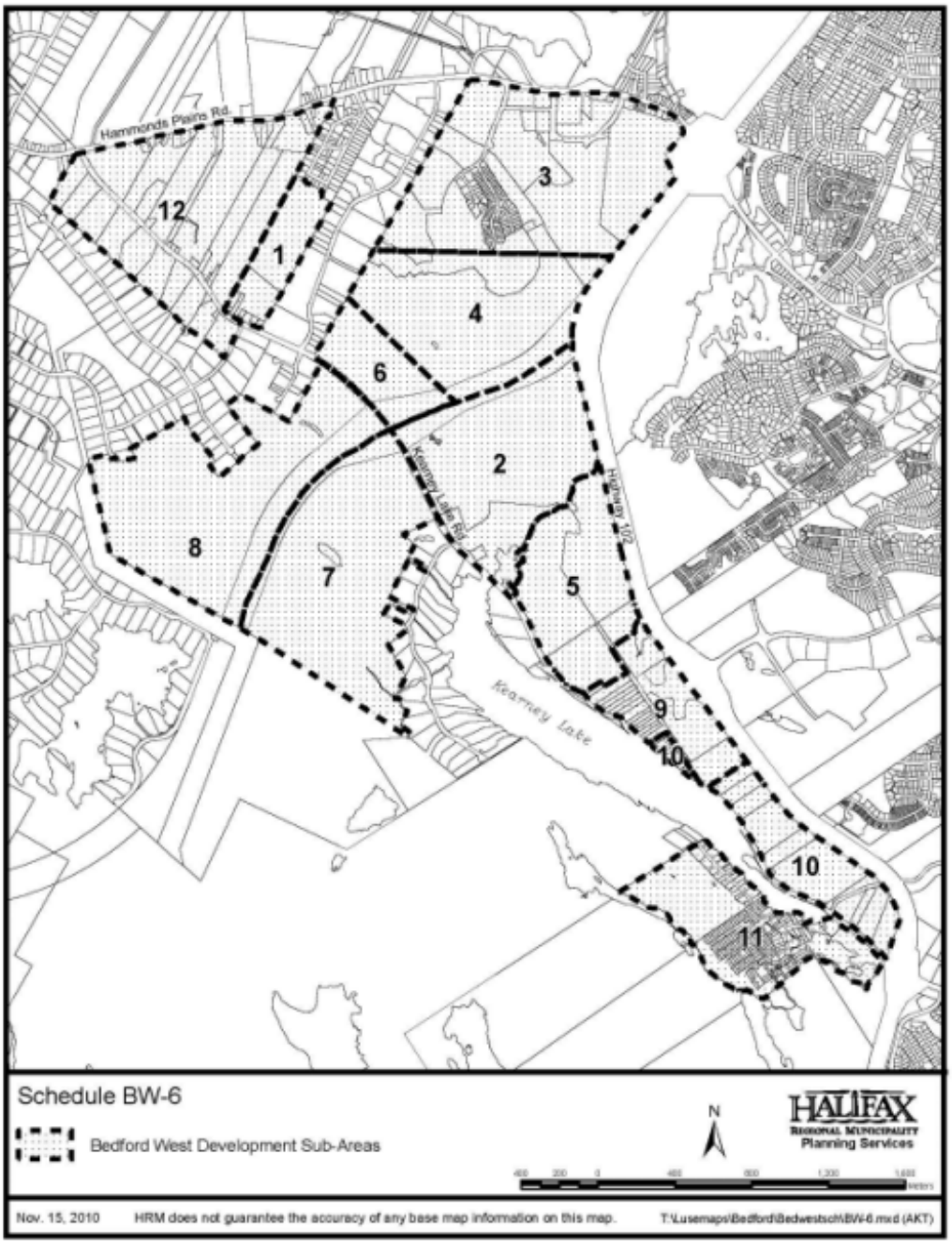

Figure 1: Sub Areas identified under the Bedford West Secondary Planning Strategy.

Policy BW-3 of the BWSPS requires a water quality monitoring program for the Paper Mill Lake watershed to track the eutrophication process. Eutrophication is the process of nutrient enrichment in lakes. This process can happen naturally, through the accumulation of biological material. However, the eutrophication process is often accelerated through the impacts of human activities contributing excess nutrients to a lake, typically through the application of chemical fertilizers, and through land disturbances from development process. This results in relatively rapid changes in trophic state, from lower states (fewer nutrients) to higher states (more nutrients), with corresponding changes in appearance, functional uses, ecosystem health and amenity values.

The water quality monitoring program was specified in the BWSPS in response to the Municipality's statement "that best management practices may be needed both during development and afterward to maintain water quality in the lakes" and "that a water quality monitoring program be established on lakes throughout the watershed" as published in the BWSPS in 2006.[1]

The terms of the monitoring program are specified within the Development Agreements that have been negotiated in consultation with the former Bedford Watershed Advisory Board (Sub Areas 1-9). This board was dissolved in 2013 and replaced with the broader Regional Watersheds Advisory Board (RWAB). All development agreements for the Beford West subdivision negotiated since 2013 have been negotiated instead in consultation with RWAB, with the exception of those identified as Special Planning Areas.

All such Development Agreements have identified the value of 10 micrograms per litre (µ/L) of total phosphorus (TP) as a "trigger value," representing the transition point between the second-lowest trophic state (oligotrophic) to the next-highest trophic state (mesotrophic) per Environment Canada Criteria (*Table 1*).

Table 1: Summary of Canadian trophic status trigger ranges. Environment Canada (2004)

Trophic Status	TP (µ/L)
Ultra-oligotrophic	< 4
Oligotrophic	4-10
Mesotrophic	10-20
Meso-eutrophic	20-35
Eutrophic	35-100
Hyper-eutrophic	> 100

Threshold values for acceptable *E. coli* concentration under the terms of the Bedford West Development Agreements conform to Health Canada's Guidelines for Canadian Recreational Water Quality.[2] Threshold values for other parameters monitored under the terms of the Bedford West Development Agreements conform to Canadian Council of Environment Ministers (CCME) Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME FAL).[3]

In accordance with the terms for the Bedford West Development Agreements, the Municipality is required to submit test results to the Developer, the North West Community Council (NWCC), and RWAB within three months of being received from the consultant, or immediately, if TP or bacterial results exceed management thresholds identified therein.

In cases where an exceedance is noted, staff can request confirmation testing and corrective action by the developer. Further assessments and corrective actions being undertaken by staff are described in the discussion section of this report.

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[1] The Bedford West Secondary Planning Strategy can be found online here: THE BEDFORD WEST SECONDARY PLANNING STRATEGY.pdf (halifax.ca)
[2] Health Canada's Guidelines for Canadian Recreational Water Quality can be found online here: Guidelines for Canadian Recreational Water Quality – Third Edition - Canada.ca
3 CCME Water Quality Guidelines for the Protection of Freshwater Aquatic Life can be found online here: Canadian Council of Ministers of the Environment | Le Conseil canadien des ministres de l'environment (ccme.ca)

DISCUSSION

The purpose of this report is to share the results of the water quality monitoring program in the Paper Mill Lake watershed undertaken as part of the Bedford West Development Agreements on June 13, 2023. Typically, the spring sampling event takes place in late May, but access to several sampling locations was limited due to ongoing wildfires and active evacuation orders in the area at that time.

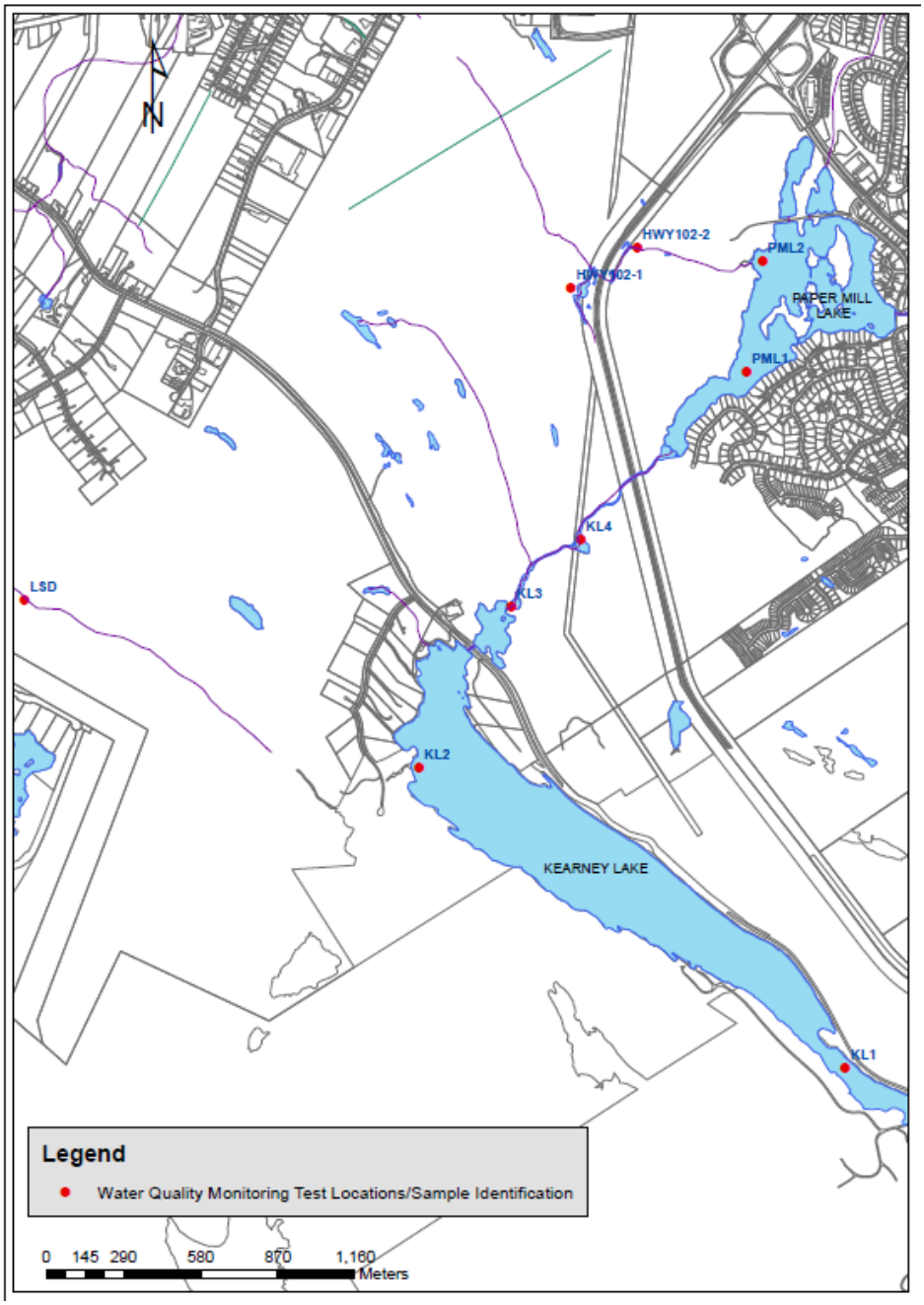

Figure 2: Sampling locations in the Bedford West Water Quality Monitoring Program.

Sampling results are included as Attachment A. No exceedances of phosphorus (10 µg/L) or *E. coli* (200

CFU/100mL) were observed at any location during the spring 2023 sampling event. Other water quality parameters were measured that exceed thresholds set in the CCME FAL guidelines. These values are tabulated in Attachment B.

Of note are aluminum concentrations, which were significantly above the guideline (5 µg/L at pH <6.5, using 100 µg/L based on average pH) at every location except HWY102-1.[4] Aluminum concentrations in exceedance of the guideline value ranged from 111 µg/L at sampling site LU to 335 µg/L at sampling site LSD (sites identified in *Figure 2*). These values are slightly higher than in previous years, but aluminum concentrations in excess of the guideline values have been consistently observed in this watershed prior to the start of development activities. Aluminum concentration in a lake depends on pH, with aluminum solubility being lowest between 5.5 and 6.0. Heavy rain prior to sampling, and higher than average water temperatures, in addition to the effects of development activities, could also contribute to these higher concentrations. The effects of lake recovery, a positive phenomenon in which increasing surface water pH is being observed in Nova Scotia as a result of a reduction of the effects of acid rain, can be expected to contribute to some increase in aluminum concentrations. Aluminum can have toxic effects on fish in concentrations above the guideline level.

The next monitoring event for 2023 will be conducted in August, with the final 2023 sampling event taking place in October. Results will be reported within three months of their receipt by staff, as per the conditions stated in the development agreements.

FINANCIAL IMPLICATIONS

There are no financial implications for this report.

COMMUNITY ENGAGEMENT

No community engagement was required for this report.

ATTACHMENTS

Attachment A: Spring 2023 Water Quality Monitoring Results
Attachment B: Spring 2023 Exceedances

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Elizabeth Montgomery, Water Resources Specialist, Property, Fleet & Environment, 902.943.1954

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[4] These Sample IDs are incorrectly labelled as HWY 101-1 and HWY 101-2 in the lab results sheets included in Attachment A.

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

CLIENT NAME: WSP E&I CANADA LIMITED
50 TROOP AVENUE, UNIT 300
DARTMOUTH, NS B3B1Z1
(902) 468-2848
ATTENTION TO: Joyce MacDonald
PROJECT: TE201017.1000
AGAT WORK ORDER: 23X035482
MICROBIOLOGY ANALYSIS REVIEWED BY: Ashleigh Dussault, Inorganics Laboratory Supervisor
WATER ANALYSIS REVIEWED BY: Ashleigh Dussault, Inorganics Laboratory Supervisor
DATE REPORTED: Jun 22, 2023
PAGES (INCLUDING COVER): 17
VERSION*: 2

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

VERSION 2:Version 2 supersedes Version 1. Workorder 23X035482, Version 1 issued June 22, 2023. The complete total metals scan was added to all samples. June 28, 2023 BS.

AGAT Laboratories
11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

CLIENT NAME: WSP E&I CANADA LIMITED

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

Total Coliforms and E.coli Membrane Filtration

DATE RECEIVED: 2023-06-13

DATE REPORTED: 2023-06-22

			SAMPLE DESCRIPTION:	PML-2	PML-1	HWY101-1	LU	KL-5	KL-1	KL-3	KL-4
			SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:	2023-06-13 08:00	2023-06-13 08:20	2023-06-13 09:30	2023-06-13 10:10	2023-06-13 10:42	2023-06-13 10:57	2023-06-13 11:20	2023-06-13 11:35
Parameter	Unit	G / S	RDL	5062474	5062495	5062496	5062497	5062498	5062499	5062500	5062501
Total Coliforms (MF)	CFU/100 mL		1	>200	>200	>200	>200	>200	>200	>200	>200
E. Coli (MF)	CFU/100 mL		1	3	3	24	9	2	17	11	12

		SAMPLE DESCRIPTION:	KL-2	LSD	HWY101-2
		SAMPLE TYPE:	Water	Water	Water
		DATE SAMPLED:	2023-06-13 12:05	2023-06-13 12:46	2023-06-13 13:30
Parameter	Unit	G / S RDL	5062502	5062503	5062504
Total Coliforms (MF)	CFU/100 mL	1	>200	>200	>200
E. Coli (MF)	CFU/100 mL	1	20	4	3

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: [redacted]

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PROJECT: TE201017.1000

CLIENT NAME: WSP E&I CANADA LIMITED

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

AGAT Halifax - Low Level Total Phosphorous- 0.002mg/L

DATE RECEIVED: 2023-06-13

DATE REPORTED: 2023-06-22

		SAMPLE DESCRIPTION:		PML-2	PML-1	HWY101-1	LU	KL-5	KL-1	KL-3	KL-4
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-06-13 08:00	2023-06-13 08:20	2023-06-13 09:30	2023-06-13 10:10	2023-06-13 10:42	2023-06-13 10:57	2023-06-13 11:20	2023-06-13 11:35
Parameter	Unit	G / S	RDL	5062474	5062495	5062496	5062497	5062498	5062499	5062500	5062501
Total Phosphorus	mg/L		0.002	0.008	0.007	0.007	0.008	0.008	0.008	0.008	0.008

		SAMPLE DESCRIPTION:		KL-2	LSD	HWY101-2
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2023-06-13 12:05	2023-06-13 12:46	2023-06-13 13:30
Parameter	Unit	G / S	RDL	5062502	5062503	5062504
Total Phosphorus	mg/L		0.002	0.008	0.008	0.007

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5062474-5062504 Total Phosphorous RDL is the calculated MDL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: [redacted]

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Dartmouth, Nova Scotia
CANADA B3B 1M2
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PROJECT: TE201017.1000

CLIENT NAME: WSP E&I CANADA LIMITED

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2023-06-13

DATE REPORTED: 2023-06-22

SAMPLE DESCRIPTION:				PML-2	PML-1		HWY101-1		LU		KL-5
SAMPLE TYPE:				Water	Water		Water		Water		Water
DATE SAMPLED:				2023-06-13 08:00	2023-06-13 08:20		2023-06-13 09:30		2023-06-13 10:10		2023-06-13 10:42
Parameter	Unit	G / S	RDL	5062474	5062495	RDL	5062496	RDL	5062497	RDL	5062498
pH				6.33	6.24		6.46		6.45		6.26
Reactive Silica as SiO2	mg/L		0.5	2.2	1.9	0.5	1.7	0.5	3.2	0.5	2.0
Chloride	mg/L		1	61	59	2	125	5	164	1	60
Fluoride	mg/L		0.12	<0.12	<0.12	0.12	<0.12	0.60	<0.60	0.12	<0.12
Sulphate	mg/L		2	8	8	2	17	10	26	2	8
Alkalinity	mg/L		5	7	6	5	21	5	13	5	6
True Color	TCU		5.00	11.5	17.4	5.00	9.16	5.00	10.0	5.00	10.8
Turbidity	NTU		0.50	0.79	0.93	0.50	0.77	0.50	1.27	0.50	0.95
Electrical Conductivity	umho/cm		1	248	238	1	479	1	666	1	230
Nitrate + Nitrite as N	mg/L		0.05	0.26	0.26	0.05	0.36	0.05	2.81	0.05	0.14
Nitrate as N	mg/L		0.05	0.26	0.26	0.05	0.30	0.25	2.81	0.05	0.14
Nitrite as N	mg/L		0.05	<0.05	<0.05	0.05	0.06	0.25	<0.25	0.05	<0.05
Ammonia as N	mg/L		0.03	<0.03	<0.03	0.03	<0.03	0.03	<0.03	0.03	<0.03
Total Organic Carbon	mg/L		0.5	6.5	6.2	0.5	10.6	0.5	8.1	0.5	6.0
Ortho-Phosphate as P	mg/L		0.01	0.01	0.01	0.01	0.01	0.01	<0.01	0.01	0.01
Total Sodium	mg/L		0.1	36.5	37.5	0.1	68.3	0.1	105	0.1	35.5
Total Potassium	mg/L		0.1	1.1	1.0	0.1	2.2	0.1	2.8	0.1	0.8
Total Calcium	mg/L		0.1	7.2	6.8	0.1	18.7	0.1	18.3	0.1	6.0
Total Magnesium	mg/L		0.1	1.1	1.2	0.1	2.7	0.1	2.6	0.1	1.0
Bicarb. Alkalinity (as CaCO3)	mg/L		5	7	6	5	21	5	13	5	6
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	10	<10	10	<10	10	<10
Hydroxide	mg/L		5	<5	<5	5	<5	5	<5	5	<5
Calculated TDS	mg/L		1	121	119	1	248	1	339	1	116
Hardness	mg/L			22.5	21.9		57.8		56.4		19.1
Langelier Index (@20C)	NA			-3.56	-3.74		-2.57		-2.81		-3.78
Langelier Index (@ 4C)	NA			-3.88	-4.06		-2.89		-3.13		-4.10
Saturation pH (@ 20C)	NA			9.89	9.98		9.03		9.26		10.0
Saturation pH (@ 4C)	NA			10.2	10.3		9.35		9.58		10.4
Anion Sum	me/L			2.05	1.97		4.33		5.63		1.99

Certified By: [redacted]

AGAT Laboratories
11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
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Certificate of Analysis

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

CLIENT NAME: WSP E&I CANADA LIMITED

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2023-06-13

DATE REPORTED: 2023-06-22

		SAMPLE DESCRIPTION:		PML-2	PML-1		HWY101-1		LU		KL-5
		SAMPLE TYPE:		Water	Water		Water		Water		Water
		DATE SAMPLED:		2023-06-13 08:00	2023-06-13 08:20		2023-06-13 09:30		2023-06-13 10:10		2023-06-13 10:42
Parameter	Unit	G / S	RDL	5062474	5062495	RDL	5062496	RDL	5062497	RDL	5062498
Cation sum	me/L			2.09	2.12		4.20		5.78		1.97
% Difference/ Ion Balance	%			1.0	3.6		1.5		1.4		0.5
Total Aluminum	ug/L		5	154	154	5	84	5	111	5	171
Total Antimony	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Total Arsenic	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Total Barium	ug/L		5	23	21	5	112	5	99	5	13
Total Beryllium	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Total Bismuth	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Total Boron	ug/L		5	9	7	5	14	5	16	5	6
Total Cadmium	ug/L		0.09	<0.09	<0.09	0.09	<0.09	0.09	0.10	0.09	<0.09
Total Chromium	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Total Cobalt	ug/L		1	<1	<1	1	<1	1	<1	1	<1
Total Copper	ug/L		2	<2	<2	2	<2	2	3	2	<2
Total Iron	ug/L		50	93	87	50	144	50	124	50	90
Total Lead	ug/L		0.5	<0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5	<0.5
Total Manganese	ug/L		2	31	27	2	14	2	27	2	36
Total Molybdenum	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Total Nickel	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Total Phosphorous	mg/L		0.07	0.46	0.46	0.07	0.40	0.07	0.80	0.07	0.40
Total Selenium	ug/L		1	<1	<1	1	<1	1	<1	1	<1
Total Silver	ug/L		0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	0.1	<0.1
Total Strontium	ug/L		5	33	34	5	95	5	83	5	30
Total Thallium	ug/L		0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	0.1	<0.1
Total Tin	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Total Titanium	ug/L		3	9	<3	3	<3	3	<3	3	<3
Total Uranium	ug/L		0.2	<0.2	<0.2	0.2	<0.2	0.2	<0.2	0.2	<0.2
Total Vanadium	ug/L		2	<2	<2	2	<2	2	<2	2	<2
Total Zinc	ug/L		5	<5	5	5	8	5	30	5	6

Certified By: [redacted]

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SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2023-06-13

DATE REPORTED: 2023-06-22

SAMPLE DESCRIPTION:				KL-1	KL-3	KL-4	KL-2	LSD		HWY101-2
SAMPLE TYPE:				Water	Water	Water	Water	Water		Water
DATE SAMPLED:				2023-06-13 10:57	2023-06-13 11:20	2023-06-13 11:35	2023-06-13 12:05	2023-06-13 12:46		2023-06-13 13:30
Parameter	Unit	G / S	RDL	5062499	5062500	5062501	5062502	5062503	RDL	5062504
pH				6.20	6.22	6.22	6.33	6.40		6.25
Reactive Silica as SiO2	mg/L		0.5	1.7	2.0	2.0	2.3	1.6	0.5	2.4
Chloride	mg/L		1	60	60	59	17	41	2	87
Fluoride	mg/L		0.12	<0.12	<0.12	<0.12	<0.12	<0.12	0.12	<0.12
Sulphate	mg/L		2	8	8	8	6	5	2	11
Alkalinity	mg/L		5	6	6	6	7	13	5	6
True Color	TCU		5.00	10.5	10.4	17.5	53.7	13.5	5.00	14.7
Turbidity	NTU		0.50	1.30	1.09	1.26	0.91	2.89	0.50	0.72
Electrical Conductivity	umho/cm		1	227	228	227	95	175	1	456
Nitrate + Nitrite as N	mg/L		0.05	0.12	0.21	0.23	0.08	0.11	0.05	0.05
Nitrate as N	mg/L		0.05	0.12	0.21	0.23	0.08	0.11	0.05	0.05
Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05
Ammonia as N	mg/L		0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	<0.03
Total Organic Carbon	mg/L		0.5	6.3	6.4	6.5	10.9	8.8	0.5	7.6
Ortho-Phosphate as P	mg/L		0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
Total Sodium	mg/L		0.1	37.0	34.3	34.6	12.0	24.3	0.1	71.3
Total Potassium	mg/L		0.1	0.7	0.9	0.9	0.8	1.1	0.1	1.3
Total Calcium	mg/L		0.1	6.0	6.9	6.6	4.4	6.4	0.1	11.7
Total Magnesium	mg/L		0.1	1.0	1.1	1.1	1.0	1.4	0.1	1.8
Bicarb. Alkalinity (as CaCO3)	mg/L		5	6	6	6	7	13	5	6
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10	<10	<10	10	<10
Hydroxide	mg/L		5	<5	<5	<5	<5	<5	5	<5
Calculated TDS	mg/L		1	117	116	115	46	88	1	188
Hardness	mg/L			19.1	21.8	21.0	15.1	21.7		36.6
Langelier Index (@20C)	NA			-3.84	-3.76	-3.78	-3.74	-3.26		-3.52
Langelier Index (@ 4C)	NA			-4.16	-4.08	-4.10	-4.06	-3.58		-3.84
Saturation pH (@ 20C)	NA			10.0	9.98	10.0	10.1	9.66		9.77
Saturation pH (@ 4C)	NA			10.4	10.3	10.3	10.4	9.98		10.1
Anion Sum	me/L			1.99	1.99	1.97	0.75	1.53		2.81

Certified By: [redacted]

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ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2023-06-13

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		SAMPLE DESCRIPTION:		KL-1	KL-3	KL-4	KL-2	LSD		HWY101-2
		SAMPLE TYPE:		Water	Water	Water	Water	Water		Water
		DATE SAMPLED:		2023-06-13 10:57	2023-06-13 11:20	2023-06-13 11:35	2023-06-13 12:05	2023-06-13 12:46		2023-06-13 13:30
Parameter	Unit	G / S	RDL	5062499	5062500	5062501	5062502	5062503	RDL	5062504
Cation sum	me/L			2.04	1.97	1.97	0.89	1.57		3.89
% Difference/ Ion Balance	%			1.3	0.5	0.1	8.4	1.5		16.2
Total Aluminum	ug/L		5	216	167	165	295	335	5	117
Total Antimony	ug/L		2	<2	<2	<2	<2	<2	2	<2
Total Arsenic	ug/L		2	<2	<2	<2	<2	<2	2	<2
Total Barium	ug/L		5	13	18	19	17	12	5	115
Total Beryllium	ug/L		2	<2	<2	<2	<2	<2	2	<2
Total Bismuth	ug/L		2	<2	<2	<2	<2	<2	2	<2
Total Boron	ug/L		5	<5	6	<5	8	14	5	6
Total Cadmium	ug/L		0.09	<0.09	<0.09	<0.09	<0.09	<0.09	0.09	<0.09
Total Chromium	ug/L		2	<2	<2	<2	<2	<2	2	<2
Total Cobalt	ug/L		1	<1	<1	<1	<1	<1	1	<1
Total Copper	ug/L		2	<2	<2	<2	<2	<2	2	2
Total Iron	ug/L		50	154	93	121	248	410	50	348
Total Lead	ug/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5
Total Manganese	ug/L		2	57	30	35	25	82	2	65
Total Molybdenum	ug/L		2	<2	<2	<2	<2	<2	2	<2
Total Nickel	ug/L		2	<2	<2	<2	<2	<2	2	<2
Total Phosphorous	mg/L		0.07	0.41	0.46	0.43	0.56	0.43	0.07	0.50
Total Selenium	ug/L		1	<1	<1	<1	<1	<1	1	<1
Total Silver	ug/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Total Strontium	ug/L		5	31	33	32	20	28	5	59
Total Thallium	ug/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Total Tin	ug/L		2	<2	<2	<2	<2	<2	2	<2
Total Titanium	ug/L		3	<3	<3	<3	<3	6	3	<3
Total Uranium	ug/L		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2
Total Vanadium	ug/L		2	<2	<2	<2	<2	<2	2	<2
Total Zinc	ug/L		5	7	7	5	<5	5	5	9

Certified By: [redacted]

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

CLIENT NAME: WSP E&I CANADA LIMITED

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2023-06-13

DATE REPORTED: 2023-06-22

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5062474-5062501 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.
pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result

5062502 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.
pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result
The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

5062503 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.
pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result

5062504 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.
pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result
Ion Balance is biased high, contributing parameters have been confirmed.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: [redacted]

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

CLIENT NAME: WSP E&I CANADA LIMITED

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

TKN

DATE RECEIVED: 2023-06-13

DATE REPORTED: 2023-06-22

		SAMPLE DESCRIPTION:		PML-2	PML-1	HWY101-1	LU	KL-5	KL-1	KL-3	KL-4
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-06-13 08:00	2023-06-13 08:20	2023-06-13 09:30	2023-06-13 10:10	2023-06-13 10:42	2023-06-13 10:57	2023-06-13 11:20	2023-06-13 11:35
Parameter	Unit	G / S	RDL	5062474	5062495	5062496	5062497	5062498	5062499	5062500	5062501
Total Kjeldahl Nitrogen	mg/L		0.10	<0.10	<0.10	0.16	0.28	<0.10	<0.10	<0.10	<0.10

		SAMPLE DESCRIPTION:		KL-2	LSD	HWY101-2
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2023-06-13 12:05	2023-06-13 12:46	2023-06-13 13:30
Parameter	Unit	G / S	RDL	5062502	5062503	5062504
Total Kjeldahl Nitrogen	mg/L		0.10	0.11	0.29	0.10

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: [redacted]

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
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Certificate of Analysis

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

CLIENT NAME: WSP E&I CANADA LIMITED

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

TSS

DATE RECEIVED: 2023-06-13 **DATE REPORTED: 2023-06-22**

		SAMPLE DESCRIPTION:		PML-2	PML-1	HWY101-1	LU	KL-5	KL-1	KL-3	KL-4
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-06-13 08:00	2023-06-13 08:20	2023-06-13 09:30	2023-06-13 10:10	2023-06-13 10:42	2023-06-13 10:57	2023-06-13 11:20	2023-06-13 11:35
Parameter	Unit	G / S	RDL	5062474	5062495	5062496	5062497	5062498	5062499	5062500	5062501
Total Suspended Solids	mg/L		5	<5	<5	<5	<5	<5	<5	<5	<5

		SAMPLE DESCRIPTION:		KL-2	LSD	HWY101-2
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2023-06-13 12:05	2023-06-13 12:46	2023-06-13 13:30
Parameter	Unit	G / S	RDL	5062502	5062503	5062504
Total Suspended Solids	mg/L		5	<5	<5	<5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

5062474-5062504 pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: [redacted]

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP E&I CANADA LIMITED

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: Jun 22, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Coliforms and E.coli Membrane Filtration															
Total Coliforms (MF)	1		>200	>200	0.0%	< 1									
E. Coli (MF)	1		12	10	18.2%	< 1									

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Quality Assurance

CLIENT NAME: WSP E&I CANADA LIMITED
AGAT WORK ORDER: 23X035482
PROJECT: TE201017.1000
ATTENTION TO: Joyce MacDonald
SAMPLING SITE:
SAMPLED BY:

Water Analysis

RPT Date: Jun 22, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
TSS															
Total Suspended Solids	5064848		<5	<5	NA	< 5	105%	80%	120%				103%	80%	120%
Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.															
Standard Water Analysis + Total Metals															
pH	5064301		6.60	6.44	2.4%	<	101%	80%	120%						
Reactive Silica as SiO2	5062865		11.0	11.3	2.9%	< 0.5	89%	80%	120%	104%	80%	120%	99%	80%	120%
Chloride	5060217		40	41	4.5%	< 1	91%	80%	120%	NA	80%	120%	NA	70%	130%
Fluoride	5060217		<0.12	<0.12	NA	< 0.12	104%	80%	120%	NA	80%	120%	96%	70%	130%
Sulphate	5060217		<2	<2	NA	< 2	111%	80%	120%	NA	80%	120%	94%	70%	130%
Alkalinity	5064301		31	26	17.8%	< 5	88%	80%	120%						
True Color	5062788		<5.00	<5.00	NA	<5	105%	80%	120%	107%	80%	120%			
Turbidity	5064301		0.58	0.59	NA	< 0.5	NA	80%	120%						
Electrical Conductivity	5064301		124	124	0.2%	< 1	98%	90%	110%						
Nitrate as N	5060217		<0.05	<0.05	NA	< 0.05	100%	80%	120%	NA	80%	120%	87%	70%	130%
Nitrite as N	5060217		<0.05	<0.05	NA	< 0.05	101%	80%	120%	NA	80%	120%	90%	70%	130%
Ammonia as N	5062604		<0.03	<0.03	NA	< 0.03	97%	80%	120%	99%	80%	120%	112%	70%	130%
Total Organic Carbon	5062091		19.6	19.4	1.0%	< 0.5	94%	80%	120%	NA	80%	120%	NA	80%	120%
Ortho-Phosphate as P	5062865		0.01	<0.01	NA	< 0.01	107%	80%	120%	98%	80%	120%	104%	80%	120%
Total Sodium	5063657		14.6	15.0	3.3%	< 0.1	98%	80%	120%	99%	80%	120%	98%	70%	130%
Total Potassium	5063657		1.1	1.2	4.4%	< 0.1	98%	80%	120%	98%	80%	120%	97%	70%	130%
Total Calcium	5063657		32.9	33.3	1.2%	< 0.1	94%	80%	120%	96%	80%	120%	94%	70%	130%
Total Magnesium	5063657		3.1	3.2	3.8%	< 0.1	98%	80%	120%	100%	80%	120%	98%	70%	130%
Bicarb. Alkalinity (as CaCO3)	5064301		31	26	17.8%	< 5	NA	80%	120%						
Carb. Alkalinity (as CaCO3)	5064301		<10	<10	NA	< 10	NA	80%	120%						
Hydroxide	5064301		<5	<5	NA	< 5	NA	80%	120%						
Total Aluminum	5063657		20	14	NA	< 5	98%	80%	120%	99%	80%	120%	98%	70%	130%
Total Antimony	5063657		<2	<2	NA	< 2	87%	80%	120%	90%	80%	120%	90%	70%	130%
Total Arsenic	5063657		<2	<2	NA	< 2	98%	80%	120%	97%	80%	120%	99%	70%	130%
Total Barium	5063657		23	24	NA	< 5	95%	80%	120%	94%	80%	120%	96%	70%	130%
Total Beryllium	5063657		<2	<2	NA	< 2	93%	80%	120%	93%	80%	120%	96%	70%	130%
Total Bismuth	5063657		<2	<2	NA	< 2	101%	80%	120%	101%	80%	120%	100%	70%	130%
Total Boron	5063657		<5	6	NA	< 5	93%	80%	120%	94%	80%	120%	95%	70%	130%
Total Cadmium	5063657		<0.09	<0.09	NA	< 0.09	96%	80%	120%	95%	80%	120%	97%	70%	130%
Total Chromium	5063657		<2	<2	NA	< 1	99%	80%	120%	99%	80%	120%	98%	70%	130%
Total Cobalt	5063657		<1	<1	NA	< 1	100%	80%	120%	101%	80%	120%	98%	70%	130%
Total Copper	5063657		4	4	NA	< 1	100%	80%	120%	101%	80%	120%	99%	70%	130%
Total Iron	5063657		<50	<50	NA	< 50	99%	80%	120%	99%	80%	120%	99%	70%	130%
Total Lead	5063657		<0.5	<0.5	NA	< 0.5	100%	80%	120%	100%	80%	120%	99%	70%	130%
Total Manganese	5063657		<2	<2	NA	< 2	99%	80%	120%	99%	80%	120%	99%	70%	130%

AGAT Laboratories

11 Morris Drive, Unit 122
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CANADA B3B 1M2
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Quality Assurance

CLIENT NAME: WSP E&I CANADA LIMITED

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Jun 22, 2023

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Molybdenum	5063657		<2	<2	NA	< 2	95%	80%	120%	96%	80%	120%	96%	70%	130%
Total Nickel	5063657		<2	<2	NA	< 2	100%	80%	120%	101%	80%	120%	100%	70%	130%
Total Phosphorous	5063657		1.35	1.49	9.8%	< 0.02	95%	80%	120%	102%	80%	120%	108%	70%	130%
Total Selenium	5063657		<1	<1	NA	< 1	100%	80%	120%	95%	80%	120%	106%	70%	130%
Total Silver	5063657		<0.1	<0.1	NA	< 0.1	97%	80%	120%	97%	80%	120%	96%	70%	130%
Total Strontium	5063657		218	226	3.6%	< 5	98%	80%	120%	98%	80%	120%	96%	70%	130%
Total Thallium	5063657		<0.1	<0.1	NA	< 0.1	99%	80%	120%	98%	80%	120%	99%	70%	130%
Total Tin	5063657		<2	<2	NA	< 2	96%	80%	120%	98%	80%	120%	97%	70%	130%
Total Titanium	5063657		<3	<3	NA	< 2	100%	80%	120%	102%	80%	120%	98%	70%	130%
Total Uranium	5063657		0.3	0.3	NA	< 0.2	98%	80%	120%	97%	80%	120%	100%	70%	130%
Total Vanadium	5063657		<2	<2	NA	< 2	99%	80%	120%	98%	80%	120%	97%	70%	130%
Total Zinc	5063657		61	63	3.9%	< 5	99%	80%	120%	99%	80%	120%	100%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.
TOC Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

TKN

Total Kjeldahl Nitrogen	5063068		0.71	0.71	1.0%	< 0.10	101%	70%	130%	102%	80%	120%	105%	70%	130%

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

AGAT Halifax - Low Level Total Phosphorous- 0.002mg/L

Total Phosphorus	5066272		0.030	0.031	3.3%	< 0.002	99%	70%	130%	100%	80%	120%	99%	70%	130%

AGAT Halifax - Low Level Total Phosphorous- 0.002mg/L

Total Phosphorus	5062500	5062500	0.008	0.008	NA	< 0.002	104%	70%	130%	96%	80%	120%	97%	70%	130%

Certified By:

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP E&I CANADA LIMITED

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Total Coliforms (MF)	MIC-121-7002	Sm 9222 H	MF/INCUBATOR
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR

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Method Summary

CLIENT NAME: WSP E&I CANADA LIMITED

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO2	INOR-121-6027	SM 4500-SiO2 F	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6008	SM 2120 B	LACHAT FIA
Turbidity	INOR-121-6001	SM 2130 B	PC TITRATE
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH3 H	COLORIMETER
Total Organic Carbon	INOR-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INOR-121-6012	SM 4500-P G	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Potassium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance	CALCULATION	SM 1030E	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP-MS
Total Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

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CANADA B3B 1M2
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Method Summary

CLIENT NAME: WSP E&I CANADA LIMITED

AGAT WORK ORDER: 23X035482

PROJECT: TE201017.1000

ATTENTION TO: Joyce MacDonald

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Phosphorous	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Kjeldahl Nitrogen	INOR-93-6048	modified from EPA 351.2 and SM 4500-NORG D	LACHAT FIA
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC

AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2
webearth.agatlabs.com • www.agatlabs.com
P: 902.468.8718 • F: 902.468.8924

Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: 14.4, 16.4, 9.6
Hold Time:
AGAT Job Number: 23X035482 23JUN13 2:48PM
Notes:

Report Information

Company: WSP E&I
Contact: Joyce MacDonald
Address: Unit 300, 50 Troop Ave.
Phone: 902-468-2848 Fax:
Client Project #: TE201017.1000
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Joyce MacDonald
   Email: joyce.macdonald@wsp.com
2. Name:
   Email:

Report Format

☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)

Regular TAT ☑ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required:

Invoice To

Same Yes ☑ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/Credit Card#:

Regulatory Requirements (Check):

☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☐ No Salt Water Sample ☐ Yes ☐ No
Reg. No.:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: ☑ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☒ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ~~MPN~~ ☑ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: Chlorophyll a (Innotech)	Other: cation scan (Ca, Mg, K, Na)	Hazardous (Y/N)
PML-2	08:00	water	7	13 June, 2023		✓	✓				✓	✓	✓										✓		✓	✓	✓	
PML-1	08:20	↓	↓	↓		✓	✓				✓	✓	✓										✓		✓	✓	✓	
HWY102-1	09:30					✓	✓				✓	✓	✓										✓		✓	✓	✓	
LU	10:10					✓	✓				✓	✓	✓										✓		✓	✓	✓	
KL-5	10:42					✓	✓				✓	✓	✓										✓		✓	✓	✓	
KL-1	10:57					✓	✓				✓	✓	✓										✓		✓	✓	✓	
KL-3	11:20					✓	✓				✓	✓	✓										✓		✓	✓	✓	
KL-4	11:35					✓	✓				✓	✓	✓										✓		✓	✓	✓	
KL-2	12:05					✓	✓				✓	✓	✓										✓		✓	✓	✓	
LSD	12:46					✓	✓				✓	✓	✓										✓		✓	✓	✓	
HWY102-2	13:30	↓	↓	↓		✓	✓				✓	✓	✓										✓		✓	✓	✓	

Samples Relinquished By (Print Name): Nicclos Graham / Jordan Murphy
Date/Time: 13 June, 2023
Samples Relinquished By (Sign): [redacted]
Date/Time: 14:40
Samples Received By [redacted]
Date/Time:
Date/Time:

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 1 of 1
Nº: 75597

Document ID: DIV-133-1502.002
Date revised: May 19, 2016

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Accounts Payable
AGAT Laboratories Ltd
11 Morris Dr. Unit 122

Dartmouth
NS B3B 1M2

INVOICE: Accounts Payable
11 Morris Dr. Unit 122

Dartmouth
NS B3B 1M2

CLIENT SAMPLE ID: HWY101-1

Matrix: Water

CANISTER ID:

PRIORITY: Normal

DESCRIPTION:

DATE SAMPLED: 13-Jun-23 9:30

DATE RECEIVED: 15-Jun-23

REPORT CREATED: 29-Jun-23

REPORT NUMBER: 23060230

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-003	Chlorophylla (Phytoplankton)		1.3	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
HWY101-2		Water	13-Jun-23 13:30

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-011	Chlorophylla (Phytoplankton)		0.4	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
KL-1		Water	13-Jun-23 10:57

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-006	Chlorophylla (Phytoplankton)		2.1	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
KL-2		Water	13-Jun-23 12:05

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-009	Chlorophylla (Phytoplankton)		0.6	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
KL-3		Water	13-Jun-23 11:20

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-007	Chlorophylla (Phytoplankton)		1.0	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
KL-4		Water	13-Jun-23 11:35

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-008	Chlorophylla (Phytoplankton)		2.0	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
KL-5		Water	13-Jun-23 10:42

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-005	Chlorophylla (Phytoplankton)		1.4	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LSD		Water	13-Jun-23 12:46

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-010	Chlorophylla (Phytoplankton)		11.0	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LU		Water	13-Jun-23 10:10

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-004	Chlorophylla (Phytoplankton)		3.0	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PML-1		Water	13-Jun-23 8:20

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-002	Chlorophylla (Phytoplankton)		1.2	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PML-2		Water	13-Jun-23 8:00

DESCRIPTION:

REPORT NUMBER: 23060230 **REPORT CREATED:** 29-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060230-001	Chlorophylla (Phytoplankton)		1.6	ug/L	0.3	AC-020	26-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 29, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

Revision History

Order ID	Ver	Date	Reason
23060230	01	29-Jun-23	Report created

Methods

Method	Description
AC-020	Chlorophyll-a Phytoplankton (Fluorometric Analysis)

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Order Comments

23060230

Project #: 23X035482

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Sample Comments

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	PML
Client:	Halifax Regional Munipality		
Site:	Bedford west	Site ID:	PML - 2
Watercourse:	paper Mill Lake	Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	Clear, Sunny
Air Temperature:	17°
Cloud Cover:	None
Wildlife Sightings:	Heard birds
Site Accessibility:	Good, via canoe
Site Access Detail :	Same as previous events.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	08:00
Sample Depth (m):	Surface water
pH:	7.00
Dissolved Oxygen (mg/L):	~~99~~ 9.19
Secchi Depth (m):	can see bottom, no secchi
Water Temp (degrees C):	18.2
Conductivity (µs/cm):	SPC - 256.7 } 223.1

Additional Comments/Notes

PML-2

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	PML
Client:	Halifax Regional Munipality		
Site:	Bedford West	Site ID:	PML-1
Watercourse:	Paper Mill Lake	Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	17°, Clear, Sunny
Air Temperature:	17°
Cloud Cover:	None
Wildlife Sightings:	Duck, deer birds
Site Accessibility:	Good, via canoe
Site Access Detail :	Same as previous events.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	08:20
Sample Depth (m):	Surface waters
pH:	6.80
Dissolved Oxygen (mg/L):	9.16
Secchi Depth (m):	Can see bottom
Water Temp (degrees C):	17.6
Conductivity (µs/cm):	240.5 SPC } 206.3 C

Additional Comments/Notes

PML-1

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	
Client:	Halifax Regional Munipality		
Site:	Bedford West	Site ID:	Hwy 102-1
Watercourse:		Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	Sunny, Clear
Air Temperature:	18°
Cloud Cover:	None
Wildlife Sightings:	Birds, Frogs
Site Accessibility:	Good, walked
Site Access Detail :	Same as previous events. Close to busy highway

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	09:30
Sample Depth (m):	Surface water
pH:	6.84
Dissolved Oxygen (mg/L):	5.88
Secchi Depth (m):	Can see bottom
Water Temp (degrees C):	15.9
Conductivity (µs/cm):	473.3 SPC & 392.1 C

Additional Comments/Notes

Hwy 102-1

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	
Client:	Halifax Regional Munipality		
Site:	Bedford west	Site ID:	LH
Watercourse:	LH	Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	Sunny clear
Air Temperature:	20°
Cloud Cover:	None
Wildlife Sightings:	Trout
Site Accessibility:	Okay
Site Access Detail :	Same as previous events.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	10:10
Sample Depth (m):	Surface water
pH:	6.79
Dissolved Oxygen (mg/L):	9.02
Secchi Depth (m):	N/A
Water Temp (degrees C):	18.3
Conductivity (µs/cm):	661 SPC & 577 C

Additional Comments/Notes

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	
Client:	Halifax Regional Munipality		
Site:	Bedford West	Site ID:	KL-5
Watercourse:	Kearney Lake	Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	Clear, Sunny
Air Temperature:	21°
Cloud Cover:	None
Wildlife Sightings:	None
Site Accessibility:	Good
Site Access Detail :	Same as previous events.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	10:42
Sample Depth (m):	Surface waters
pH:	7.24
Dissolved Oxygen (mg/L):	7.68 / 78.7 %
Secchi Depth (m):	can see bottom
Water Temp (degrees C):	21.0°
Conductivity (µs/cm):	233.3 SPC { 215.6 C

Additional Comments/Notes

KL-5

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	
Client:	Halifax Regional Munipality		
Site:	Bedford West	Site ID:	BWKL-1
Watercourse:	Kearney Lake	Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	Sunny, Clear
Air Temperature:	21°
Cloud Cover:	None
Wildlife Sightings:	Geese
Site Accessibility:	Good
Site Access Detail :	Same as previous events.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	10:57
Sample Depth (m):	Surface water
pH:	~~6.77~~ 6.48
Dissolved Oxygen (mg/L):	9.13 / 100.7 %
Secchi Depth (m):	See bottom
Water Temp (degrees C):	19.6
Conductivity (µs/cm):	230.8 SPC } 207.6 C

Additional Comments/Notes

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	
Client:	Halifax Regional Munipality		
Site:	Bedford West	Site ID:	KL-3
Watercourse:	Kearney Lake Stream	Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	Sunny, clear
Air Temperature:	21°
Cloud Cover:	None
Wildlife Sightings:	Birds
Site Accessibility:	Good
Site Access Detail :	Same as previous events.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	11:20
Sample Depth (m):	Surface Water
pH:	6.73
Dissolved Oxygen (mg/L):	9.14 / 97.0 %
Secchi Depth (m):	See bottom
Water Temp (degrees C):	17.8
Conductivity (µs/cm):	230.2 SPC / 198.0 C

Additional Comments/Notes

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	
Client:	Halifax Regional Munipality		
Site:	Bedford West	Site ID:	KL-4
Watercourse:	nearney Lake Stream	Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	Sunny, clear
Air Temperature:	21°
Cloud Cover:	None
Wildlife Sightings:	Birds
Site Accessibility:	Good
Site Access Detail :	Same as previous events.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	11:35
Sample Depth (m):	Surface water
pH:	6.63
Dissolved Oxygen (mg/L):	6.26 / 66.3%
Secchi Depth (m):	see bottom
Water Temp (degrees C):	17.7
Conductivity (µs/cm):	245.8 SPC } 211.2 C

Additional Comments/Notes

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	
Client:	Halifax Regional Munipality		
Site:		Site ID:	KL-2
Watercourse:		Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	Sunny, Clear
Air Temperature:	22°C
Cloud Cover:	10 %
Wildlife Sightings:	Fish Jumping up stream
Site Accessibility:	Good
Site Access Detail :	Same as previous events. Some Poison Ivy.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	12:05
Sample Depth (m):	Surface Water
pH:	6.33
Dissolved Oxygen (mg/L):	7.88 (83.0 %)
Secchi Depth (m):	N/A
Water Temp (degrees C):	17.5 °C
Conductivity (µs/cm):	C = 84.0 MS/cm & SPC = 98.4 MS/cm.

Additional Comments/Notes

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	
Client:	Halifax Regional Munipality		
Site:		Site ID:	LSD
Watercourse:		Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	22°C Sunny, clear
Air Temperature:	↓
Cloud Cover:	15 %
Wildlife Sightings:	Frog, Chipmonks, Birds.
Site Accessibility:	Easy
Site Access Detail :	Same as previous events. New gravel walking trail ↳ Photos taken.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	12:46
Sample Depth (m):	Surface Water
pH:	6.39
Dissolved Oxygen (mg/L):	6.58 mg/L (69.3 %)
Secchi Depth (m):	N/A
Water Temp (degrees C):	18.2
Conductivity (µs/cm):	C= 128.2 µS/cm & SPC = 147.0 µS/cm.

Additional Comments/Notes

HRM Bedford West - Field Report Event: 2023 Spring Event

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s):	
Client:	Halifax Regional Munipality		
Site:	Bedford west	Site ID:	Hwy 102-2
Watercourse:	Hwy 102 - 2	Location:	Bedford
Sample Type:	Surface Water	No. of bottles:	7
GPS Coordinates:	Same as previous events		
Wood Field Personnel:	JM, NG		

Site Conditions

Weather:	Clear, sunny
Air Temperature:	22°
Cloud Cover:	minor clouds / hazey
Wildlife Sightings:	birds
Site Accessibility:	good
Site Access Detail :	Same as previous events.

Field Parameter Data

Date (d.m.y):	13.06.2023
Time (hh:mm):	13:30
Sample Depth (m):	Surface water
pH:	6.41
Dissolved Oxygen (mg/L):	6.66 mg/L / 69.0%
Secchi Depth (m):	See bottom
Water Temp (degrees C):	16.6
Conductivity (µs/cm):	369.4 TDS / 476.7 C

Additional Comments/Notes