



REPORT

**Environmental Compliance Approval Quarterly
Monitoring Report (November to January 2024)**
McCarthy Quarry

Submitted to:

Chris Hyde

Ontario Ministry of Environment, Conservation and Parks
Barrie District Office
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Barrie, ON L4N 5R7

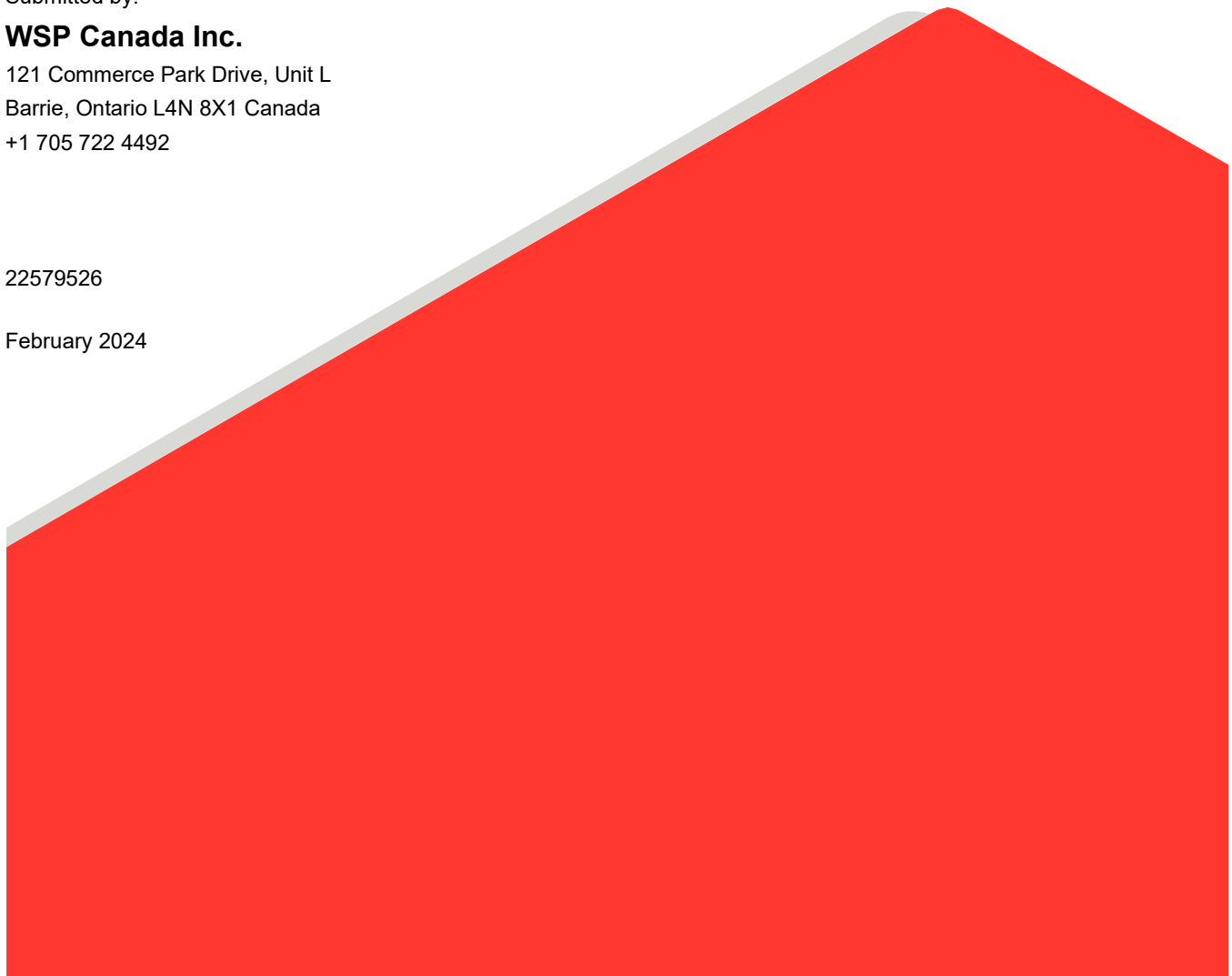
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Distribution List

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ECA No. 7737-BH6QEA

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1.0 INTRODUCTION

WSP Canada Inc. (WSP) was retained by QBJR Aggregates Inc./Green Infrastructure Partners Inc. (Green) to prepare a quarterly monitoring report for the McCarthy Quarry located in the Township of Ramara, County of Simcoe (Figure 1). The preparation of a quarterly monitoring report is a requirement of the Environmental Compliance Approval (ECA) No. 7737-BH6QEA (the 'ECA') issued on October 22, 2019. A copy of the ECA is provided in Appendix A. The following report is intended to fulfill the requirements of Section 8 (4) of the ECA and documents the results of the monitoring program activities described in Section 6 of the ECA for the period between November 2023 and January 2024.

2.0 BACKGROUND

The dewatering activities at the McCarthy Quarry in 2023 and 2024 are regulated under Permit to Take Water (PTTW) No. 1603-BKTPQH, issued on January 31, 2020 and expiring on January 31, 2025. Under PTTW No. 1603-BKTPQH QBJR/Green is permitted to pump water from the quarry sump at a maximum rate of 4,545 L/min (76 L/sec). The quarry discharge monitoring plan and effluent quality limits are established in the ECA.

The McCarthy Quarry dewatering system includes a sump originally located in the northwest corner of the quarry floor which collects groundwater and surface water (hereafter referred to as "quarry discharge") accumulating at the base of the quarry. The sump is equipped with a pump which is rated for a maximum discharge rate of up to 2,100 L/min (35 L/sec) and is attached to a discharge line. On April 11, 2023, McCarthy staff replaced the pump with a rental from Sunbelt following issues with the previous pump. This pump is rated for a maximum discharge rate of up to 1417 L/min (24 L/sec) and is attached to the discharge line. Water is pumped from the quarry floor up the quarry face via the discharge line to a pipeline that directs the water to a 14,000 m³ settling pond (Figure 1). QBJR/Green finalized set-up of a new sump location in the southeast corner of the quarry floor in March 2022 and started utilized this new sump location for pumping in April 2022. The initial sump location was creating operational issues as QBJR/Green was not able to properly dewater the southern portion of the quarry. In addition, the previous set up was very inefficient due to the length of piping required from the sump to the horse-shoe shaped settling pond. The new sump location is shown on the attached Figure 1; QBJR/Green has also adjusted the discharge piping that runs from the pump to the horse-shoe shaped settling pond. No changes were made to the discharge pond. The settling pond is equipped with a Hickenbottom control structure via which the water discharges to the roadside ditch along Concession Road 1. The water flows eastward along the north side of Concession Road 1 to a municipal drain and eventually discharges to the Talbot River approximately 1.1 km downstream of the Quarry, which eventually discharges into Lake Simcoe.

3.0 QUARRY DISCHARGE MONITORING PLAN

The technical requirements of the quarry discharge monitoring plan are listed in Section 4 (Effluent [quality] Limits), Section 5 (Effluent – Visual Observations), and Section 6 (Monitoring and Recording) of the ECA. The monitoring requirements consist of:

- Weekly monitoring of the effluent quality (Total Suspended Solids [TSS], oil and grease, phenolics [4AAP] and pH) at the outfall of the settling pond (labelled as SWM POND on Figure 1); and
- Semi-annual monitoring of effluent quality at three locations: 1) the SWM Pond outfall; 2) the culvert along Concession Road 1 at the McCarthy property; and 3) 260 m north of the intersection of Concession Road 1 and the Mara Eldon Boundary Road. The parameters required for semi-annual water quality monitoring (as

listed in Table 3 of the ECA) include TSS, copper, lead, nickel, zinc, arsenic, oil and grease, phenolics (4AAP), hardness (as CaCO₃), alkalinity(as CaCO₃), conductivity, pH, fluoride, chloride, nitrate (as N), nitrite (as N), sulphate, calcium, magnesium, sodium, potassium, ammonia (as N), dissolved organic carbon, iron, total Kjeldahl nitrogen, phosphorus (total), cadmium, chromium, manganese, anions (sum), cations (sum) and total dissolved solids.

The weekly quarry discharge quality sampling was conducted by McCarthy staff directly from the discharge outfall from the settling pond. However, due to a lack of discharge from the outfall during this period caused from minimal dewatering no samples were collected by McCarthy staff. The weekly water quality samples when collected are sent to Bureau Veritas Laboratories of Mississauga, Ontario for analysis. These weekly water quality results are compared to the daily concentration limits of the ECA (Table 1). A monthly average is calculated from the weekly water quality results and compared to the monthly concentration limits of the ECA (Table 2).

A weekly water quality sample was not collected from the McCarthy Pond location during the months of November 2023 to January 2024 due to limited discharge from the outfall at the pond caused by minimal dewatering during this period resulting in the water level in the settling pond not reaching high enough to allow for water to exit through the outfall of the settling pond.

4.0 MONITORING RESULTS

No analysis was carried out for the November 2023 to January 2024 monitoring period for the weekly monitoring events since there were no samples being collected during this monitoring period due to a lack of discharge from the outfall from minimal dewatering during this period resulting in the settling pond not filling high enough to allow for water to exit through the settling pond outfall. However, a water sample was collected at SW-2 in the month of November as a follow up attempt to the sampling event in October. Results of the quarry discharge and sample analysis are summarized below:

- The daily discharge rate between November 2023 to January 2024 was below the permitted rate of 4,545 L/min (76 L/sec) (Table 4).
- The semi-annual surface water quality sampling results were below the PWQO (Table 3) for the sample at SW-2. As stated in the previous quarter's report for SW-1 and Pond samples results from those were below the PWQO (Table 3) with the exception of an exceedance of Total Iron, Total Phosphorous, and Phenols at SW1. There was limited pond discharge reported at the time of sampling as well as a limited flow of water occurring at SW1. The elevated iron is likely attributed to entrained sediment in the sample. It is to be noted that exceedances for Total Phosphorous and Phenols have occurred occasionally in previous year's sampling events.

5.0 CLOSURE

We trust this report meets your current requirements. Should you have any questions please do not hesitate to contact the undersigned.

Signature Page

WSP Canada Inc.



Colin Imrie, G.I.T.
Geo-Environmental Consultant



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CSI/SM/lb

[https://golderassociates.sharepoint.com/sites/157344/project files/6 deliverables/eca nov to jan 2024/22579526-r-rev0-eca quarterly report march 1 2024 final.docx](https://golderassociates.sharepoint.com/sites/157344/project%20files/6%20deliverables/eca%20nov%20to%20jan%202024/22579526-r-rev0-eca%20quarterly%20report%20march%201%202024%20final.docx)

Tables

Table 1: McCarthy Pond Weekly Water Quality Results (November to January 2024)

Sample ID	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Daily Concentration Limit ²	McCarthy Quarry		
					Pond		
Date					-	-	-
pH	pH	n/a		6.0-9.5	-	-	-
Total Suspended Solids	mg/L	1		30	-	-	-
Total Oil and Grease	mg/L	0.5	Note 3	30	-	-	-
Phenols (4AAP)	mg/L	<0.0010		0.04	-	-	-

Notes

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.
2. Daily Concentration Limit; bolded values denote exceedances in the Environmental Compliance Approval (ECA) daily concentration limits.
3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discoloration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.
4. Results that are preceded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

Table 2: McCarthy Pond Monthly Water Quality Results (November to January 2024)

Sample ID	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Monthly Concentration Limit ²	McCarthy Quarry		
					Pond		
Date					November	December	January
Total Suspended Solids	mg/L	1		15	-	-	-
Total Oil and Grease	mg/L	0.5	Note 3	15	-	-	-
Phenols (4AAP)	mg/L	<0.0010		0.02	-	-	-

Notes

1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.
2. Monthly Concentration Limit; bolded values denote exceedances in the Environmental Compliance Approval (ECA) monthly concentration limits.
3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discoloration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.
4. Results that are preceded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).

Table 3: McCarthy Semi-Annual Water Quality Monitoring Results

Sample ID Date	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Interim PWQO ²	ECA Effluent Limits	McCarthy Quarry		
						Pond 16-Oct-23	SW1 16-Oct-23	SW2 27-Nov-23
Field Measured Parameters								
Conductivity	µS/cm					1440	1717	940
pH	n/a	n/a	6.5-8.5		6.0-9.5	8.45	8.09	7.76
Temperature	°C	n/a				9.9	9.9	3.4
Calculated Parameters								
Hardness (CaCO ₃)	mg/L	1.0				420	550	510
Inorganics								
Total Ammonia-N	mg/L	0.050				0.3	0.38	<0.050
Conductivity	ms/cm	0.001				1.70	1.90	0.940
Total Dissolved Solids	mg/L	10				940	1060	595
Fluoride (F ⁻)	mg/L	0.10				0.46	0.45	<0.10
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				1.10	1.10	0.34
Dissolved Organic Carbon	mg/L	0.50				9.1	7.5	4.8
pH	N/A		6.5-8.5		6.0-9.5	7.91	7.80	7.76
Phenols-4AAP	mg/L	0.0010	0.001		0.04	<0.0010	0.0011	<0.0010
Total Phosphorus	mg/L	0.020		0.03 ^{5b}		0.022	0.042	0.011
Total Suspended Solids	mg/L	10			30	<10	15	<10
Dissolved Sulphate (SO ₄)	mg/L	1				280	290	160
Alkalinity (Total as CaCO ₃)	mg/L	1.0				110	180	270
Dissolved Chloride (Cl)	mg/L	1				290	310	34
Nitrite (N)	mg/L	0.010				<0.010	0.018	<0.010
Nitrate (N)	mg/L	0.10				<0.10	0.23	<0.10
Petroleum Hydrocarbons								
Total Oil & Grease	mg/L	0.50	Note 3		30	.90	<0.50	1.6
Metals								
Total Arsenic (As)	ug/L	1	100	5		<1.0	<1.0	<1.0
Total Cadmium (Cd)	ug/L	0.09	0.2	0.1-0.5 ^{5d}		<0.09	<0.09	<0.090
Dissolved Calcium (Ca)	mg/L	0.05				91	140	170
Total Calcium (Ca)	ug/L	200				100000	140000	15000
Total Chromium (Cr)	ug/L	5	1-89 ^{5e}			<5.0	<5.0	<5.0
Total Copper (Cu)	ug/L	0.9	5	1-5 ^{5f}		<0.9	0.97	1.8
Total Iron (Fe)	ug/L	100	300			250	620	140
Total Lead (Pb)	ug/L	0.5	5-25 ^{5g}	1-5 ^{5h}		<0.50	<0.50	<0.50
Dissolved Magnesium (Mg)	mg/L	0.05				46	51	21.0
Total Magnesium (Mg)	ug/L	50				51000	51000	19000
Total Manganese (Mn)	ug/L	2				34	66	17
Total Nickel (Ni)	ug/L	1	25			2.0	2.2	<1.0
Dissolved Potassium (K)	mg/L	1				17.0	16.0	2.0
Total Potassium (K)	ug/L	200				19000	16000	1700
Dissolved Sodium (Na)	mg/L	0.5				160	170	19.0
Total Sodium (Na)	ug/L	100				180000	170000	16000
Total Zinc (Zn)	ug/L	5	30	20		9.4	<5.0	6.1
<p>1. Provincial Water Quality Objectives (PWQO); shaded cells denote PWQO exceedance; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.</p> <p>2. Interim Provincial Water Quality Objectives (Interim PWQO); <i>shaded cells and italics denote Interim PWQO exceedance</i>; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.</p> <p>3. The PWQO for Oil and Grease indicates that oil or petrochemicals should not be present in concentrations that: can be detected as a visible film, sheen or discoloration on the surface, can be detected by odour, can cause tainting of edible organisms, can form detectable deposits on shorelines and bottom sediments.</p> <p>4. Results that are preceded by "<" denote concentrations that are below the laboratory Reportable Detection Limit (RDL).</p>						<p>5b. <i>Phosphorus (Interim):</i> - Current scientific evidence is insufficient to develop a firm Objective at this time. - Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies: (a) To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L; (b) A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value; (c) Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.</p>		
<p>5a. <i>Aluminum (Interim):</i> - At pH 4.5 to 5.5 the Interim PWQO is 15 ug/L based on inorganic monomeric aluminum measured in clay-free samples. - At pH >5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs. - At pH >6.5 to 9.0, the Interim PWQO is 75 ug/L based on total aluminum measured in clay-free samples. - If natural background aluminum concentrations in water bodies unaffected by manmade inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level.</p>						<p>5c. <i>Beryllium:</i> If Hardness <75 mg/L (CaCO₃), use 11 ug/L If Hardness >75 mg/L (CaCO₃), use 1100 ug/L</p> <p>5d. <i>Cadmium (Interim):</i> If Hardness 0-100 mg/L (CaCO₃), then use 0.1 ug/L If Hardness >100 mg/L (CaCO₃), then use 0.5 ug/L</p> <p>5e. <i>Chromium:</i> 1 ug/L for hexavalent chromium (Cr VI) 8.9 ug/L for trivalent chromium (Cr III)</p> <p>5f. <i>Copper (Interim):</i> If Hardness as CaCO₃ (mg/L) is 0 - 20, then use 1 ug/L If Hardness as CaCO₃ (mg/L) is >20, then use 5 ug/L</p> <p>5g. <i>Lead:</i> If Alkalinity as CaCO₃ (mg/L) is < 20, use 5 ug/L If Alkalinity as CaCO₃ (mg/L) is 20 to 40, use 10 ug/L If Alkalinity as CaCO₃ (mg/L) is 40 to 80, use 20 ug/L If Alkalinity as CaCO₃ (mg/L) is > 80, use 25 ug/L</p> <p>5h. <i>Lead (Interim):</i> If Hardness as CaCO₃ (mg/L) is < 30, then use 1 ug/L If Hardness as CaCO₃ (mg/L) is 30 to 80, then use 3 ug/L If Hardness as CaCO₃ (mg/L) is > 80, then use 5 ug/L</p>		

Table 4: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,550,000	76	4,545
1-Nov-23	NO PUMP		0	0	-	-	-
2-Nov-23	NO PUMP		0	0	-	-	-
3-Nov-23	NO PUMP		0	0	-	-	-
4-Nov-23	NO PUMP		0	0	-	-	-
5-Nov-23	NO PUMP		0	0	-	-	-
6-Nov-23	7:00 AM	12:00 PM	18000	300	425,100	24	1,417
7-Nov-23	7:00 AM	12:00 PM	18000	300	425,100	24	1,417
8-Nov-23	NO PUMP		0	0	-	-	-
9-Nov-23	NO PUMP		0	0	-	-	-
10-Nov-23	NO PUMP		0	0	-	-	-
11-Nov-23	NO PUMP		0	0	-	-	-
12-Nov-23	NO PUMP		0	0	-	-	-
13-Nov-23	NO PUMP		0	0	-	-	-
14-Nov-23	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
15-Nov-23	7:00 AM	4:00 PM	32400	540	765,180	24	1,417
16-Nov-23	NO PUMP		0	0	-	-	-
17-Nov-23	NO PUMP		0	0	-	-	-
18-Nov-23	NO PUMP		0	0	-	-	-
19-Nov-23	NO PUMP		0	0	-	-	-
20-Nov-23	NO PUMP		0	0	-	-	-
21-Nov-23	NO PUMP		0	0	-	-	-
22-Nov-23	NO PUMP		0	0	-	-	-
23-Nov-23	NO PUMP		0	0	-	-	-
24-Nov-23	NO PUMP		0	0	-	-	-
25-Nov-23	NO PUMP		0	0	-	-	-
26-Nov-23	NO PUMP		0	0	-	-	-
27-Nov-23	NO PUMP		0	0	-	-	-
28-Nov-23	NO PUMP		0	0	-	-	-
29-Nov-23	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
30-Nov-23	NO PUMP		0	0	-	-	-
31-Aug-23	NO PUMP		0	0	-	-	-
1-Dec-23	NO PUMP		0	0	-	-	-
2-Dec-23	NO PUMP		0	0	-	-	-
3-Dec-23	NO PUMP		0	0	-	-	-
4-Dec-23	NO PUMP		0	0	-	-	-
5-Dec-23	NO PUMP		0	0	-	-	-
6-Dec-23	NO PUMP		0	0	-	-	-
7-Dec-23	NO PUMP		0	0	-	-	-
8-Dec-23	NO PUMP		0	0	-	-	-
9-Dec-23	NO PUMP		0	0	-	-	-
10-Dec-23	NO PUMP		0	0	-	-	-
11-Dec-23	7:00 AM	5:00 PM	36000	600	850,200	24	1,417

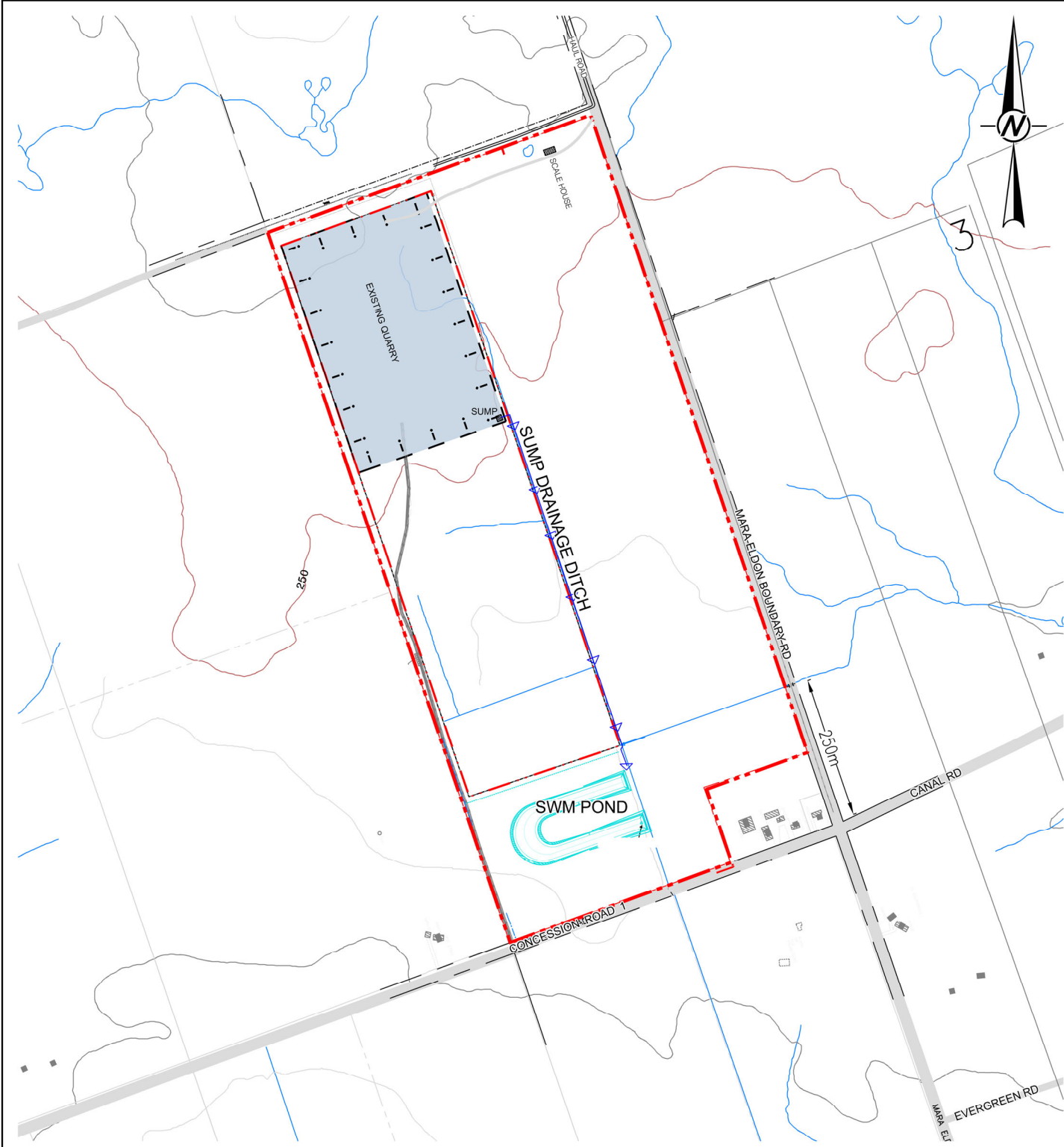
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Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,550,000	76	4,545
12-Dec-23	7:00 AM	12:00 PM	18000	300	425,100	24	1,417
13-Dec-23	NO PUMP		0	0	-	-	-
14-Dec-23	NO PUMP		0	0	-	-	-
15-Dec-23	NO PUMP		0	0	-	-	-
16-Dec-23	NO PUMP		0	0	-	-	-
17-Dec-23	NO PUMP		0	0	-	-	-
18-Dec-23	NO PUMP		0	0	-	-	-
19-Dec-23	NO PUMP		0	0	-	-	-
20-Dec-23	NO PUMP		0	0	-	-	-
21-Dec-23	NO PUMP		0	0	-	-	-
22-Dec-23	NO PUMP		0	0	-	-	-
23-Dec-23	NO PUMP		0	0	-	-	-
24-Dec-23	NO PUMP		0	0	-	-	-
25-Dec-23	NO PUMP		0	0	-	-	-
26-Dec-23	NO PUMP		0	0	-	-	-
27-Dec-23	NO PUMP		0	0	-	-	-
28-Dec-23	NO PUMP		0	0	-	-	-
29-Dec-23	NO PUMP		0	0	-	-	-
30-Dec-23	NO PUMP		0	0	-	-	-
31-Dec-23	NO PUMP		0	0	-	-	-
1-Jan-24	NO PUMP		0	0	-	-	-
2-Jan-24	NO PUMP		0	0	-	-	-
3-Jan-24	NO PUMP		0	0	-	-	-
4-Jan-24	NO PUMP		0	0	-	-	-
5-Jan-24	NO PUMP		0	0	-	-	-
6-Jan-24	NO PUMP		0	0	-	-	-
7-Jan-24	NO PUMP		0	0	-	-	-
8-Jan-24	NO PUMP		0	0	-	-	-
9-Jan-24	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
10-Jan-24	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
11-Jan-24	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
12-Jan-24	NO PUMP		0	0	-	-	-
13-Jan-24	NO PUMP		0	0	-	-	-
14-Jan-24	NO PUMP		0	0	-	-	-
15-Jan-24	NO PUMP		0	0	-	-	-
16-Jan-24	NO PUMP		0	0	-	-	-
17-Jan-24	NO PUMP		0	0	-	-	-
18-Jan-24	NO PUMP		0	0	-	-	-
19-Jan-24	NO PUMP		0	0	-	-	-
20-Jan-24	NO PUMP		0	0	-	-	-
21-Jan-24	NO PUMP		0	0	-	-	-
22-Jan-24	NO PUMP		0	0	-	-	-

Table 4: Measured Water Volume and Rate of Discharge from Quarry Sump

Date	Start	Stop	Total Sec.	Total Min.	Total Litres	Rate of Taking (L/sec)	Rate of Taking (L/min)
ECA Permitted Rate					6,550,000	76	4,545
23-Jan-24	NO PUMP		0	0	-	-	-
24-Jan-24	NO PUMP		0	0	-	-	-
25-Jan-24	NO PUMP		0	0	-	-	-
26-Jan-24	NO PUMP		0	0	-	-	-
27-Jan-24	NO PUMP		0	0	-	-	-
28-Jan-24	NO PUMP		0	0	-	-	-
29-Jan-24	7:30 AM	4:30 PM	32400	540	765,180	24	1,417
30-Jan-24	NO PUMP		0	0	-	-	-
31-Jan-24	NO PUMP		0	0	-	-	-
Totals					7,481,760		11

Figures

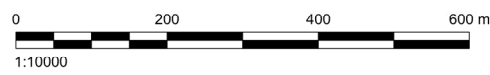


LEGEND

- - - Approximate Property Boundary
- - - Approximate Licenced Boundary
- 5 m Contour Line
- i i i Approximate Extent of Quarry

REFERENCES AND NOTES

1. Projection UTM NAD83 Zone 17
2. Mapping based on ESRI Geography Network OBM Features and Bing Orthophotos
3. ECA Location SW2 is Historically (Former) SW1b



CLIENT
GREEN INFRASTRUCTURE PARTNERS INC. / QBJR

PROJECT
STAN MCCARTHY QUARRY

TITLE
LOCATION MAP

CONSULTANT	WSP	YYYY-MM-DD	2023-05-30
PREPARED			JPR
DESIGN			
REVIEW			CI
APPROVED			

PROJECT No. **22579526** CONTROL Rev. **----** FIGURE **1**

Path: \\golder-gis\complex\data\office\Ontario\SI\MClients\Cococ_Paving\McCarthy_Quarry\95_PROD\22579526\49_PROD\0001-General\1 File Name: 22579526-0001-CH-0001.dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A 26 mm

APPENDIX A

ECA No. 7737-BH6QEA

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 7737-BH6QEA
Issue Date: October 22, 2019

QBJR Aggregates Inc.
949 Wilson Avenue
Toronto, Ontario
M3K 1G2

Site Location: McCarthy Quarry
Lot 1, Concession 1,
Original Township of Mara
Township of Ramara
County of Simcoe
L0K 1B0

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

sewage works for the collection, transmission, treatment and disposal of stormwater and groundwater collecting within the confines of the Quarry, consisting of the following:

- one (1) sump, measuring 20 metres long, 10 metres wide and 3 metres deep, located at the base of the quarry floor, equipped with two (2) submersible pumps each rated at 38 litres per second with a suction intake approximately one (1) metre above the bottom of the sump, discharging to a settling pond via a 203 millimetre diameter pipeline; and
- one (1) horse-shoe shaped settling pond with an approximate volume of 14,000 cubic metres (at elevation 248.2 metres), with a Hickenbottom control structure equipped with a 150 millimetre diameter orifice plate, discharging to the roadside ditch along Concession Road 1 with ultimate discharge to the Talbot River via a private ditch.

all other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works.

all in accordance with supporting documents listed in **Schedule A**.

For the purpose of this environmental compliance approval, the following definitions apply:

"Application" means the application for an environmental compliance approval submitted to the Ministry for approval by or on behalf of the Owner and dated August 8, 2019.

"Approval" means this environmental compliance approval, any schedules attached to it, and the Application;

"Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;

"District Manager" means the District Manager of the appropriate local District Office of the Ministry, where the Works are geographically located;

"EPA" means the *Environmental Protection Act, R.S.O. 1990, c.E.19* , as amended;

"Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;

"Owner" means QBJR Aggregates Inc., and includes its successors and assignees;

"OWRA" means the *Ontario Water Resources Act, R.S.O. 1990, c. O.40* , as amended; and

"Works" means the sewage works described in the Approval.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL CONDITION

- (1) The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the terms and conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- (2) Except as otherwise provided by these terms and conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with this Approval.
- (3) Where there is a conflict between a provision of this environmental compliance approval and any document submitted by the Owner, the conditions in this environmental compliance approval shall take precedence. Where there is a conflict between one or more of the documents submitted by the Owner, the Application shall take precedence

unless it is clear that the purpose of the document was to amend the Application

- (4) Where there is a conflict between the documents listed in the Schedule A, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.
- (5) The terms and conditions of this Approval are severable. If any term and condition of this environmental compliance approval, or the application of any requirement of this environmental compliance approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.
- (6) The issuance of, and compliance with the conditions of, this Approval does not:
 - a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority necessary to construct or operate the sewage Works; or
 - b) limit in any way the authority of the Ministry to require certain steps be taken to require the Owner to furnish any further information related to compliance with this Approval.

2. CHANGE OF OWNER

- (1) The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within **thirty (30) days** of the change occurring:
 - (a) change of address of Owner or operating authority;
 - (b) change of Owner or operating authority or both, including address of new Owner or operating authority, or both;
 - (c) change of partners where the Owner or operating authority is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act, R.S.O. 1990, c. B.17* ; and
 - (d) change of name of the corporation where the Owner or operator is or at any time becomes a corporation, and a copy of the “Initial Return” or “Notice of Change” filed under the *Corporations Information Act, R.S.O. 1990, c. C.39* , shall be included in the notification to the District Manager.
- (2) In the event of any change in ownership of the Works, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be

forwarded to the District Manager.

- (3) The Owner shall ensure that all communications made pursuant to this condition refer to the number at the top of this environmental compliance approval.

3. OPERATION AND MAINTENANCE

- (1) The Owner shall prepare an operations manual of the Works that includes, but is not limited to, the following information:
 - (a) operating procedures for routine operation of the Works;
 - (b) inspection programs, including frequency of inspection, for the Works and the methods or tests to be employed to detect when maintenance is necessary;
 - (c) repair and maintenance programs, including the frequency of repair and maintenance for the Works;
 - (d) contingency plans and procedures for dealing with a potential spill, bypasses or any other abnormal situations, including notifying the District Manager of the situation; and
 - (e) procedures for receiving and responding to public complaints.
- (2) The Owner shall ensure that the Works and related equipment and appurtenances which are installed or used to achieve compliance with this Approval are properly operated and maintained.
- (3) The Owner shall inspect the sump, discharge pump and settling pond on a monthly basis and keep a log or record of the inspections at the Quarry.
- (4) The Owner shall carry out on an as-needed basis, specific maintenance requirements like removing build-up, associated with the sump, pump and settling pond.
- (5) The Owner shall, upon identification of a loss of oil and fuel, take immediate action to prevent the further occurrence of such loss and prevent the spill from entering into the sump and/or the settling pond.
- (6) In furtherance of, but without limiting the generality of, the obligation imposed by subsection (2), the Owner shall ensure that equipment and material for the containment, clean-up and disposal of oil and fuel and materials contaminated with oil or fuel are kept on hand and in good repair for immediate use in the event of:
 - (a) loss of oil or fuel during refuelling or equipment maintenance;

- (b) a spill within the meaning of Part X of the Environmental Protection Act; and/or
- (c) the identification of an abnormal amount of oil or fuel in the sump and/or settling pond.

4. EFFLUENT LIMITS

- (1) The Owner shall construct, operate and maintain the Works such that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent from the Works.

Table 1 - Effluent Limits		
Effluent Parameter	Daily Concentration (milligrams per litre unless otherwise indicated)	Monthly Average Concentration (milligrams per litre unless otherwise indicated)
Column 1	Column 2	Column 3
Oil and Grease	30	15
Phenolics (4AAP)	0.04	0.02
Total Suspended Solids	30	15
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

- (2) For the purposes of determining compliance with and enforcing subsection (1):
 - (a) non-compliance with respect to a Daily Concentration is deemed to have occurred when any single grab sample analyzed for a parameter named in Column 1 of subsection (1) is greater than the corresponding daily concentration set out in Column 2 of subsection (1);
 - (b) non-compliance with respect to an Monthly Average Concentration is deemed to have occurred when the arithmetic mean concentration of all samples taken in a month, analyzed for a parameter named in Column 1 of subsection (1) is greater than the corresponding monthly average concentration set out in Column 3 of subsection (1); and
 - (c) non-compliance with respect to pH is deemed to have occurred when any single measurement is outside of the indicated range.

5. EFFLUENT - VISUAL OBSERVATIONS

- (1) Notwithstanding any other condition in this Approval, the Owner shall ensure that the effluent from the Works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen or foam on the receiving waters.
- (2) Notwithstanding any other condition in this Approval, the Owner shall ensure that the

effluent from the Works shall not cause flooding or erosion to the downstream receiver and in particular Road flooding.

6. MONITORING AND RECORDING

The Owner shall, upon the Issuance of this Approval, carry out the following monitoring program:

- (1) All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.
- (2) Samples shall be collected and analyzed at the following sampling point, at the sampling frequencies and using the sample type specified for each parameter listed:

Table 2 - Effluent Monitoring	
Sample Point	Outfall of settling pond approximately 150 metres north of Concession 1 (i.e. end of pipe discharge).
Frequency	Weekly
Sample Type	Grab
Parameters	Oil and Grease, Phenolics (4AAP), and Total Suspended Solid (TSS).

Table 3 - Effluent and Surface Water Monitoring	
Sample Point	<ol style="list-style-type: none"> 1. Outfall of settling pond approximately 150 metres north of Concession 1 (i.e. end of pipe discharge). 2. Box culvert on Eldon-Ramara Townline approximately 260 metres north of the intersection of Ramara Concession 1 and Eldon-Ramara Townline (i.e. upgradient of end of pipe discharge). 3. 80 centimetre CSP located at Concession 1 Road on McCarthy property (i.e. downgradient of end of pipe discharge).
Frequency	Semi-Annually during discharge event.
Sample Type	Grab
Parameters	Total Suspended Solids, Copper, Lead, Nickel, Zinc, Arsenic, Oil and Grease, Phenolics (4AAP), Hardness (as CaCO ₃), Alkalinity(as CaCO ₃), Conductivity, pH, Fluoride, Chloride, Nitrate (N), Nitrite (N), Sulphate, Calcium, Magnesium, Sodium, Potassium, Ammonia (N), Dissolved Organic Carbon, Iron, Total Kjeldahl Nitrogen, Phosphorus (Total), Cadmium, Chromium, Manganese, Anion (Sum), Cation (Sum) and Total Dissolved Solids.

- (3) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:
 - (a) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (August 1994), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions; and
 - (b) the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions.
- (4) The Owner shall measure, record and calculate the discharge rate and volume from the Works on a daily basis during discharging period.
- (5) The Owner shall retain for a minimum of **five (5) years** from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

7. RECEIVER INSPECTION

- (1) The Owner shall, at least once per year, undertake a visual inspection of the downstream ditches for evidence of erosion and/or flooding and shall report the observations in the annual report.

8. REPORTING

- (1) The Owner shall report to the District Manager or designate, any exceedance of any parameter specified in condition 4 orally, forthwith, and in writing within **seven (7) days** of the exceedance.
- (2) In addition to the obligations under Part X of the EPA, the Owner shall, within **ten (10) working days** of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.
- (3) The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.
- (4) The Owner shall submit quarterly reports of the information obtained under condition 6 within **30 days** of the end of each quarter.
- (5) The Owner shall prepare, and submit to the District Manager, a **performance report**, on

an annual basis, on or before March 31st. The reports shall contain, but shall not be limited to, the following information:

- (a) a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in condition 4, including an overview of the success and adequacy of the sewage Works;
- (b) a description of any operating problems encountered and corrective actions taken;
- (c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the sewage works;
- (d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;
- (e) any other information the District Manager requires from time to time.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. Condition 1.(6) is included to emphasize that the issuance of this Approval does not diminish any other statutory and regulatory obligations to which the Owner is subject in the construction, maintenance and operation of the Works. The Condition specifically highlights the need to obtain any necessary conservation authority approvals. The Condition also emphasizes the fact that this Approval doesn't limit the authority of the Ministry to require further information.
2. Condition 2 is included to ensure that the Ministry records are kept accurate and current with respect to approved Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the works in compliance with it.
3. Condition 3 is included to ensure that a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner and made available to the Ministry. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works. The condition is also included to ensure that the Works will be operated and maintained in a manner enabling compliance with the terms and conditions of this Approval, such that the environment is protected and deterioration, loss, injury or damage to

any person or property is minimised and/or prevented.

4. Conditions 4 and 5 are imposed to ensure that the effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver.
5. Condition 6 is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and effluent limits specified in the Approval and that the Works does not cause any impairment to the receiver.
6. Condition 7 is included in order to determine if the ongoing discharge of quarry water is having a negative impact on the downstream ditches so that abatement measures can be taken to prevent such occurrences.
7. Condition 8 is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.

SCHEDULE 'A'

1. Environmental Compliance Approval Application for Industrial Sewage Works submitted by John Easton, P.Geo., Golder Associates Ltd., and signed by Mr. Anthony Rossi, Director Land Development & Government Relations, QBJR Aggregates Inc., dated August 8, 2019; and all supporting documentation and information.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s).
4731-987KM8 issued on October 15, 2013.**

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

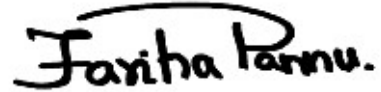
AND

The Director appointed for the purposes of Part
II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and
Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 22nd day of October, 2019



Fariha Pannu, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

AA/

c: District Manager, MECP Barrie District Office
John Easton, P.Geo., Golder Associates Ltd.

APPENDIX B

Water Quality Data



Your Project #: 22579526
 Site Location: McCarthy
 Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 CANADA L4N 8X1

Report Date: 2023/12/05
 Report #: R7942183
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3AN985

Received: 2023/11/28, 17:35

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/11/30	CAM SOP-00448	SM 24 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2023/11/30	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	1	N/A	2023/11/30	CAM SOP-00463	SM 24 4500-Cl E m
Conductivity	1	N/A	2023/11/30	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/11/30	CAM SOP-00446	SM 24 5310 B m
Fluoride	1	2023/11/29	2023/11/30	CAM SOP-00449	SM 24 4500-F C m
Hardness (calculated as CaCO3)	1	N/A	2023/12/05	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	1	2023/11/29	2023/12/05	CAM SOP-00408	EPA 6010D m
Total Metals Analysis by ICPMS	1	2023/12/04	2023/12/04	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	1	N/A	2023/12/05		
Total Ammonia-N	1	N/A	2023/11/30	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2023/11/30	CAM SOP-00440	SM 24 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	1	N/A	2023/12/04	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/12/04	2023/12/04	CAM SOP-00326	EPA1664B m,SM5520B m
pH	1	2023/11/29	2023/11/30	CAM SOP-00413	SM 24th - 4500H+ B
Phenols (4AAP)	1	N/A	2023/12/04	CAM SOP-00444	OMOE E3179 m
Orthophosphate	1	N/A	2023/11/30	CAM SOP-00461	SM 24 4500-P E
Sat. pH and Langelier Index (@ 20C)	1	N/A	2023/12/05		Auto Calc
Sat. pH and Langelier Index (@ 4C)	1	N/A	2023/12/05		Auto Calc
Sulphate by Automated Turbidimetry	1	N/A	2023/11/30	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids	1	2023/12/02	2023/12/04	CAM SOP-00428	SM 24 2540C m
Total Kjeldahl Nitrogen in Water	1	2023/11/29	2023/12/04	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/11/29	2023/11/30	CAM SOP-00407	SM 24 4500-P I
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	1	2023/12/04	2023/12/04	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2023/12/02	2023/12/04	CAM SOP-00428	SM 24 2540D m
Turbidity	1	N/A	2023/11/29	CAM SOP-00417	SM 24 2130 B

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau



Your Project #: 22579526
Site Location: McCarthy
Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2023/12/05
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CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3AN985

Received: 2023/11/28, 17:35

Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
- (2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
- (3) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Ankita Bhalla, Project Manager
Email: Ankita.Bhalla@bureauveritas.com
Phone# (905) 817-5700

=====

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

OIL & GREASE - A/V/M/T (WATER)

Bureau Veritas ID		XSS664		
Sampling Date		2023/11/27 11:00		
COC Number		958199-01-01		
	UNITS	SW2	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.90	0.50	9078961
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.6	0.50	9089040
Total Oil & Grease Mineral/Synthetic	mg/L	0.70	0.50	9089044
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XSS664			XSS664		
Sampling Date		2023/11/27 11:00			2023/11/27 11:00		
COC Number		958199-01-01			958199-01-01		
	UNITS	SW2	RDL	QC Batch	SW2 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	9.80	N/A	9079001			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	270	1.0	9079002			
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.5	1.0	9079002			
Cation Sum	me/L	11.1	N/A	9079001			
Hardness (CaCO3)	mg/L	510	1.0	9078999			
Langelier Index (@ 20C)	N/A	0.947		9078995			
Langelier Index (@ 4C)	N/A	0.699		9078996			
Saturation pH (@ 20C)	N/A	6.82		9078995			
Saturation pH (@ 4C)	N/A	7.07		9078996			
Inorganics							
Total Ammonia-N	mg/L	<0.050	0.050	9080733	<0.050	0.050	9080733
Conductivity	umho/cm	940	1.0	9081157			
Total Dissolved Solids	mg/L	595	10	9085390			
Fluoride (F-)	mg/L	<0.10	0.10	9081158			
Total Kjeldahl Nitrogen (TKN)	mg/L	0.34	0.10	9080304			
Dissolved Organic Carbon	mg/L	4.8	0.40	9079800			
Orthophosphate (P)	mg/L	<0.010	0.010	9079934			
pH	pH	7.76		9081159			
Phenols-4AAP	mg/L	<0.0010	0.0010	9088914			
Total Phosphorus	mg/L	0.011	0.004	9080669			
Total Suspended Solids	mg/L	<10	10	9085380			
Dissolved Sulphate (SO4)	mg/L	160	1.0	9079929			
Turbidity	NTU	2.2	0.1	9076129			
Alkalinity (Total as CaCO3)	mg/L	270	1.0	9081156			
Dissolved Chloride (Cl-)	mg/L	34	1.0	9079921			
Nitrite (N)	mg/L	<0.010	0.010	9079954			
Nitrate (N)	mg/L	<0.10	0.10	9079954			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable							



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XSS664			XSS664		
Sampling Date		2023/11/27 11:00			2023/11/27 11:00		
COC Number		958199-01-01			958199-01-01		
	UNITS	SW2	RDL	QC Batch	SW2 Lab-Dup	RDL	QC Batch
Metals							
Dissolved Calcium (Ca)	mg/L	170	0.05	9080152	170	0.05	9080152
Dissolved Magnesium (Mg)	mg/L	21	0.05	9080152	21	0.05	9080152
Dissolved Potassium (K)	mg/L	2	1	9080152	2	1	9080152
Dissolved Sodium (Na)	mg/L	19	0.5	9080152	19	0.5	9080152
Total Arsenic (As)	ug/L	<1.0	1.0	9088771			
Total Cadmium (Cd)	ug/L	<0.090	0.090	9088771			
Total Calcium (Ca)	ug/L	150000	200	9088771			
Total Chromium (Cr)	ug/L	<5.0	5.0	9088771			
Total Copper (Cu)	ug/L	1.8	0.90	9088771			
Total Iron (Fe)	ug/L	140	100	9088771			
Total Lead (Pb)	ug/L	<0.50	0.50	9088771			
Total Magnesium (Mg)	ug/L	19000	50	9088771			
Total Manganese (Mn)	ug/L	17	2.0	9088771			
Total Nickel (Ni)	ug/L	<1.0	1.0	9088771			
Total Potassium (K)	ug/L	1700	200	9088771			
Total Sodium (Na)	ug/L	16000	100	9088771			
Total Zinc (Zn)	ug/L	6.1	5.0	9088771			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate							



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: XSS664
Sample ID: SW2
Matrix: Water

Collected: 2023/11/27
Shipped:
Received: 2023/11/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9081156	N/A	2023/11/30	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9079002	N/A	2023/11/30	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9079921	N/A	2023/11/30	Massarat Jan
Conductivity	AT	9081157	N/A	2023/11/30	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9079800	N/A	2023/11/30	Gyulshen Idriz
Fluoride	ISE	9081158	2023/11/29	2023/11/30	Nachiketa Gohil
Hardness (calculated as CaCO3)		9078999	N/A	2023/12/05	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	9080152	2023/11/29	2023/12/05	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	9088771	2023/12/04	2023/12/04	Nan Raykha
Anion and Cation Sum	CALC	9079001	N/A	2023/12/05	Automated Statchk
Total Ammonia-N	LACH/NH4	9080733	N/A	2023/11/30	Shivani Shivani
Nitrate & Nitrite as Nitrogen in Water	LACH	9079954	N/A	2023/11/30	Viorica Rotaru
Animal and Vegetable Oil and Grease	BAL	9078961	N/A	2023/12/04	Automated Statchk
Total Oil and Grease	BAL	9089040	2023/12/04	2023/12/04	Kishan Patel
pH	AT	9081159	2023/11/29	2023/11/30	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	9088914	N/A	2023/12/04	Chloe Pollock
Orthophosphate	KONE	9079934	N/A	2023/11/30	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	9078995	N/A	2023/12/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9078996	N/A	2023/12/05	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9079929	N/A	2023/11/30	Massarat Jan
Total Dissolved Solids	BAL	9085390	2023/12/02	2023/12/04	Razieh Tabesh
Total Kjeldahl Nitrogen in Water	SKAL	9080304	2023/11/29	2023/12/04	Rajni Tyagi
Total Phosphorus (Colourimetric)	SKAL/P	9080669	2023/11/29	2023/11/30	Muskan
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9089044	2023/12/04	2023/12/04	Kishan Patel
Total Suspended Solids	BAL	9085380	2023/12/02	2023/12/04	Razieh Tabesh
Turbidity	AT	9076129	N/A	2023/11/29	Leily Karimi

Bureau Veritas ID: XSS664 Dup
Sample ID: SW2
Matrix: Water

Collected: 2023/11/27
Shipped:
Received: 2023/11/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals Analysis by ICP	ICP	9080152	2023/11/29	2023/12/05	Suban Kanapathipplai
Total Ammonia-N	LACH/NH4	9080733	N/A	2023/11/30	Shivani Shivani



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C
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Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9076129	LKI	Spiked Blank	Turbidity	2023/11/29		101	%	80 - 120
9076129	LKI	Method Blank	Turbidity	2023/11/29	<0.1		NTU	
9076129	LKI	RPD	Turbidity	2023/11/29	1.9		%	20
9079800	GID	Matrix Spike	Dissolved Organic Carbon	2023/11/30		91	%	80 - 120
9079800	GID	Spiked Blank	Dissolved Organic Carbon	2023/11/30		95	%	80 - 120
9079800	GID	Method Blank	Dissolved Organic Carbon	2023/11/30	<0.40		mg/L	
9079800	GID	RPD	Dissolved Organic Carbon	2023/11/30	3.3		%	20
9079921	MJ1	Matrix Spike	Dissolved Chloride (Cl-)	2023/11/30		NC	%	80 - 120
9079921	MJ1	Spiked Blank	Dissolved Chloride (Cl-)	2023/11/30		100	%	80 - 120
9079921	MJ1	Method Blank	Dissolved Chloride (Cl-)	2023/11/30	<1.0		mg/L	
9079921	MJ1	RPD	Dissolved Chloride (Cl-)	2023/11/30	1.2		%	20
9079929	MJ1	Matrix Spike	Dissolved Sulphate (SO4)	2023/11/30		NC	%	75 - 125
9079929	MJ1	Spiked Blank	Dissolved Sulphate (SO4)	2023/11/30		104	%	80 - 120
9079929	MJ1	Method Blank	Dissolved Sulphate (SO4)	2023/11/30	<1.0		mg/L	
9079929	MJ1	RPD	Dissolved Sulphate (SO4)	2023/11/30	0.39		%	20
9079934	MJ1	Matrix Spike	Orthophosphate (P)	2023/11/30		93	%	75 - 125
9079934	MJ1	Spiked Blank	Orthophosphate (P)	2023/11/30		94	%	80 - 120
9079934	MJ1	Method Blank	Orthophosphate (P)	2023/11/30	<1.0		mg/L	
9079934	MJ1	RPD	Orthophosphate (P)	2023/11/30	NC		%	20
9079954	VRO	Matrix Spike	Nitrite (N)	2023/11/30		98	%	80 - 120
			Nitrate (N)	2023/11/30		NC	%	80 - 120
9079954	VRO	Spiked Blank	Nitrite (N)	2023/11/30		103	%	80 - 120
			Nitrate (N)	2023/11/30		97	%	80 - 120
9079954	VRO	Method Blank	Nitrite (N)	2023/11/30	<0.010		mg/L	
			Nitrate (N)	2023/11/30	<0.10		mg/L	
9079954	VRO	RPD	Nitrite (N)	2023/11/30	0.38		%	20
			Nitrate (N)	2023/11/30	0.13		%	20
9080152	SUK	Matrix Spike [XSS664-02]	Dissolved Calcium (Ca)	2023/12/05		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2023/12/05		NC	%	80 - 120
			Dissolved Potassium (K)	2023/12/05		96	%	80 - 120
			Dissolved Sodium (Na)	2023/12/05		NC	%	80 - 120
9080152	SUK	Spiked Blank	Dissolved Calcium (Ca)	2023/12/05		98	%	80 - 120
			Dissolved Magnesium (Mg)	2023/12/05		98	%	80 - 120
			Dissolved Potassium (K)	2023/12/05		99	%	80 - 120
			Dissolved Sodium (Na)	2023/12/05		98	%	80 - 120
9080152	SUK	Method Blank	Dissolved Calcium (Ca)	2023/12/05	<0.05		mg/L	
			Dissolved Magnesium (Mg)	2023/12/05	<0.05		mg/L	
			Dissolved Potassium (K)	2023/12/05	<1		mg/L	
			Dissolved Sodium (Na)	2023/12/05	<0.5		mg/L	
9080152	SUK	RPD [XSS664-02]	Dissolved Calcium (Ca)	2023/12/05	0.71		%	20
			Dissolved Magnesium (Mg)	2023/12/05	0.049		%	20
			Dissolved Potassium (K)	2023/12/05	0.096		%	20
			Dissolved Sodium (Na)	2023/12/05	0.49		%	20
9080304	RTY	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2023/12/04		118	%	80 - 120
9080304	RTY	QC Standard	Total Kjeldahl Nitrogen (TKN)	2023/12/04		95	%	80 - 120
9080304	RTY	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2023/12/04		102	%	80 - 120
9080304	RTY	Method Blank	Total Kjeldahl Nitrogen (TKN)	2023/12/04	<0.10		mg/L	
9080304	RTY	RPD	Total Kjeldahl Nitrogen (TKN)	2023/12/04	NC		%	20
9080669	MUM	Matrix Spike	Total Phosphorus	2023/11/30		95	%	80 - 120
9080669	MUM	QC Standard	Total Phosphorus	2023/11/30		102	%	80 - 120
9080669	MUM	Spiked Blank	Total Phosphorus	2023/11/30		98	%	80 - 120



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
	9080669	MUM	Method Blank	Total Phosphorus	2023/11/30	<0.004		mg/L	
	9080669	MUM	RPD	Total Phosphorus	2023/11/30	8.4		%	20
	9080733	SSV	Matrix Spike [XSS664-08]	Total Ammonia-N	2023/11/30		104	%	75 - 125
	9080733	SSV	Spiked Blank	Total Ammonia-N	2023/11/30		101	%	80 - 120
	9080733	SSV	Method Blank	Total Ammonia-N	2023/11/30	<0.050		mg/L	
	9080733	SSV	RPD [XSS664-08]	Total Ammonia-N	2023/11/30	NC		%	20
	9081156	NGI	Spiked Blank	Alkalinity (Total as CaCO3)	2023/11/30		96	%	85 - 115
	9081156	NGI	Method Blank	Alkalinity (Total as CaCO3)	2023/11/30	<1.0		mg/L	
	9081156	NGI	RPD	Alkalinity (Total as CaCO3)	2023/11/30	0.65		%	20
	9081157	NGI	Spiked Blank	Conductivity	2023/11/30		101	%	85 - 115
	9081157	NGI	Method Blank	Conductivity	2023/11/30	<1.0		umho/cm	
	9081157	NGI	RPD	Conductivity	2023/11/30	0.051		%	10
	9081158	NGI	Matrix Spike	Fluoride (F-)	2023/11/30		101	%	80 - 120
	9081158	NGI	Spiked Blank	Fluoride (F-)	2023/11/30		104	%	80 - 120
	9081158	NGI	Method Blank	Fluoride (F-)	2023/11/30	<0.10		mg/L	
	9081158	NGI	RPD	Fluoride (F-)	2023/11/30	11		%	20
	9081159	NGI	Spiked Blank	pH	2023/11/30		102	%	98 - 103
	9081159	NGI	RPD	pH	2023/11/30	0.64		%	N/A
	9085380	RTB	Spiked Blank	Total Suspended Solids	2023/12/04		95	%	80 - 120
	9085380	RTB	Method Blank	Total Suspended Solids	2023/12/04	<10		mg/L	
	9085380	RTB	RPD	Total Suspended Solids	2023/12/04	NC		%	20
	9085390	RTB	Spiked Blank	Total Dissolved Solids	2023/12/04		100	%	80 - 120
	9085390	RTB	Method Blank	Total Dissolved Solids	2023/12/04	<10		mg/L	
	9085390	RTB	RPD	Total Dissolved Solids	2023/12/04	15		%	20
	9088771	N_R	Matrix Spike	Total Arsenic (As)	2023/12/04		98	%	80 - 120
				Total Cadmium (Cd)	2023/12/04		98	%	80 - 120
				Total Calcium (Ca)	2023/12/04		NC	%	80 - 120
				Total Chromium (Cr)	2023/12/04		96	%	80 - 120
				Total Copper (Cu)	2023/12/04		105	%	80 - 120
				Total Iron (Fe)	2023/12/04		95	%	80 - 120
				Total Lead (Pb)	2023/12/04		96	%	80 - 120
				Total Magnesium (Mg)	2023/12/04		94	%	80 - 120
				Total Manganese (Mn)	2023/12/04		92	%	80 - 120
				Total Nickel (Ni)	2023/12/04		93	%	80 - 120
				Total Potassium (K)	2023/12/04		99	%	80 - 120
				Total Sodium (Na)	2023/12/04		NC	%	80 - 120
				Total Zinc (Zn)	2023/12/04		96	%	80 - 120
	9088771	N_R	Spiked Blank	Total Arsenic (As)	2023/12/04		99	%	80 - 120
				Total Cadmium (Cd)	2023/12/04		97	%	80 - 120
				Total Calcium (Ca)	2023/12/04		96	%	80 - 120
				Total Chromium (Cr)	2023/12/04		95	%	80 - 120
				Total Copper (Cu)	2023/12/04		98	%	80 - 120
				Total Iron (Fe)	2023/12/04		96	%	80 - 120
				Total Lead (Pb)	2023/12/04		96	%	80 - 120
				Total Magnesium (Mg)	2023/12/04		94	%	80 - 120
				Total Manganese (Mn)	2023/12/04		91	%	80 - 120
				Total Nickel (Ni)	2023/12/04		94	%	80 - 120
				Total Potassium (K)	2023/12/04		98	%	80 - 120
				Total Sodium (Na)	2023/12/04		95	%	80 - 120
				Total Zinc (Zn)	2023/12/04		99	%	80 - 120
	9088771	N_R	Method Blank	Total Arsenic (As)	2023/12/04	<1.0		ug/L	



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Cadmium (Cd)	2023/12/04	<0.090		ug/L	
			Total Calcium (Ca)	2023/12/04	<200		ug/L	
			Total Chromium (Cr)	2023/12/04	<5.0		ug/L	
			Total Copper (Cu)	2023/12/04	<0.90		ug/L	
			Total Iron (Fe)	2023/12/04	<100		ug/L	
			Total Lead (Pb)	2023/12/04	<0.50		ug/L	
			Total Magnesium (Mg)	2023/12/04	<50		ug/L	
			Total Manganese (Mn)	2023/12/04	<2.0		ug/L	
			Total Nickel (Ni)	2023/12/04	<1.0		ug/L	
			Total Potassium (K)	2023/12/04	<200		ug/L	
			Total Sodium (Na)	2023/12/04	<100		ug/L	
			Total Zinc (Zn)	2023/12/04	<5.0		ug/L	
9088771	N_R	RPD	Total Arsenic (As)	2023/12/04	6.1		%	20
			Total Chromium (Cr)	2023/12/04	NC		%	20
			Total Copper (Cu)	2023/12/04	6.6		%	20
			Total Iron (Fe)	2023/12/04	1.7		%	20
			Total Zinc (Zn)	2023/12/04	3.8		%	20
9088914	CPO	Matrix Spike	Phenols-4AAP	2023/12/04		101	%	80 - 120
9088914	CPO	Spiked Blank	Phenols-4AAP	2023/12/04		99	%	80 - 120
9088914	CPO	Method Blank	Phenols-4AAP	2023/12/04	<0.0010		mg/L	
9088914	CPO	RPD	Phenols-4AAP	2023/12/04	NC		%	20
9089040	K1P	Spiked Blank	Total Oil & Grease	2023/12/04		98	%	80 - 110
9089040	K1P	RPD	Total Oil & Grease	2023/12/04	0.51		%	25
9089040	K1P	Method Blank	Total Oil & Grease	2023/12/04	<0.50		mg/L	
9089044	K1P	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/12/04		96	%	65 - 130
9089044	K1P	RPD	Total Oil & Grease Mineral/Synthetic	2023/12/04	0.52		%	25
9089044	K1P	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/12/04	<0.50		mg/L	

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



BUREAU
VERITAS

Bureau Veritas Job #: C3AN985
Report Date: 2023/12/05

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



Your Project #: 22579526
 Site Location: McCarthy
 Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 CANADA L4N 8X1

Report Date: 2023/10/26
 Report #: R7880284
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3W2968

Received: 2023/10/17, 13:00

Sample Matrix: Water
 # Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2023/10/19	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	3	N/A	2023/10/19	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	3	N/A	2023/10/23	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	3	N/A	2023/10/19	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2023/10/20	CAM SOP-00446	SM 23 5310 B m
Fluoride	3	2023/10/18	2023/10/19	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	3	N/A	2023/10/24	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	3	2023/10/18	2023/10/24	CAM SOP-00408	EPA 6010D m
Total Metals Analysis by ICPMS	1	2023/10/20	2023/10/20	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	2	2023/10/23	2023/10/23	CAM SOP-00447	EPA 6020B m
Anion and Cation Sum	3	N/A	2023/10/24		
Total Ammonia-N	3	N/A	2023/10/26	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	3	N/A	2023/10/22	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Animal and Vegetable Oil and Grease	3	N/A	2023/10/23	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	3	2023/10/23	2023/10/23	CAM SOP-00326	EPA1664B m,SM5520B m
pH	3	2023/10/18	2023/10/19	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	3	N/A	2023/10/18	CAM SOP-00444	OMOE E3179 m
Orthophosphate	3	N/A	2023/10/19	CAM SOP-00461	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	3	N/A	2023/10/24		Auto Calc
Sat. pH and Langelier Index (@ 4C)	3	N/A	2023/10/24		Auto Calc
Sulphate by Automated Turbidimetry	3	N/A	2023/10/19	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	3	2023/10/21	2023/10/23	CAM SOP-00428	SM 23 2540C m
Total Kjeldahl Nitrogen in Water	3	2023/10/20	2023/10/23	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	3	2023/10/20	2023/10/23	CAM SOP-00407	SM 23 4500-P I
Total Phosphorus (Colourimetric)	3	2023/10/20	2023/10/23	CAM SOP-00407	SM 23 4500-P I
Mineral/Synthetic O & G (TPH Heavy Oil) (3)	3	2023/10/23	2023/10/23	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	3	2023/10/21	2023/10/22	CAM SOP-00428	SM 23 2540D m
Turbidity	3	N/A	2023/10/19	CAM SOP-00417	SM 23 2130 B m



Your Project #: 22579526
Site Location: McCarthy
Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2023/10/26
Report #: R7880284
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3W2968

Received: 2023/10/17, 13:00

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested. This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
- (2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
- (3) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease



Your Project #: 22579526
Site Location: McCarthy
Your C.O.C. #: 958199-01-01

Attention: Colin Imrie

WSP Canada Inc.
121 Commerce Park Drive
Unit L
Barrie, ON
CANADA L4N 8X1

Report Date: 2023/10/26
Report #: R7880284
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3W2968

Received: 2023/10/17, 13:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Ankita Bhalla, Project Manager

Email: Ankita.Bhalla@bureauveritas.com

Phone# (905) 817-5700

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



OIL & GREASE - A/V/M/T (WATER)

Bureau Veritas ID			XHX488	XHX489	XHX490		
Sampling Date			2023/10/16 11:30	2023/10/16 11:30	2023/10/16		
COC Number			958199-01-01	958199-01-01	958199-01-01		
	UNITS	Criteria	POND	SW1	DUP3	RDL	QC Batch
Calculated Parameters							
Total Animal/Vegetable Oil and Grease	mg/L	-	0.90	<0.50	1.3	0.50	8987851
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	-	0.90	<0.50	1.3	0.50	8998542
Total Oil & Grease Mineral/Synthetic	mg/L	0.5	<0.50	<0.50	<0.50	0.50	8998544
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Provincial Water Quality Objectives							
Ref. to MOEE Water Management document dated Feb.1999							



BUREAU
VERITAS

Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			XHX488		XHX489			XHX489		
Sampling Date			2023/10/16 11:30		2023/10/16 11:30			2023/10/16 11:30		
COC Number			958199-01-01		958199-01-01			958199-01-01		
	UNITS	Criteria	POND	QC Batch	SW1	RDL	QC Batch	SW1 Lab-Dup	RDL	QC Batch

Calculated Parameters										
Anion Sum	me/L	-	16.1	8986223	18.3	N/A	8986223			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	110	8985804	170	1.0	8985804			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	<1.0	8985804	1.0	1.0	8985804			
Cation Sum	me/L	-	15.8	8986223	18.9	N/A	8986223			
Hardness (CaCO3)	mg/L	-	420	8985805	550	1.0	8985805			
Langelier Index (@ 20C)	N/A	-	0.359	8986216	0.622		8986216			
Langelier Index (@ 4C)	N/A	-	0.113	8986217	0.376		8986217			
Saturation pH (@ 20C)	N/A	-	7.55	8986216	7.18		8986216			
Saturation pH (@ 4C)	N/A	-	7.80	8986217	7.42		8986217			

Inorganics										
Total Ammonia-N	mg/L	-	0.30	9004563	0.38	0.050	9004563			
Conductivity	umho/cm	-	1700	8990881	1900	1.0	8990881	1900	1.0	8990881
Total Dissolved Solids	mg/L	-	940	8996238	1060	10	8996238			
Fluoride (F-)	mg/L	-	0.46	8990882	0.45	0.10	8990882	0.44	0.10	8990882
Total Kjeldahl Nitrogen (TKN)	mg/L	-	1.1	8995677	1.1	0.10	8995677			
Dissolved Organic Carbon	mg/L	-	9.1	8987163	7.5	0.40	8987163			
Orthophosphate (P)	mg/L	-	<0.010	8990930	<0.010	0.010	8990930			
pH	pH	6.5:8.5	7.91	8990883	7.80		8990883	7.97		8990883
Phenols-4AAP	mg/L	0.001	<0.0010	8988664	0.0011	0.0010	8988855	0.0010	0.0010	8988855
Total Phosphorus	mg/L	0.01	0.022	8996644	0.042	0.004	8996644			
Total Suspended Solids	mg/L	-	<10	8997337	15	10	8997337			
Dissolved Sulphate (SO4)	mg/L	-	280	8990929	290	1.0	8990929			
Turbidity	NTU	-	3.5	8990916	5.5	0.1	8990916			
Alkalinity (Total as CaCO3)	mg/L	-	110	8990880	180	1.0	8990880	180	1.0	8990880
Dissolved Chloride (Cl-)	mg/L	-	290	8990923	310	5.0	8990923			
Nitrite (N)	mg/L	-	<0.010	8990230	0.018	0.010	8990230			
Nitrate (N)	mg/L	-	<0.10	8990230	0.23	0.10	8990230			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	
QC Batch = Quality Control Batch	
Lab-Dup = Laboratory Initiated Duplicate	
Criteria: Ontario Provincial Water Quality Objectives	
Ref. to MOEE Water Management document dated Feb.1999	
N/A = Not Applicable	



BUREAU
VERITAS

Bureau Veritas Job #: C3W2968

Report Date: 2023/10/26

WSP Canada Inc.

Client Project #: 22579526

Site Location: McCarthy

Sampler Initials: CI

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID			XHX490			XHX490		
Sampling Date			2023/10/16			2023/10/16		
COC Number			958199-01-01			958199-01-01		
	UNITS	Criteria	DUP3	RDL	QC Batch	DUP3 Lab-Dup	RDL	QC Batch

Calculated Parameters								
Anion Sum	me/L	-	18.3	N/A	8986223			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	180	1.0	8985804			
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1.2	1.0	8985804			
Cation Sum	me/L	-	18.0	N/A	8986223			
Hardness (CaCO3)	mg/L	-	520	1.0	8985805			
Langelier Index (@ 20C)	N/A	-	0.663		8986216			
Langelier Index (@ 4C)	N/A	-	0.418		8986217			
Saturation pH (@ 20C)	N/A	-	7.20		8986216			
Saturation pH (@ 4C)	N/A	-	7.45		8986217			

Inorganics								
Total Ammonia-N	mg/L	-	0.38	0.050	9004563			
Conductivity	umho/cm	-	1900	1.0	8990881			
Total Dissolved Solids	mg/L	-	1080	10	8992857			
Fluoride (F-)	mg/L	-	0.44	0.10	8990882			
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.99	0.10	8995677	1.1	0.10	8995677
Dissolved Organic Carbon	mg/L	-	7.4	0.40	8987163			
Orthophosphate (P)	mg/L	-	<0.010	0.010	8990930	<0.010	0.010	8990930
pH	pH	6.5:8.5	7.86		8990883			
Phenols-4AAP	mg/L	0.001	0.0011	0.0010	8988855			
Total Phosphorus	mg/L	0.01	0.027	0.004	8996644			
Total Suspended Solids	mg/L	-	20	10	8995263			
Dissolved Sulphate (SO4)	mg/L	-	290	1.0	8990929	290	1.0	8990929
Turbidity	NTU	-	5.7	0.1	8990916	5.5	0.1	8990916
Alkalinity (Total as CaCO3)	mg/L	-	180	1.0	8990880			
Dissolved Chloride (Cl-)	mg/L	-	310	5.0	8990923	320	5.0	8990923
Nitrite (N)	mg/L	-	0.019	0.010	8990230			
Nitrate (N)	mg/L	-	0.24	0.10	8990230			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels
RDL = Reportable Detection Limit	
QC Batch = Quality Control Batch	
Lab-Dup = Laboratory Initiated Duplicate	
Criteria: Ontario Provincial Water Quality Objectives	
Ref. to MOEE Water Management document dated Feb.1999	
N/A = Not Applicable	



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			XHX488		XHX489	XHX490		
Sampling Date			2023/10/16 11:30		2023/10/16 11:30	2023/10/16		
COC Number			958199-01-01		958199-01-01	958199-01-01		
	UNITS	Criteria	POND	QC Batch	SW1	DUP3	RDL	QC Batch
Metals								
Dissolved Calcium (Ca)	mg/L	-	91	8990454	140	130	0.05	8990454
Dissolved Magnesium (Mg)	mg/L	-	46	8990454	51	48	0.05	8990454
Dissolved Potassium (K)	mg/L	-	17	8990454	16	16	1	8990454
Dissolved Sodium (Na)	mg/L	-	160	8990454	170	160	0.5	8990454
Total Arsenic (As)	ug/L	100	<1.0	8994213	<1.0	<1.0	1.0	8998650
Total Cadmium (Cd)	ug/L	0.2	<0.090	8994213	<0.090	<0.090	0.090	8998650
Total Calcium (Ca)	ug/L	-	100000	8994213	140000	140000	200	8998650
Total Chromium (Cr)	ug/L	-	<5.0	8994213	<5.0	<5.0	5.0	8998650
Total Copper (Cu)	ug/L	5	<0.90	8994213	0.97	0.93	0.90	8998650
Total Iron (Fe)	ug/L	300	250	8994213	620	530	100	8998650
Total Lead (Pb)	ug/L	5	<0.50	8994213	<0.50	<0.50	0.50	8998650
Total Magnesium (Mg)	ug/L	-	51000	8994213	51000	50000	50	8998650
Total Manganese (Mn)	ug/L	-	34	8994213	66	63	2.0	8998650
Total Nickel (Ni)	ug/L	25	2.0	8994213	2.2	2.2	1.0	8998650
Total Potassium (K)	ug/L	-	19000	8994213	16000	16000	200	8998650
Total Sodium (Na)	ug/L	-	180000	8994213	170000	180000	100	8998650
Total Zinc (Zn)	ug/L	30	9.4	8994213	<5.0	<5.0	5.0	8998650
No Fill	No Exceedance							
Grey	Exceeds 1 criteria policy/level							
Black	Exceeds both criteria/levels							
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Provincial Water Quality Objectives								
Ref. to MOEE Water Management document dated Feb.1999								



BUREAU
VERITAS

Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: XHX488
Sample ID: POND
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8990880	N/A	2023/10/19	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	8985804	N/A	2023/10/19	Automated Statchk
Chloride by Automated Colourimetry	KONE	8990923	N/A	2023/10/23	Massarat Jan
Conductivity	AT	8990881	N/A	2023/10/19	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8987163	N/A	2023/10/20	Gyulshen Idriz
Fluoride	ISE	8990882	2023/10/18	2023/10/19	Nachiketa Gohil
Hardness (calculated as CaCO3)		8985805	N/A	2023/10/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8990454	2023/10/18	2023/10/24	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	8994213	2023/10/20	2023/10/20	Nan Raykha
Anion and Cation Sum	CALC	8986223	N/A	2023/10/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9004563	N/A	2023/10/26	Prabhjot Kaur
Nitrate & Nitrite as Nitrogen in Water	LACH	8990230	N/A	2023/10/22	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	8987851	N/A	2023/10/23	Automated Statchk
Total Oil and Grease	BAL	8998542	2023/10/23	2023/10/23	Nikhil Dhiman
pH	AT	8990883	2023/10/18	2023/10/19	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	8988664	N/A	2023/10/18	Chloe Pollock
Orthophosphate	KONE	8990930	N/A	2023/10/19	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	8986216	N/A	2023/10/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8986217	N/A	2023/10/24	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8990929	N/A	2023/10/19	Alina Dobreanu
Total Dissolved Solids	BAL	8996238	2023/10/21	2023/10/23	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8995677	2023/10/20	2023/10/23	Kruti Jitesh Patel
Total Phosphorus (Colourimetric)	SKAL/P	8996644	2023/10/20	2023/10/23	Sachi Patel
Total Phosphorus (Colourimetric)	SKAL/P	8995179	2023/10/20	2023/10/23	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8998544	2023/10/23	2023/10/23	Nikhil Dhiman
Total Suspended Solids	BAL	8997337	2023/10/21	2023/10/22	Darshan Patel
Turbidity	AT	8990916	N/A	2023/10/19	Leily Karimi

Bureau Veritas ID: XHX489
Sample ID: SW1
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8990880	N/A	2023/10/19	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	8985804	N/A	2023/10/19	Automated Statchk
Chloride by Automated Colourimetry	KONE	8990923	N/A	2023/10/23	Massarat Jan
Conductivity	AT	8990881	N/A	2023/10/19	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8987163	N/A	2023/10/20	Gyulshen Idriz
Fluoride	ISE	8990882	2023/10/18	2023/10/19	Nachiketa Gohil
Hardness (calculated as CaCO3)		8985805	N/A	2023/10/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8990454	2023/10/18	2023/10/24	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	8998650	2023/10/23	2023/10/23	Indira HarryPaul
Anion and Cation Sum	CALC	8986223	N/A	2023/10/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9004563	N/A	2023/10/26	Prabhjot Kaur



BUREAU
VERITAS

Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: XHX489
Sample ID: SW1
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate & Nitrite as Nitrogen in Water	LACH	8990230	N/A	2023/10/22	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	8987851	N/A	2023/10/23	Automated Statchk
Total Oil and Grease	BAL	8998542	2023/10/23	2023/10/23	Nikhil Dhiman
pH	AT	8990883	2023/10/18	2023/10/19	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	8988855	N/A	2023/10/18	Chloe Pollock
Orthophosphate	KONE	8990930	N/A	2023/10/19	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	8986216	N/A	2023/10/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8986217	N/A	2023/10/24	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8990929	N/A	2023/10/19	Alina Dobreanu
Total Dissolved Solids	BAL	8996238	2023/10/21	2023/10/23	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8995677	2023/10/20	2023/10/23	Kruti Jitesh Patel
Total Phosphorus (Colourimetric)	SKAL/P	8996644	2023/10/20	2023/10/23	Sachi Patel
Total Phosphorus (Colourimetric)	SKAL/P	8995179	2023/10/20	2023/10/23	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8998544	2023/10/23	2023/10/23	Nikhil Dhiman
Total Suspended Solids	BAL	8997337	2023/10/21	2023/10/22	Darshan Patel
Turbidity	AT	8990916	N/A	2023/10/19	Leily Karimi

Bureau Veritas ID: XHX489 Dup
Sample ID: SW1
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8990880	N/A	2023/10/19	Nachiketa Gohil
Conductivity	AT	8990881	N/A	2023/10/19	Nachiketa Gohil
Fluoride	ISE	8990882	2023/10/18	2023/10/19	Nachiketa Gohil
pH	AT	8990883	2023/10/18	2023/10/19	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	8988855	N/A	2023/10/18	Chloe Pollock

Bureau Veritas ID: XHX490
Sample ID: DUP3
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	8990880	N/A	2023/10/19	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	8985804	N/A	2023/10/19	Automated Statchk
Chloride by Automated Colourimetry	KONE	8990923	N/A	2023/10/23	Massarat Jan
Conductivity	AT	8990881	N/A	2023/10/19	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	8987163	N/A	2023/10/20	Gyulshen Idriz
Fluoride	ISE	8990882	2023/10/18	2023/10/19	Nachiketa Gohil
Hardness (calculated as CaCO3)		8985805	N/A	2023/10/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	8990454	2023/10/18	2023/10/24	Suban Kanapathipplai
Total Metals Analysis by ICPMS	ICP/MS	8998650	2023/10/23	2023/10/23	Indira HarryPaul
Anion and Cation Sum	CALC	8986223	N/A	2023/10/24	Automated Statchk
Total Ammonia-N	LACH/NH4	9004563	N/A	2023/10/26	Prabhjot Kaur



BUREAU
VERITAS

Bureau Veritas Job #: C3W2968
Report Date: 2023/10/26

WSP Canada Inc.
Client Project #: 22579526
Site Location: McCarthy
Sampler Initials: CI

TEST SUMMARY

Bureau Veritas ID: XHX490
Sample ID: DUP3
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate & Nitrite as Nitrogen in Water	LACH	8990230	N/A	2023/10/22	Chandra Nandlal
Animal and Vegetable Oil and Grease	BAL	8987851	N/A	2023/10/23	Automated Statchk
Total Oil and Grease	BAL	8998542	2023/10/23	2023/10/23	Nikhil Dhiman
pH	AT	8990883	2023/10/18	2023/10/19	Nachiketa Gohil
Phenols (4AAP)	TECH/PHEN	8988855	N/A	2023/10/18	Chloe Pollock
Orthophosphate	KONE	8990930	N/A	2023/10/19	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	8986216	N/A	2023/10/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	8986217	N/A	2023/10/24	Automated Statchk
Sulphate by Automated Turbidimetry	KONE	8990929	N/A	2023/10/19	Alina Dobreanu
Total Dissolved Solids	BAL	8992857	2023/10/21	2023/10/23	Shaneil Hall
Total Kjeldahl Nitrogen in Water	SKAL	8995677	2023/10/20	2023/10/23	Kruti Jitesh Patel
Total Phosphorus (Colourimetric)	SKAL/P	8996644	2023/10/20	2023/10/23	Sachi Patel
Total Phosphorus (Colourimetric)	SKAL/P	8995179	2023/10/20	2023/10/23	Sachi Patel
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8998544	2023/10/23	2023/10/23	Nikhil Dhiman
Total Suspended Solids	BAL	8995263	2023/10/21	2023/10/22	Darshan Patel
Turbidity	AT	8990916	N/A	2023/10/19	Leily Karimi

Bureau Veritas ID: XHX490 Dup
Sample ID: DUP3
Matrix: Water

Collected: 2023/10/16
Shipped:
Received: 2023/10/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	8990923	N/A	2023/10/23	Massarat Jan
Orthophosphate	KONE	8990930	N/A	2023/10/19	Alina Dobreanu
Sulphate by Automated Turbidimetry	KONE	8990929	N/A	2023/10/19	Alina Dobreanu
Total Kjeldahl Nitrogen in Water	SKAL	8995677	2023/10/20	2023/10/23	Kruti Jitesh Patel
Turbidity	AT	8990916	N/A	2023/10/19	Leily Karimi



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C
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Results relate only to the items tested.



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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8987163	GID	Matrix Spike	Dissolved Organic Carbon	2023/10/20		92	%	80 - 120
8987163	GID	Spiked Blank	Dissolved Organic Carbon	2023/10/20		94	%	80 - 120
8987163	GID	Method Blank	Dissolved Organic Carbon	2023/10/20	<0.40		mg/L	
8987163	GID	RPD	Dissolved Organic Carbon	2023/10/20	3.0		%	20
8988664	CPO	Matrix Spike	Phenols-4AAP	2023/10/18		102	%	80 - 120
8988664	CPO	Spiked Blank	Phenols-4AAP	2023/10/18		101	%	80 - 120
8988664	CPO	Method Blank	Phenols-4AAP	2023/10/18	<0.0010		mg/L	
8988664	CPO	RPD	Phenols-4AAP	2023/10/18	NC		%	20
8988855	CPO	Matrix Spike [XHX489-04]	Phenols-4AAP	2023/10/18		102	%	80 - 120
8988855	CPO	Spiked Blank	Phenols-4AAP	2023/10/18		100	%	80 - 120
8988855	CPO	Method Blank	Phenols-4AAP	2023/10/18	<0.0010		mg/L	
8988855	CPO	RPD [XHX489-04]	Phenols-4AAP	2023/10/18	9.5		%	20
8990230	C_N	Matrix Spike	Nitrite (N)	2023/10/22		NC	%	80 - 120
			Nitrate (N)	2023/10/22		NC	%	80 - 120
8990230	C_N	Spiked Blank	Nitrite (N)	2023/10/22		105	%	80 - 120
			Nitrate (N)	2023/10/22		101	%	80 - 120
8990230	C_N	Method Blank	Nitrite (N)	2023/10/22	<0.010		mg/L	
			Nitrate (N)	2023/10/22	<0.10		mg/L	
8990230	C_N	RPD	Nitrite (N)	2023/10/22	4.0		%	20
			Nitrate (N)	2023/10/22	1.8		%	20
8990454	SUK	Matrix Spike	Dissolved Calcium (Ca)	2023/10/24		NC	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/24		NC	%	80 - 120
			Dissolved Potassium (K)	2023/10/24		101	%	80 - 120
			Dissolved Sodium (Na)	2023/10/24		NC	%	80 - 120
8990454	SUK	Spiked Blank	Dissolved Calcium (Ca)	2023/10/24		101	%	80 - 120
			Dissolved Magnesium (Mg)	2023/10/24		104	%	80 - 120
			Dissolved Potassium (K)	2023/10/24		103	%	80 - 120
			Dissolved Sodium (Na)	2023/10/24		102	%	80 - 120
8990454	SUK	Method Blank	Dissolved Calcium (Ca)	2023/10/24	<0.05		mg/L	
			Dissolved Magnesium (Mg)	2023/10/24	<0.05		mg/L	
			Dissolved Potassium (K)	2023/10/24	<1		mg/L	
			Dissolved Sodium (Na)	2023/10/24	<0.5		mg/L	
8990880	NGI	Spiked Blank	Alkalinity (Total as CaCO3)	2023/10/19		96	%	85 - 115
8990880	NGI	Method Blank	Alkalinity (Total as CaCO3)	2023/10/19	<1.0		mg/L	
8990880	NGI	RPD [XHX489-02]	Alkalinity (Total as CaCO3)	2023/10/19	1.3		%	20
8990881	NGI	Spiked Blank	Conductivity	2023/10/19		101	%	85 - 115
8990881	NGI	Method Blank	Conductivity	2023/10/19	<1.0		umho/cm	
8990881	NGI	RPD [XHX489-02]	Conductivity	2023/10/19	0.053		%	10
8990882	NGI	Matrix Spike [XHX489-02]	Fluoride (F-)	2023/10/19		92	%	80 - 120
8990882	NGI	Spiked Blank	Fluoride (F-)	2023/10/19		94	%	80 - 120
8990882	NGI	Method Blank	Fluoride (F-)	2023/10/19	<0.10		mg/L	
8990882	NGI	RPD [XHX489-02]	Fluoride (F-)	2023/10/19	0.96		%	20
8990883	NGI	Spiked Blank	pH	2023/10/19		102	%	98 - 103
8990883	NGI	RPD [XHX489-02]	pH	2023/10/19	2.2		%	N/A
8990916	LKI	Spiked Blank	Turbidity	2023/10/19		101	%	80 - 120
8990916	LKI	Method Blank	Turbidity	2023/10/19	<0.1		NTU	
8990916	LKI	RPD [XHX490-02]	Turbidity	2023/10/19	3.7		%	20
8990923	MJ1	Matrix Spike [XHX490-02]	Dissolved Chloride (Cl-)	2023/10/23		NC	%	80 - 120
8990923	MJ1	Spiked Blank	Dissolved Chloride (Cl-)	2023/10/23		97	%	80 - 120
8990923	MJ1	Method Blank	Dissolved Chloride (Cl-)	2023/10/23	<1.0		mg/L	
8990923	MJ1	RPD [XHX490-02]	Dissolved Chloride (Cl-)	2023/10/23	4.5		%	20



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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
	8990929	ADB	Matrix Spike [XHX490-02]	Dissolved Sulphate (SO4)	2023/10/19		NC	%	75 - 125
	8990929	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2023/10/19		97	%	80 - 120
	8990929	ADB	Method Blank	Dissolved Sulphate (SO4)	2023/10/19	<1.0		mg/L	
	8990929	ADB	RPD [XHX490-02]	Dissolved Sulphate (SO4)	2023/10/19	0.22		%	20
	8990930	ADB	Matrix Spike [XHX490-02]	Orthophosphate (P)	2023/10/19		91	%	75 - 125
	8990930	ADB	Spiked Blank	Orthophosphate (P)	2023/10/19		91	%	80 - 120
	8990930	ADB	Method Blank	Orthophosphate (P)	2023/10/19	<0.010		mg/L	
	8990930	ADB	RPD [XHX490-02]	Orthophosphate (P)	2023/10/19	NC		%	20
	8992857	SHD	Spiked Blank	Total Dissolved Solids	2023/10/23		100	%	90 - 110
	8992857	SHD	Method Blank	Total Dissolved Solids	2023/10/23	<10		mg/L	
	8992857	SHD	RPD	Total Dissolved Solids	2023/10/23	4.3		%	20
	8994213	N_R	Matrix Spike	Total Arsenic (As)	2023/10/20		97	%	80 - 120
				Total Cadmium (Cd)	2023/10/20		94	%	80 - 120
				Total Calcium (Ca)	2023/10/20		NC	%	80 - 120
				Total Chromium (Cr)	2023/10/20		93	%	80 - 120
				Total Copper (Cu)	2023/10/20		96	%	80 - 120
				Total Iron (Fe)	2023/10/20		95	%	80 - 120
				Total Lead (Pb)	2023/10/20		94	%	80 - 120
				Total Magnesium (Mg)	2023/10/20		94	%	80 - 120
				Total Manganese (Mn)	2023/10/20		92	%	80 - 120
				Total Nickel (Ni)	2023/10/20		90	%	80 - 120
				Total Potassium (K)	2023/10/20		100	%	80 - 120
				Total Sodium (Na)	2023/10/20		NC	%	80 - 120
				Total Zinc (Zn)	2023/10/20		93	%	80 - 120
	8994213	N_R	Spiked Blank	Total Arsenic (As)	2023/10/20		95	%	80 - 120
				Total Cadmium (Cd)	2023/10/20		94	%	80 - 120
				Total Calcium (Ca)	2023/10/20		96	%	80 - 120
				Total Chromium (Cr)	2023/10/20		94	%	80 - 120
				Total Copper (Cu)	2023/10/20		96	%	80 - 120
				Total Iron (Fe)	2023/10/20		96	%	80 - 120
				Total Lead (Pb)	2023/10/20		94	%	80 - 120
				Total Magnesium (Mg)	2023/10/20		97	%	80 - 120
				Total Manganese (Mn)	2023/10/20		93	%	80 - 120
				Total Nickel (Ni)	2023/10/20		89	%	80 - 120
				Total Potassium (K)	2023/10/20		98	%	80 - 120
				Total Sodium (Na)	2023/10/20		98	%	80 - 120
				Total Zinc (Zn)	2023/10/20		95	%	80 - 120
	8994213	N_R	Method Blank	Total Arsenic (As)	2023/10/20	<1.0		ug/L	
				Total Cadmium (Cd)	2023/10/20	<0.090		ug/L	
				Total Calcium (Ca)	2023/10/20	<200		ug/L	
				Total Chromium (Cr)	2023/10/20	<5.0		ug/L	
				Total Copper (Cu)	2023/10/20	<0.90		ug/L	
				Total Iron (Fe)	2023/10/20	<100		ug/L	
				Total Lead (Pb)	2023/10/20	<0.50		ug/L	
				Total Magnesium (Mg)	2023/10/20	<50		ug/L	
				Total Manganese (Mn)	2023/10/20	<2.0		ug/L	
				Total Nickel (Ni)	2023/10/20	<1.0		ug/L	
				Total Potassium (K)	2023/10/20	<200		ug/L	
				Total Sodium (Na)	2023/10/20	<100		ug/L	
				Total Zinc (Zn)	2023/10/20	<5.0		ug/L	
	8994213	N_R	RPD	Total Arsenic (As)	2023/10/20	1.6		%	20



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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Cadmium (Cd)	2023/10/20	NC		%	20
			Total Chromium (Cr)	2023/10/20	NC		%	20
			Total Copper (Cu)	2023/10/20	2.9		%	20
			Total Iron (Fe)	2023/10/20	2.2		%	20
			Total Lead (Pb)	2023/10/20	7.4		%	20
			Total Magnesium (Mg)	2023/10/20	0.46		%	20
			Total Nickel (Ni)	2023/10/20	17		%	20
			Total Zinc (Zn)	2023/10/20	1.4		%	20
8995179	SPC	Matrix Spike	Total Phosphorus	2023/10/23		99	%	80 - 120
8995179	SPC	QC Standard	Total Phosphorus	2023/10/23		106	%	80 - 120
8995179	SPC	Spiked Blank	Total Phosphorus	2023/10/23		107	%	80 - 120
8995179	SPC	Method Blank	Total Phosphorus	2023/10/23	<0.020		mg/L	
8995179	SPC	RPD	Total Phosphorus	2023/10/23	NC		%	20
8995263	DPC	Spiked Blank	Total Suspended Solids	2023/10/22		98	%	85 - 115
8995263	DPC	Method Blank	Total Suspended Solids	2023/10/22	<10		mg/L	
8995263	DPC	RPD	Total Suspended Solids	2023/10/22	NC		%	20
8995677	KJP	Matrix Spike [XHX490-07]	Total Kjeldahl Nitrogen (TKN)	2023/10/23		110	%	80 - 120
8995677	KJP	QC Standard	Total Kjeldahl Nitrogen (TKN)	2023/10/23		96	%	80 - 120
8995677	KJP	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2023/10/23		99	%	80 - 120
8995677	KJP	Method Blank	Total Kjeldahl Nitrogen (TKN)	2023/10/23	<0.10		mg/L	
8995677	KJP	RPD [XHX490-07]	Total Kjeldahl Nitrogen (TKN)	2023/10/23	7.0		%	20
8996238	SHD	Spiked Blank	Total Dissolved Solids	2023/10/23		98	%	90 - 110
8996238	SHD	Method Blank	Total Dissolved Solids	2023/10/23	<10		mg/L	
8996238	SHD	RPD	Total Dissolved Solids	2023/10/23	0		%	20
8996644	SPC	Matrix Spike	Total Phosphorus	2023/10/23		101	%	80 - 120
8996644	SPC	QC Standard	Total Phosphorus	2023/10/23		104	%	80 - 120
8996644	SPC	Spiked Blank	Total Phosphorus	2023/10/23		99	%	80 - 120
8996644	SPC	Method Blank	Total Phosphorus	2023/10/23	<0.004		mg/L	
8996644	SPC	RPD	Total Phosphorus	2023/10/23	9.8		%	20
8997337	DPC	Spiked Blank	Total Suspended Solids	2023/10/22		96	%	85 - 115
8997337	DPC	Method Blank	Total Suspended Solids	2023/10/22	<10		mg/L	
8997337	DPC	RPD	Total Suspended Solids	2023/10/22	NC		%	20
8998542	NDM	Spiked Blank	Total Oil & Grease	2023/10/23		98	%	85 - 115
8998542	NDM	RPD	Total Oil & Grease	2023/10/23	0.25		%	25
8998542	NDM	Method Blank	Total Oil & Grease	2023/10/23	<0.50		mg/L	
8998544	NDM	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2023/10/23		96	%	85 - 115
8998544	NDM	RPD	Total Oil & Grease Mineral/Synthetic	2023/10/23	1.0		%	25
8998544	NDM	Method Blank	Total Oil & Grease Mineral/Synthetic	2023/10/23	<0.50		mg/L	
8998650	IHP	Matrix Spike	Total Arsenic (As)	2023/10/23		102	%	80 - 120
			Total Cadmium (Cd)	2023/10/23		97	%	80 - 120
			Total Calcium (Ca)	2023/10/23		NC	%	80 - 120
			Total Chromium (Cr)	2023/10/23		96	%	80 - 120
			Total Copper (Cu)	2023/10/23		101	%	80 - 120
			Total Iron (Fe)	2023/10/23		101	%	80 - 120
			Total Lead (Pb)	2023/10/23		99	%	80 - 120
			Total Magnesium (Mg)	2023/10/23		103	%	80 - 120
			Total Manganese (Mn)	2023/10/23		94	%	80 - 120
			Total Nickel (Ni)	2023/10/23		99	%	80 - 120
			Total Potassium (K)	2023/10/23		NC	%	80 - 120
			Total Sodium (Na)	2023/10/23		101	%	80 - 120
			Total Zinc (Zn)	2023/10/23		93	%	80 - 120



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QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8998650	IHP	Spiked Blank	Total Arsenic (As)	2023/10/23	98	%	80 - 120		
			Total Cadmium (Cd)	2023/10/23	94	%	80 - 120		
			Total Calcium (Ca)	2023/10/23	95	%	80 - 120		
			Total Chromium (Cr)	2023/10/23	92	%	80 - 120		
			Total Copper (Cu)	2023/10/23	93	%	80 - 120		
			Total Iron (Fe)	2023/10/23	99	%	80 - 120		
			Total Lead (Pb)	2023/10/23	93	%	80 - 120		
			Total Magnesium (Mg)	2023/10/23	102	%	80 - 120		
			Total Manganese (Mn)	2023/10/23	95	%	80 - 120		
			Total Nickel (Ni)	2023/10/23	97	%	80 - 120		
			Total Potassium (K)	2023/10/23	99	%	80 - 120		
			Total Sodium (Na)	2023/10/23	99	%	80 - 120		
			Total Zinc (Zn)	2023/10/23	97	%	80 - 120		
			8998650	IHP	Method Blank	Total Arsenic (As)	2023/10/23	<1.0	ug/L
Total Cadmium (Cd)	2023/10/23	<0.090				ug/L			
Total Calcium (Ca)	2023/10/23	<200				ug/L			
Total Chromium (Cr)	2023/10/23	<5.0				ug/L			
Total Copper (Cu)	2023/10/23	<0.90				ug/L			
Total Iron (Fe)	2023/10/23	<100				ug/L			
Total Lead (Pb)	2023/10/23	<0.50				ug/L			
Total Magnesium (Mg)	2023/10/23	<50				ug/L			
Total Manganese (Mn)	2023/10/23	<2.0				ug/L			
Total Nickel (Ni)	2023/10/23	<1.0				ug/L			
Total Potassium (K)	2023/10/23	<200				ug/L			
Total Sodium (Na)	2023/10/23	<100				ug/L			
Total Zinc (Zn)	2023/10/23	<5.0				ug/L			
8998650	IHP	RPD				Total Arsenic (As)	2023/10/23	2.0	%
			Total Cadmium (Cd)	2023/10/23	9.1	%	20		
			Total Chromium (Cr)	2023/10/23	NC	%	20		
			Total Copper (Cu)	2023/10/23	4.3	%	20		
			Total Iron (Fe)	2023/10/23	9.7	%	20		
			Total Lead (Pb)	2023/10/23	NC	%	20		
			Total Magnesium (Mg)	2023/10/23	2.0	%	20		
			Total Manganese (Mn)	2023/10/23	14	%	20		
			Total Nickel (Ni)	2023/10/23	9.7	%	20		
			Total Zinc (Zn)	2023/10/23	11	%	20		
9004563	KPJ	Matrix Spike	Total Ammonia-N	2023/10/26	97	%	75 - 125		
9004563	KPJ	Spiked Blank	Total Ammonia-N	2023/10/26	102	%	80 - 120		
9004563	KPJ	Method Blank	Total Ammonia-N	2023/10/26	<0.050	mg/L			



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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC									
Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits	
9004563	KPJ	RPD	Total Ammonia-N	2023/10/26	6.0		%	20	
<p>N/A = Not Applicable</p> <p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.</p> <p>QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.</p> <p>Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.</p> <p>Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.</p> <p>NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)</p> <p>NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).</p>									



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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



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**Exceedance Summary Table – Prov. Water Quality Obj.
Result Exceedances**

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
POND	XHX488-07	Total Phosphorus	0.01	0.022	0.004	mg/L
POND	XHX488-07	Total Phosphorus	0.01	0.031	0.020	mg/L
SW1	XHX489-06	Total Iron (Fe)	300	620	100	ug/L
SW1	XHX489-04	Phenols-4AAP	0.001	0.0011	0.0010	mg/L
SW1	XHX489-07	Total Phosphorus	0.01	0.042	0.004	mg/L
SW1	XHX489-07	Total Phosphorus	0.01	0.049	0.020	mg/L
DUP3	XHX490-06	Total Iron (Fe)	300	530	100	ug/L
DUP3	XHX490-04	Phenols-4AAP	0.001	0.0011	0.0010	mg/L
DUP3	XHX490-07	Total Phosphorus	0.01	0.027	0.004	mg/L
DUP3	XHX490-07	Total Phosphorus	0.01	0.026	0.020	mg/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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