



August 28, 2015

MCCARTHY QUARRY

Environmental Compliance Approval Quarterly Monitoring Report (May to August)

Submitted to:

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REPORT



Report Number: 1407634

Distribution:

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Table of Contents

1.0 INTRODUCTION.....	1
2.0 BACKGROUND.....	1
3.0 EFFLUENT MONITORING RESULTS	1
4.0 EFFLUENT MONITORING RESULTS	2
5.0 SUMMARY AND RECOMMENDATIONS.....	2

FIGURES

Figure 1 – Site Map and Monitoring Locations

TABLES

- Table 1 – McCarthy Pond Weekly Water Quality Results
- Table 2 – McCarthy Pond Monthly Water Quality Results
- Table 3 – McCarthy Semi-Annual Water Quality Results
- Table 4 – Lethality Monitoring at McCarthy Pond
- Table 5 – Measured Volume and Rate of Discharge from Quarry Sump

APPENDICES

- Appendix A – ECA No. 4731-987KM8
- Appendix B – Water Quality Data



1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by QBJR/Coco Aggregates Inc. (Coco) to prepare a quarterly compliance report for the McCarthy Quarry located in the Township of Ramara, County of Simcoe (Figure 1). The Environmental Compliance Approval (ECA) No. 4731-987KM8 issued on October 15, 2013 requires this task. A copy of the ECA No. 4731-987KM8 is found in Appendix A.

The following report addresses the requirements described in Sections 7 and 8 of the ECA. Included herein are a brief background, summary and discussion of the sampling results and data collected on-site during each sampling event.

2.0 BACKGROUND

The McCarthy Quarry dewatering system consists of the collection of groundwater and surface water at the base of the quarry floor in a quarry sump which is pumped to a settling pond, at grade, to the south of the active quarry area (Figure 1). The sump is equipped with a 4-inch Grindex pump which is rated at 35 L/sec and is attached to a 4-inch (101 mm) diameter discharge line. Water is pumped from the quarry floor up the quarry face to a 4-inch (101 mm) diameter pipeline that directs the water to the 14,000 m³ settling pond. The water in the settling pond is equipped with a Hickenbottom control structure that discharges the water 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 to the Talbot River, which discharges into Lake Simcoe.

The dewatering activities from the McCarthy Quarry are currently carried out under the existing ECA No. 4731-987KM8 issued on October 15, 2013. Under the current ECA Coco is permitted to pump water from the quarry sump at a rate of 4,545 L/min (76 L/sec).

3.0 EFFLUENT MONITORING RESULTS

Weekly monitoring of the effluent is required by the ECA at three locations, as shown on Figure 1:

- The outfall of the settling pond (labelled as McCarthy Pond);
- The culvert along Concession Road 1 at the McCarthy property (SW1) downstream of the McCarthy Pond discharge location; and,
- 260 m north of the intersection of Concession Road 1 and the Mara Eldon Boundary Road (labelled as SW2) representing upstream conditions.

Weekly effluent monitoring is required per Section 7(2) for Total Suspended Solids (TSS), Oil and Grease, Phenolics (4AAP) and pH at the McCarthy Pond. Additional water quality sampling is required under Section 7(3) at a semi-annual frequency at all three locations, recognizing that, as of April 24, 2014 this monitoring was reduced from weekly sampling frequency to a semi-annual frequency following one year of quarry operation according to Section 7(7). The parameters required for semi-annual water quality monitoring at all three locations are listed in Table 3 of the ECA. Monthly acute lethality is also required at the McCarthy Pond under Section 8.

As per Section 7(8) an inline flow meter is installed in the discharge line of the sump pump in order to measure continuous flow rates. The flow rates are recorded and provided to Golder by staff at McCarthy Quarry.



The weekly effluent samples (Section 7(2)) were collected by staff at the McCarthy Quarry. The semi-annual water quality samples (Section 7(3) and Section 7(7)) were collected by Golder. Both the weekly and semi-annual water quality samples were sent to Maxxam Analytics Laboratory for analysis. Additionally, the monthly lethality samples were collected by Golder and sent to AGAT Laboratories Ltd.

4.0 EFFLUENT MONITORING RESULTS

Results of the weekly effluent monitoring are presented in Table 1; the monthly averages for the effluent monitoring are presented in Table 2; the semi-annual surface water sampling results are presented in Table 3 and the acute lethality results are presented in Table 4. All laboratory certificates of analysis for the May to August 2015 monitoring period are included in Appendix B.

An exceedance TSS occurred on July 23, 2015 at the McCarthy Pond location (Table 1) where the TSS concentration of 47 mg/L exceeded the daily concentration limit of 30 mg/L. The monthly TSS limit of 15 mg/L was also exceeded for the month of July at 18.25 mg/L (Table 2). These exceedances were reported to the District Manager, Cindy Hood. The pH, Oil and Grease and Phenol (4AAP) concentrations were all below the daily and monthly concentration limits of the ECA.

The effluent between May and August, 2015 was found to be non-lethal to rainbow trout and *Daphnia magna* (Table 4).

The rate and volume of discharge from the quarry is measured on site by an inline flow meter in the discharge line from the quarry sump. The pump records are provided by McCarthy Quarry staff. The pump records for May to August, 2015 are found in Table 6. The discharge rate between May and August, 2015 was below the permitted rate of 4,545 L/min (76 L/sec).

5.0 SUMMARY AND RECOMMENDATIONS

All samples with the exception of July 23, 2015 met the daily concentration limits of the ECA No. 4731-987KM8. The pH of the effluent was maintained between 6.0 and 9.5 and the effluent was non-lethal to rainbow trout and *Daphnia magna* at all times.



Report Signature Page

GOLDER ASSOCIATES LTD.

Jamie Bonany, M.A.Sc.
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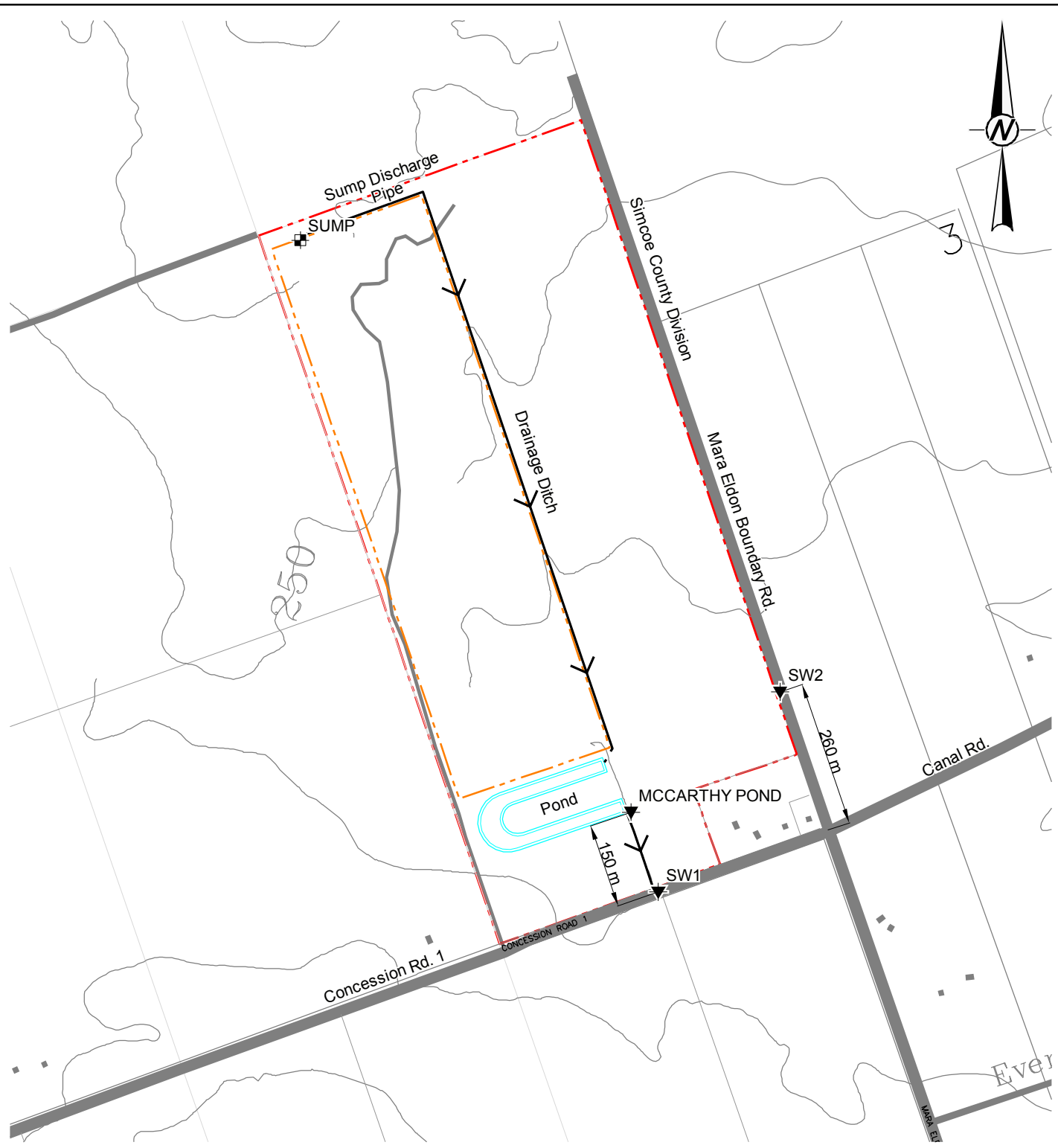
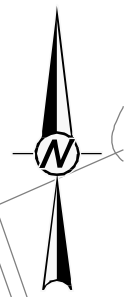
John Easton, M.Sc., P.Geo.
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JEB/JAE/MK

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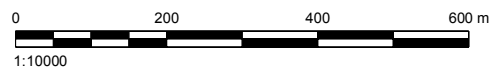
FIGURE



LEGEND

	Approximate Property Boundary
	Approximate Licenced Boundary
	5 m Contour Line
	Surface Water Sampling Location

- REFERENCES AND NOTES**
1. Projection UTM NAD83 Zone 17
 2. Mapping based on ESRI Geography Network OBM Features and Bing Orthophotos



CLIENT
COCO / QBJR AGGREGATES INC.

PROJECT
STAN MCCARTHY QUARRY

TITLE
LOCATION MAP

CONSULTANT	YYYY-MM-DD	2014-09-02
	PREPARED	STB
	DESIGN	
	REVIEW	
	APPROVED	



PROJECT No. 14-07634	SCALE AS SHOWN	Rev. AB	Figure 1
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANS/A 25 mm



TABLES

Table 1: McCarthy Pond Weekly Water Quality Results (May to August 2015)

Sample ID	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Daily Concentration Limit ²	McCarthy Quarry											
					Pond											
Date					7-May-15	14-May-15	21-May-15	28-May-15	4-Jun-15	11-Jun-15	18-Jun-15	25-Jun-15	2-Jul-15	9-Jul-15	16-Jul-15	23-Jul-15
pH	pH	n/a		6.0-9.5	8.09	8.07	8.46	8.49	8.90	8.66	8.81	8.83	7.74	8.57	8.25	8.07
Total Suspended Solids	mg/L	1		30	3	2	2	10	5	5	6	6	5	5	16	47
Total Oil and Grease	mg/L	0.5	Note 3	30	<0.5	<0.5	<0.5	0.9	0.8	1.7	<0.5	<0.5	<0.5	0.7	0.9	<0.5
Phenols (4AAP)	mg/L	<0.0010		0.04	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

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 Permit to Take Waters 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 (May to August 2015)

Sample ID	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Monthly Concentration Limit ²	McCarthy Quarry		
					Pond		
Date					May	June	July
Total Suspended Solids	mg/L	1		15	4.25	5.50	18.25
Total Oil and Grease	mg/L	0.5	Note 3	15	0.6	0.9	0.6
Phenols (4AAP)	mg/L	<0.0010		0.02	<0.001	<0.001	<0.001

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 Permit to Take Waters 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 (August 2015)

Sample ID Date	Unit	Reportable Detection Limit (RDL)	PWQO ¹	Interim PWQO ²	PTTW Effluent Limits	McCarthy Quarry		
						Pond 28-May-15	SW1 28-May-15	SW2 28-May-15
Field Measured Parameters								
Conductivity	mS/cm					669	696	607
pH	n/a	n/a	6.5-8.5		6.0-9.5	7.74	7.86	7.65
Temperature	°C	n/a				23.9	26.3	17.4
Calculated Parameters								
Anion Sum	me/L	N/A				7.12	6.88	7.32
Cation Sum	me/L	N/A				7.66	7.55	7.84
Hardness (CaCO3)	mg/L	1.0				180	260	350
Inorganics								
Total Ammonia-N	mg/L	0.050				<0.050	0.080	<0.050
Conductivity	umho/cm	1.0				760	700	680
Total Dissolved Solids	mg/L	10				458	424	436
Fluoride (F-)	mg/L	0.10				0.49	0.30	0.14
Total Kjeldahl Nitrogen (TKN)	mg/L	0.10				0.68	0.76	0.79
Dissolved Organic Carbon	mg/L	0.20				5.8	8.1	14
pH	pH	N/A	6.5-8.5		6.0-9.5	8.20	8.03	8.03
Phenols-4AAP	mg/L	0.0010			0.04	<0.0010	<0.0010	<0.0010
Total Phosphorus	mg/L	0.002		0.02 ^{5b}		0.023	0.026	0.063
Total Suspended Solids	mg/L	10			30	26	27	3
Dissolved Sulphate (SO4)	mg/L	1				130	86	54
Alkalinity (Total as CaCO3)	mg/L	1.0				93	190	280
Dissolved Chloride (Cl)	mg/L	1				86	42	19
Nitrite (N)	mg/L	0.010				0.016	<0.010	<0.010
Nitrate (N)	mg/L	0.10				0.31	<0.10	<0.10
Petroleum Hydrocarbons								
Total Oil & Grease	mg/L	0.50	Note 3			<0.50	<0.50	<0.50
Metals								
Total Aluminum (Al)	ug/L	5		15-75 ^{5a}		120	1000	31
Total Antimony (Sb)	ug/L	0.5		20		<0.50	<0.50	<0.50
Dissolved Arsenic (As)	ug/L	1				<1.0	<1.0	<1.0
Total Arsenic (As)	ug/L	1	100	5		<1.0	<1.0	<1.0
Total Barium (Ba)	ug/L	2				24	51	49
Total Beryllium (Be)	ug/L	0.5	11-1100 ^{5c}			<0.50	<0.50	<0.50
Total Boron (B)	ug/L	10		200		420	270	84
Dissolved Cadmium (Cd)	ug/L	0.1				<0.10	<0.10	<0.10
Total Cadmium (Cd)	ug/L	0.1	0.2	0.1-0.5 ^{5d}		<0.10	<0.10	<0.10
Dissolved Calcium (Ca)	ug/L	200				38000	79000	120000
Total Calcium (Ca)	ug/L	200				38000	91000	120000
Dissolved Chromium (Cr)	ug/L	5				<5.0	<5.0	<5.0
Total Chromium (Cr)	ug/L	5	1-89 ^{5e}			<5.0	<5.0	<5.0
Total Cobalt (Co)	ug/L	0.5	0.9			<0.50	0.81	<0.50
Dissolved Copper (Cu)	ug/L	1				<1.0	<1.0	<1.0
Total Copper (Cu)	ug/L	1	5	1-5 ^{5f}		1.4	1.7	<1.0
Dissolved Iron (Fe)	ug/L	100				<100	<100	<100
Total Iron (Fe)	ug/L	100	300			140	1300	170
Dissolved Lead (Pb)	ug/L	0.5				<0.50	<0.50	<0.50
Total Lead (Pb)	ug/L	0.5	5-25 ^{5g}	1-5 ^{5h}		<0.50	<0.50	<0.50
Dissolved Magnesium (Mg)	ug/L	50				21000	16000	12000
Total Magnesium (Mg)	ug/L	50				20000	16000	11000
Dissolved Manganese (Mn)	ug/L	2				3.4	7.8	<2.0
Total Manganese (Mn)	ug/L	2				22	220.0	89.0
Total Molybdenum (Mo)	ug/L	0.5		40		2.5	1.6	0.5
Dissolved Nickel (Ni)	ug/L	1				<1.0	<1.0	<1.0
Total Nickel (Ni)	ug/L	1	25			2.3	4.1	5.2
Dissolved Potassium (K)	ug/L	200				7400	5600	4000
Total Potassium (K)	ug/L	200				7400	6000	4000
Total Silicon (Si)	ug/L	50				390	2500	1900
Total Selenium (Se)	ug/L	2	100			<2.0	<2.0	<2.0
Total Silver (Ag)	ug/L	0.1	0.1			<0.10	<0.10	<0.10
Dissolved Sodium (Na)	ug/L	100				88000	49000	18000
Total Sodium (Na)	ug/L	100				82000	46000	17000
Total Strontium (Sr)	ug/L	1				1300	980	490
Total Thallium (Tl)	ug/L	0.05		0.3		<0.050	<0.050	<0.050
Total Titanium (Ti)	ug/L	5				8.5	4.8	5.6
Total Vanadium (V)	ug/L	0.5		6		0.54	2.4	0.65
Dissolved Zinc (Zn)	ug/L	5				<5.0	<5.0	<5.0
Total Zinc (Zn)	ug/L	5	30	20		<5.0	5.2	2-Jul

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. Interim Provincial Water Quality Objectives (Interim PWQO); *shaded cells and italics denote Interim PWQO exceedance*; some PWQOs are dependent on other water quality parameters hence the range in guideline values, refer to PWQO notes.

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).

5a. Aluminum (Interim):

- 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.

5b. Phosphorus (Interim):

- 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.

5c. Beryllium: If Hardness <75 mg/L (CaCO3), use 11 ug/L
If Hardness >75 mg/L (CaCO3), use 1100 ug/L

5d. Cadmium (Interim): 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

5e. Chromium: 1 ug/L for hexavalent chromium (Cr VI)
8.9 ug/L for trivalent chromium (Cr III)

5f. Copper (Interim): 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

5g. Lead: 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

5h. Lead (Interim): 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

Table 4: Lethality Monitoring at McCarthy Pond

	Unit	Mortality Limit	McCarthy Quarry		
Sample ID			Pond		
Date			28-May-15	9-Jun-15	8-Jul-15
Daphnia Magna	% Mortality Rate*	<50%	0	0	0
Rainbow Trout	% Mortality Rate*	<50%	0	0	0

* Test results represent acute lethality (100% effluent) of toxicants to Daphnia Magna and Rainbow Trout

Table 5: 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					6,550,000.00	76.00	4,545.00
1-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
4-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
5-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
6-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
7-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
8-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
11-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
12-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
13-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
14-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
15-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
19-May-15	8AM	2PM	25200	420	882000	35.00	2,100.00
21-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
22-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
25-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
26-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
27-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
28-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
29-May-15	7AM	2PM	25200	420	882000	35.00	2,100.00
01-Jun-15	8AM	2PM	21600	360	756000	35.00	2,100.00
02-Jun-15	8AM	2PM	21600	360	756000	35.00	2,100.00
03-Jun-15	7AM	2PM	25200	420	882000	35.00	2,100.00
04-Jun-15	8AM	3PM	25200	420	882000	35.00	2,100.00
05-Jun-15	8AM	3PM	25200	420	882000	35.00	2,100.00
08-Jun-15	7AM	2PM	25200	420	882000	35.00	2,100.00
09-Jun-15	7AM	1PM	21600	360	756000	35.00	2,100.00
10-Jun-15	8AM	2PM	21600	360	756000	35.00	2,100.00
11-Jun-15	7AM	3PM	28800	480	1008000	35.00	2,100.00
12-Jun-15	8AM	2PM	21600	360	756000	35.00	2,100.00
15-Jun-15	7AM	2PM	25200	420	882000	35.00	2,100.00
16-Jun-15	8AM	3PM	25200	420	882000	35.00	2,100.00
17-Jun-15	7AM	2PM	25200	420	882000	35.00	2,100.00
18-Jun-15	8AM	4PM	28800	480	1008000	35.00	2,100.00
19-Jun-15	8AM	3PM	25200	420	882000	35.00	2,100.00
22-Jun-15	8AM	3PM	25200	420	882000	35.00	2,100.00
23-Jun-15	8AM	2PM	21600	360	756000	35.00	2,100.00
24-Jun-15	8AM	3PM	25200	420	882000	35.00	2,100.00
25-Jun-15	8AM	2PM	21600	360	756000	35.00	2,100.00
26-Jun-15	8AM	2PM	21600	360	756000	35.00	2,100.00
29-Jun-15	8AM	2PM	21600	360	756000	35.00	2,100.00
30-Jun-15	8AM	2PM	21600	360	756000	35.00	2,100.00
01-Jul-15	7AM	3PM	28800	480	1008000	35.00	2,100.00
02-Jul-15	8AM	3PM	25200	420	882000	35.00	2,100.00

Table 5: 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					6,550,000.00	76.00	4,545.00
03-Jul-15	NO PUMP		0	0	-	-	-
04-Jul-15	NO PUMP		0	0	-	-	-
05-Jul-15	NO PUMP		0	0	-	-	-
06-Jul-15	7AM	3PM	25200	420	882000	35.00	2,100.00
07-Jul-15	7AM	3PM	25200	420	882000	35.00	2,100.00
08-Jul-15	8AM	3PM	25200	420	882000	35.00	2,100.00
09-Jul-15	7AM	3PM	28800	480	1008000	35.00	2,100.00
10-Jul-15	NO PUMP		0	0	-	-	-
11-Jul-15	NO PUMP		0	0	-	-	-
12-Jul-15	8AM	3PM	25200	420	882000	35.00	2,100.00
13-Jul-15	7AM	2PM	25200	420	882000	35.00	2,100.00
14-Jul-15	8AM	1PM	18000	300	630000	35.00	2,100.00
15-Jul-15	7AM	2PM	25200	420	882000	35.00	2,100.00
16-Jul-15	8AM	3PM	25200	420	882000	35.00	2,100.00
17-Jul-15	8AM	1PM	18000	300	630000	35.00	2,100.00
18-Jul-15	NO PUMP		0	0	-	-	-
19-Jul-15	NO PUMP		0	0	-	-	-
20-Jul-15	8AM	3PM	25200	420	882000	35.00	2,100.00
21-Jul-15	7AM	2PM	25200	420	882000	35.00	2,100.00
22-Jul-15	7AM	3PM	28800	480	1008000	35.00	2,100.00
23-Jul-15	7AM	1PM	21600	360	756000	35.00	2,100.00
24-Jul-15	8AM	3PM	25200	420	882000	35.00	2,100.00
25-Jul-15	NO PUMP		0	0	-	-	-
26-Jul-15	NO PUMP		0	0	-	-	-
27-Jul-15	NO PUMP		0	0	-	-	-
28-Jul-15	NO PUMP		0	0	-	-	-
29-Jul-15	NO PUMP		0	0	-	-	-
30-Jul-15	NO PUMP		0	0	-	-	-
31-Jul-15	NO PUMP		0	0	-	-	-



APPENDIX A

Environmental Compliance Approval No. 4731-987KM8



- AKossi
- GA

Ministry of the Environment
Ministère de l'Environnement

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 4731-987KM8

Issue Date: October 15, 2013

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

Site Location: McCarthy Quarry
Lot 1, Concession 1, Original Township of Mara
Lot 1, Concession 1
Ramara Township, 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:

a sewage works for the collection, transmission, treatment and disposal of quarry water effluent from an aggregate 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;
- 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:

"Approval" means this entire document and 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 Barrie District Office of the Ministry;

"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 its successors and assignees;

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

"Quarterly" means all or part of a period of three consecutive months beginning on the first day of January, April, July or October;

"Semi-annually" means all or part of a period of six months beginning on the first day of January or July;

"Weekly" means a period of seven days, starting on Sunday and ending on Saturday; and

"Works" means the sewage works described in the Owner's application, this *Approval* and in the supporting documentation referred to herein, to the extent approved by this *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) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Approval*, the application for approval of the *Works* and the submitted supporting documents and plans and specifications as listed in this *Approval*.

(2) Where there is a conflict between a provision of any submitted document referred to in this *Approval* and the Conditions of this *Approval*, the Conditions in this *Approval* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

2. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* and the *Director* , in writing, of any of the following changes within seven (7) days of the change occurring:

(a) change of *Owner* or operating authority, or both;

(b) change of address of *Owner* or operating authority or address of new owner or operating authority;

(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 *Partnerships Registration Act* ;

(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 most current "Initial Notice or Notice of Change" (Form 1, 2 or 3 of O. Reg. 189, R.R.O. 1980, as amended from time to time), filed under the *Corporations Informations Act* 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 certificate, 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 will refer to this Approval's number.

3. CHANGES IN PROCESSES OR PROCESS MATERIALS

The *Owner* shall give written notice to the *District Manager* of any plans to change the processes or process materials in the *Owner's* enterprise serviced by the *Works* where the change may significantly alter the quantity or quality of the influent to or effluent from the *Works* , and no such changes shall be made unless with the written concurrence or approval of the *District Manager* .

4. OPERATIONS MANUAL

(1) The *Owner* shall prepare an operations manual prior to the commencement of operation of the sewage *Works* , that includes, but not necessarily 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 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 potential spill, bypasses and any other abnormal situations and for notifying the *District Manager* ; and

(e) complaint procedures for receiving and responding to public complaints.

(2) The *Owner* shall maintain the operations manual up to date through revisions undertaken from time to time and retain a copy at the location of the sewage works. Upon request, the *Owner* shall make the manual available for inspection and copying by Ministry personnel.

(3) A copy of the operations manual required by subsection (1) shall be provided to the *Director* no later than **three (3) months** prior to the commencement of operation of the sewage works.

5. EFFLUENT LIMITS

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

Effluent Parameter	Daily Concentration Limit (mg/L)	Monthly Average Concentration Limit (mg/L)
Column 1	Column 2	Column 3
Total Suspended Solids	30	15
Oil and Grease	30	15
Phenolics (4AAP)	0.04	0.02

(2) pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times.

(3) The *Owner* shall ensure that the quarry water effluent shall be non-lethal to rainbow trout and *Daphnia magna* at all times.

(4) For the purposes of determining compliance with and enforcing subsection (1), exceedance of a daily concentration is deemed to have occurred when any daily single grab sample, analyzed for a parameter named in Column 1 of Table 1, is greater than the corresponding daily concentration set in Column 2 of Table 1.

(5) For the purposes of determining compliance with and enforcing subsection (1), exceedance of a monthly average concentration is deemed to have occurred when the arithmetic mean concentration of all samples taken in a calendar month, analyzed for a parameter named in Column 1 of Table 1, is greater than the corresponding monthly average concentration set in Column 3 of Table 1.

(6) Non-compliance with respect to pH is deemed to have occurred when any single measurement is outside of the indicated range.

(7) For the purposes of determining compliance with and enforcing subsection (3), the effluent is deemed to be non-lethal if the test results, required pursuant to Condition 8, show mortality for no more than 50 percent of either test organism in each sample of undiluted effluent.

6. EFFLUENT - VISUAL OBSERVATIONS

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.

7. EFFLUENT MONITORING AND RECORDING

The *Owner* shall, upon commencement of operation of the sewage works, carry out the following sampling from the final effluent control point (i.e. the outfall of the settling pond which is approximately 150 metres north of Concession 1) at the commencement of effluent discharge and for the duration of the discharge period, as follows:

(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:

Effluent Parameter	Frequency	Sample Type
Total Suspended Solids	Weekly	Grab
Oil and Grease	Weekly	Grab
Phenolics (4AAP)	Weekly	Grab

(3) The *Owner* shall collect effluent samples at the following locations and analyze for the parameters listed in Table 3 at a frequency of once per week:

- (a) Outfall of settling pond approximately 150 metres north of Concession 1 (i.e. end of pipe discharge);
- (b) Box culvert on Eldon-Ramara Townline approximately 260 metres north of intersection of Ramara Concession 1 and Eldon-Ramara Townline (i.e. upgradient of end of pipe discharge);

- (c) 80 centimetre CSP located at Concession 1 Road on McCarthy property (i.e. downgradient of end of pipe discharge).

Table 3 - Effluent and Surface Water Monitoring	
Frequency	Weekly
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

- (4) There shall be at least **four days** between successive sampling.
- (5) 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;
 - (b) the publication "Standard Methods for the Examination of Water and Wastewater" (17th edition) as amended from time to time by more recently published editions; and,
 - (c) in respect of any parameters not mentioned in (a) and (b), the written approval of the *District Manager* , shall be obtained prior to sampling.
- (6) The measurement frequencies specified in subsection (2) in respect of any parameter are minimum requirements which may, **after 48 months** of monitoring in accordance with this Condition, be modified by the *District Manager* in writing from time to time.
- (7) The measurement frequencies specified in subsection (3) in respect of any parameter shall be changed to semi-annually after one year of quarry operation.
- (8) A continuous flow measuring device shall be installed and maintained to measure the flowrate of the effluent from the sewage works, with an accuracy to within plus or minus 15 per cent of the actual flowrate for the entire design range of the flow measuring device and the *Owner* shall measure, record and calculate the flowrate for each effluent stream on each day of sampling.
- (9) The *Owner* shall retain for a minimum of **three (3) years** from the date of their creation, all records

and information related to or resulting from the monitoring activities required by this *Approval* .

8. LETHALITY MONITORING

(1) The *Owner* shall perform rainbow trout acute lethality test and *Daphnia magna* acute lethality test at least once a month on the quarry water effluent according to procedures published in Environment Canada publications entitled "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", dated July 1990 and "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* ", dated July 1990 and as updated from time to time.

(2) The acute lethality tests shall be carried out on a grab sample as a single concentration test using 100 per cent quarry water effluent.

(3) A minimum of two samples shall be tested for either test animal per each discharge period.

9. RECEIVER INSPECTION

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.

10. REPORTING

(1) One week prior to the start up of the operation of the *Works* , the *Owner* shall notify the *District Manager* (in writing) of the pending start up date.

(2) The *Owner* shall report to the *District Manager* or designate, any exceedance of any parameter specified in Condition 5 orally, forthwith, and in writing within seven (7) days of the exceedance.

(3) In addition to the obligations under Part X of the *Environmental Protection Act* , the *Owner* shall, within 10 working days of the occurrence of any spill, bypass or loss of any product, by product, intermediate product, oils, solvents, 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.

(4) The *Owner* shall submit quarterly reports of the information obtained under Conditions 7 and 8 within 30 days of the end of each quarter.

(5) The *Owner* shall prepare and submit a performance report to the *District Manager* on an annual basis within sixty (60) days following the end of the period being reported upon. The first such report shall cover the first annual period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following thereafter. 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 5, 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; and
- (e) a summary of the calibration and maintenance carried out on all effluent monitoring equipment.

Schedule A

Environmental Compliance Approval (ECA) supporting documents:

1. Application for Approval of Industrial Sewage Works submitted by Thomas S. McCarthy dated July 21, 2001 and revised January 25, 2002;
2. McCarthy Property - Certificate of Approval Application prepared by Dixon Hydrogeology Limited dated July 2001;
3. Revised Permit to Take Water - McCarthy Property prepared by Dixon Hydrogeology Limited dated April 11, 2002;
4. Letter and attachments dated January 25, 2002 from John Easton of Dixon Hydrogeology Limited to Mohamed Dhalla of the Ministry of the Environment;
5. Letter and attachments dated April 1, 2002 from Dave Hulme of Dave T. Hulme Enterprises Inc. to Stefanos Habtom of the Ministry of the Environment;
6. Letter dated April 10, 2002 from John Easton of Dixon Hydrogeology Limited to Stefanos Habtom of the Ministry of the Environment;
7. Environmental Review Amended Tribunal Decision: 02-214/02-217 and 03-188/03-189, dated May 25, 2006 - Trent Talbot River Property Owners Association, Marchand Lamarre and Jodi McIntosh v. Director, Ministry of the Environment; and
8. Notification of Change of Address/Ownership dated June 29, 2012, MOE Reference Number 3620-8VQPTZ acknowledging change in company address/ownership from Thomas S. McCarty, Rural Route No.1 Brechin, Ontario, L0K 1B0 to QBJR Aggregates Inc., 949 Wilson Ave., Toronto, Ontario, M3K 1G.

1. 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;
2. 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:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. 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
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

* 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) 314-4506 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 15th day of October, 2013



Edgardo Tovilla
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act



APPENDIX B

Water Quality Results

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 494821-05-01

Attention:Alicia Beynon

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/05/15
 Report #: R3430659
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B585642

Received: 2015/05/08, 14:12

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/05/14	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/05/13	2015/05/14	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/05/13	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/05/14	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/05/13	2015/05/14	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/05/13	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B585642
Report Date: 2015/05/15

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

RESULTS OF ANALYSES OF WATER

Maxxam ID		AFZ527		
Sampling Date				
COC Number		494821-05-01		
	Units	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	ND	0.50	4016996
Inorganics				
pH	pH	8.09	N/A	4020049
Phenols-4AAP	mg/L	ND	0.0010	4020311
Total Suspended Solids	mg/L	3	1	4020369
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	ND	0.50	4022121
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4022155
RDL = Reportable Detection Limit QC Batch = Quality Control Batch ND = Not detected N/A = Not Applicable				

Maxxam Job #: B585642
Report Date: 2015/05/15

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

GENERAL COMMENTS

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

Package 1	9.7°C
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Results relate only to the items tested.

Maxxam Job #: B585642
Report Date: 2015/05/15

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4020049	pH	2015/05/13			102	98 - 103			0.58	N/A		
4020311	Phenols-4AAP	2015/05/14	101	80 - 120	92	85 - 115	ND, RDL=0.0010	mg/L	NC	20		
4020369	Total Suspended Solids	2015/05/13					ND,RDL=1	mg/L	NC	25	97	85 - 115
4022121	Total Oil & Grease	2015/05/14	99	75 - 125	99	85 - 115	ND, RDL=0.50	mg/L	NC	25		
4022155	Total Oil & Grease Mineral/Synthetic	2015/05/14	93	75 - 125	93	85 - 115	ND, RDL=ND	mg/L	1.6	25		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B585642
Report Date: 2015/05/15

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

08-May-15 14:12
 Antonella Brasil
 B585642
 AS9 ENV-961
 C#494821-05-01
 Page of
 Bottle Order #: 494821
 Project Manager: Antonella Brasil

INVOICE TO:
 Company Name: #12323 Golder Associates Ltd
 Attention: Central Accounting
 Address: 121 Commerce Park Drive Unit L, Barrie ON L4N 8X1
 Tel: (705) 722-4492 Fax: (705) 722-3786
 Email: AccountsPayable_Maxxam@golder.com

REPORT TO:
 Company Name: Alicia Beynon
 Attention: Alicia Beynon
 Address: (705) 722-4492 x
 Email: Alicia_Beynon@golder.com

PROJECT INFORMATION:
 Quotation #: B40279
 P.O. #: 1407634
 Project Name:
 Site #:
 Sampled By:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
 Table 1 Res/Park Medium/Fine
 Table 2 Ind/Comm Coarse
 Table 3 Agri/Other For RSC
 Table

Other Regulations
 CCME Sanitary Sewer Bylaw
 Reg 558 Storm Sewer Bylaw
 MISA Municipality
 PWGO
 Other

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Field Filtered (please circle)
 Metals / Hg / Cr / V
 Oil & Grease - AWWMT*
 Low Level Total Suspended Solids
 Phenols (AAP)
 PH

Turnaround Time (TAT) Required:
 Regular (Standard) TAT:
 (will be applied if Rush TAT is not specified)
 Standard TAT = 5-7 Working days for most tests.
 Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
 Job Specific Rush TAT (if applies to entire submission)
 Date Required: Time Required:
 Rush Confirmation Number: (call lab for #)

* Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle) Metals / Hg / Cr / V	Oil & Grease - AWWMT*	Low Level Total Suspended Solids	Phenols (AAP)	PH	# of Bottles	Comments
				SW	NA	+	+	+	+	4	

* RELINQUISHED BY: (Signature/Print) *STAN GROZMICE* Date: (YY/MM/DD) 05/15/15 Time 1:00
 RECEIVED BY: (Signature/Print) *RACHEL DEVLIN* Date: (YY/MM/DD) 2015/05/09 Time 09:33
 # jars used and not submitted
 Laboratory Use Only
 Time Sensitive Temperature (°C) on Receipt 10/10/9
 Custody Seal Yes No
 Present Intact

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM. White: Maxxam Yellow: Client

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 497410-02-01

Attention:Alicia Beynon

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/05/28
 Report #: R3443774
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B596432

Received: 2015/05/22, 10:20

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/05/27	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/05/26	2015/05/27	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/05/26	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/05/27	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/05/26	2015/05/27	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/05/26	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B596432
Report Date: 2015/05/28

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

RESULTS OF ANALYSES OF WATER

Maxxam ID		AHZ581		
Sampling Date		2015/05/21 11:30		
COC Number		497410-02-01		
	Units	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	ND	0.50	4034322
Inorganics				
pH	pH	8.46	N/A	4036385
Phenols-4AAP	mg/L	ND	0.0010	4035816
Total Suspended Solids	mg/L	2	1	4035724
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	ND	0.50	4037691
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4037722
RDL = Reportable Detection Limit QC Batch = Quality Control Batch ND = Not detected N/A = Not Applicable				

Maxxam Job #: B596432
Report Date: 2015/05/28

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

GENERAL COMMENTS

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

Package 1	5.7°C
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Results relate only to the items tested.

Maxxam Job #: B596432
Report Date: 2015/05/28

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4035724	Total Suspended Solids	2015/05/26					ND,RDL=1	mg/L	NC	25	95	85 - 115
4035816	Phenols-4AAP	2015/05/27	NC	80 - 120	100	85 - 115	0.0010, RDL=0.0010	mg/L	1.5	20		
4036385	pH	2015/05/26			101	98 - 103			0.20	N/A		
4037691	Total Oil & Grease	2015/05/27	103	75 - 125	96	85 - 115	ND, RDL=0.50	mg/L	NC	25		
4037722	Total Oil & Grease Mineral/Synthetic	2015/05/27			91	85 - 115	ND, RDL=0.50	mg/L	3.3	25		

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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

Maxxam Job #: B596432
Report Date: 2015/05/28

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 497410-07-01

Attention:Alicia Beynon

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/05/25
 Report #: R3440503
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B591687

Received: 2015/05/15, 09:00

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/05/25	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/05/22	2015/05/25	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/05/17	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/05/21	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/05/22	2015/05/25	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/05/20	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B591687
Report Date: 2015/05/25

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

RESULTS OF ANALYSES OF WATER

Maxxam ID		AHC504		
Sampling Date				
COC Number		497410-07-01		
	Units	Pond	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	ND	0.50	4026140
Inorganics				
pH	pH	8.07	N/A	4026858
Phenols-4AAP	mg/L	ND	0.0010	4026743
Total Suspended Solids	mg/L	2	1	4029652
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	ND	0.50	4033357
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4033371
RDL = Reportable Detection Limit QC Batch = Quality Control Batch ND = Not detected N/A = Not Applicable				

Maxxam Job #: B591687
Report Date: 2015/05/25

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

GENERAL COMMENTS

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

Package 1	8.0°C
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Results relate only to the items tested.

Maxxam Job #: B591687
Report Date: 2015/05/25

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4026743	Phenols-4AAP	2015/05/21	95	80 - 120	96	85 - 115	ND, RDL=0.0010	mg/L	NC	20		
4026858	pH	2015/05/17			102	98 - 103			0.073	N/A		
4029652	Total Suspended Solids	2015/05/20					ND,RDL=1	mg/L	12	25	98	85 - 115
4033357	Total Oil & Grease	2015/05/25			97	85 - 115	ND, RDL=0.50	mg/L	2.3	25		
4033371	Total Oil & Grease Mineral/Synthetic	2015/05/25			95	85 - 115	ND, RDL=0.50	mg/L	2.1	25		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B591687
Report Date: 2015/05/25

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).




Ewa Pranjić, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Analytics International Corporation o/a Maxxam Analytics
 6740 Campbell Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-Free 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

15-May-15 09:00

Page of

INVOICE TO:
 Company Name: #26238 COCO PAVING INC
 Attention: Anthony Rossi/Dave Sanders
 Address: 949 Wilson Ave
 Toronto ON M3K 1G2
 Tel: (416) 570-7052 x Fax:
 Email: ARossi@cocogroup.com; DSanders@cocogroup.com

REPORT TO:
 Company Name: #17930 Golder Associates Ltd
 Attention: Alicia Beynon
 Address: 121 Commerce Park Drive Unit L
 Barrie ON L4N 8X1
 Tel: (705) 722-4492 Fax:
 Email: Alicia_Beynon@golder.com

PROJECT INFORMATION:
 Quotation #: B47292
 P.O. #: 1407634
 Project: 1407634
 Project Name: MCCARTHY
 Site #: MAF
 Sampled By: ENV-822

Antonella Brasil
 B501687
 MAF ENV-822
 C#457410-07-01

Only:
 Bottle Order #: 457410
 Project Manager: Antonella Brasil

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
<input type="checkbox"/> Table 1 <input type="checkbox"/> Table 2 <input type="checkbox"/> Table 3 <input type="checkbox"/> Table	<input type="checkbox"/> Res/Park <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Agri/Other <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Coarse <input type="checkbox"/> For RSC	<input type="checkbox"/> CCME <input type="checkbox"/> Reg 558 <input type="checkbox"/> MISA <input checked="" type="checkbox"/> PWQO <input type="checkbox"/> Other
<input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> Municipality		

Include Criteria on Certificate of Analysis (Y/N)?

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr / V	Low Level Total Suspended Solids	Phenols (AAP)	Oil & Grease - AV/MT	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										# of Bottles	Comments	
1				SW	N/A	+	+	+	+	A.H.										4	
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Turnaround Time (TAT) Required:
 Please provide advance notice for rush projects

Regular (Standard) TAT:
 (will be applied if Rush TAT is not specified):
 Standard TAT = 5-7 Working days for most tests.
 Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
 Date Required: _____ Time Required: _____
 Rush Confirmation Number: _____ (call lab for #)

* RELINQUISHED BY: (Signature/Print) STAN GORZELCE	Date: (YY/MM/DD) 05/14/15	Time	RECEIVED BY: (Signature/Print) J. Tom	Date: (YY/MM/DD) 2015/05/15	Time 9:00	# Jars used and not submitted	Laboratory Use Only	Time Sensitive	Temperature (°C) on Receipt 7/11/16	Custody Seal	Yes	No
	05/14/15									Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.										SAMPLER MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM		White: Maxxam Yellow: Client

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 511949-01-01

Attention:Alicia Kimberley

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/06/03
 Report #: R3451946
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5A1542

Received: 2015/05/29, 11:45

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/06/01	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/06/01	2015/06/01	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/06/03	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/06/02	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/06/01	2015/06/01	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/06/03	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====
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Maxxam Job #: B5A1542
Report Date: 2015/06/03

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

RESULTS OF ANALYSES OF WATER

Maxxam ID		AIZ130	AIZ130		
Sampling Date		2015/05/28 11:00	2015/05/28 11:00		
COC Number		511949-01-01	511949-01-01		
	Units	POND	POND Lab-Dup	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	0.90		0.50	4042907
Inorganics					
pH	pH	8.49		N/A	4047874
Phenols-4AAP	mg/L	ND		0.0010	4046785
Total Suspended Solids	mg/L	10	10	1	4046804
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	0.90		0.50	4045802
Total Oil & Grease Mineral/Synthetic	mg/L	ND		0.50	4045809
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate ND = Not detected					

Maxxam Job #: B5A1542
Report Date: 2015/06/03

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

GENERAL COMMENTS

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

Package 1	12.3°C
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Results relate only to the items tested.

Maxxam Job #: B5A1542
Report Date: 2015/06/03

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4045802	Total Oil & Grease	2015/06/01			93	85 - 115	ND, RDL=0.50	mg/L	4.5	25		
4045809	Total Oil & Grease Mineral/Synthetic	2015/06/01			95	85 - 115	ND, RDL=0.50	mg/L	2.7	25		
4046785	Phenols-4AAP	2015/06/02	96	80 - 120	97	85 - 115	ND, RDL=0.0010	mg/L	NC	20		
4046804	Total Suspended Solids	2015/06/03					ND,RDL=1	mg/L	2.0	25	96	85 - 115
4047874	pH	2015/06/03			102	98 - 103			0.10	N/A		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B5A1542
Report Date: 2015/06/03

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Use Only:	
Company Name: #26238 Coco Paving Inc		Company Name: Alicia Kimberly		Quotation #: B47292		Bottle Order #:	
Attention: Anthony Rossi/Dave Sanders		Attention: Alicia Kimberly		P.O. #:		Barcode: 511949	
Address: 949 Wilson Ave		Address:		Project: 1407634		Project Manager:	
Toronto ON M3K 1G2				Project Name: McCarthy		Antonella Brasil	
Tel: (416) 570-7052 x		Tel: (705) 722-4492 x		Site #:		Barcode: C#511949-01-01	
Fax: _____		Fax: _____		Sampled By:			
Email: ARossi@cocogroup.com; DSanders@cocogroup.com		Email: Alicia_Kimberley@golder.com					

Antonella Brasil
 B5A1542
 FW ENV-680

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)		Other Regulations		Special Instructions
<input type="checkbox"/> Table 1	<input type="checkbox"/> Rest/Park	<input type="checkbox"/> Medium/Fine	<input type="checkbox"/> CCME	
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Sanitary Sewer Bylaw	
<input type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> Reg 558	
<input type="checkbox"/> Table			<input type="checkbox"/> Storm Sewer Bylaw	
			<input type="checkbox"/> MISA Municipality	
			<input checked="" type="checkbox"/> PWQO	
			<input type="checkbox"/> Other	

Include Criteria on Certificate of Analysis (Y/N)?

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)									
Field Filtered (please circle): Metals / Hg / Cr / V / I	Oil & Grease - AV/MT	pH	Phenols (AAAP)	Low Level Total Suspended Solids					
NA	X	X	X	X					

Turnaround Time (TAT) Required:
 Please provide advance notice for rush projects

Regular (Standard) TAT:
 (will be applied if Rush TAT is not specified):
 Standard TAT = 5-7 Working days for most tests.

Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
 Date Required: _____ Time Required: _____
 Rush Confirmation Number: _____ (call lab for #)

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	Oil & Grease	pH	Phenols	Low Level Total Suspended Solids						# of Bottles	Comments
511949	POND	MAY 28/15	11:00	SW	NA	X	X	X	X						5	
"	POND			SW												
"	POND			SW												
"	POND			SW												

RELINQUISHED BY: (Signature/Print) Stan Grozelle	Date: (YY/MM/DD) MAY 28/15	Time 11:09	RECEIVED BY: (Signature/Print) RACHEL DEWIN	Date: (YY/MM/DD) 2015/05/29	Time 11:45	# jars used and not submitted	Laboratory Use Only				
							Time Sensitive	Temperature (°C) on Receipt MELTED ICE 11/10/16	Custody Seal	Yes	No
									Present		
									Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM. White: Maxxam Yellow: Client

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 511949-03-01

Attention:Alicia Kimberley

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/06/11
 Report #: R3462352
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5A7293
Received: 2015/06/05, 10:00

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/06/10	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/06/10	2015/06/10	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/06/06	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/06/10	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/06/10	2015/06/10	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/06/08	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====

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Maxxam Job #: B5A7293
Report Date: 2015/06/11

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SC

RESULTS OF ANALYSES OF WATER

Maxxam ID		AKA215		
Sampling Date		2015/06/04 11:00		
COC Number		511949-03-01		
	Units	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.80	0.50	4053199
Inorganics				
pH	pH	8.90	N/A	4055275
Phenols-4AAP	mg/L	ND	0.0010	4055599
Total Suspended Solids	mg/L	5	1	4055235
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.80	0.50	4058917
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4058920
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable ND = Not detected				

Maxxam Job #: B5A7293
Report Date: 2015/06/11

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SC

GENERAL COMMENTS

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

Package 1	14.3°C
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Results relate only to the items tested.

Maxxam Job #: B5A7293
Report Date: 2015/06/11

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4055235	Total Suspended Solids	2015/06/08					ND,RDL=1	mg/L	4.8	25	98	85 - 115
4055275	pH	2015/06/06			102	98 - 103			0.14	N/A		
4055599	Phenols-4AAP	2015/06/10	98	80 - 120	99	85 - 115	ND, RDL=0.0010	mg/L	NC	20		
4058917	Total Oil & Grease	2015/06/10			97	85 - 115	ND, RDL=0.50	mg/L	1.0	25		
4058920	Total Oil & Grease Mineral/Synthetic	2015/06/10			94	85 - 115	ND, RDL=0.50	mg/L	3.2	25		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B5A7293
Report Date: 2015/06/11

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE TO:

Company Name: #26238 Coco Paving Inc
Attention: Anthony Rossi/Dave Sanders
Address: 949 Wilson Ave
Toronto ON M3K 1G2
Tel: (416) 570-7052 x
Email: ARossi@cocogroup.com; DSanders@cocogroup.com

REPORT TO:

Company Name:
Attention: Alicia Kimberley
Address:
Tel: (705) 722-4492 x
Email: Alicia_Kimberley@golder.com

PROJECT INFORMATION:

Quotation #: B47292
P.O. #:
Project: 1407634
Project Name:
Site #: McCarthy
Sampled By:

Laboratory Use Only:

Maxxam Job #:
Bottle Order #: 511949
COC #:
Project Manager: Antonella Brasil
C#511949-03-01

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)

Table 1 Res/Park Medium/Fine
 Table 2 Ind/Comm Coarse
 Table 3 Agri/Other For RSC
 Table

Other Regulations

CCME Sanitary Sewer Bylaw
 Reg 558 Storm Sewer Bylaw
 MISA Municipality
 PWQO
 Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)?

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr / VI	Oil & Grease -AV/MT	pH	Phenols (4&AP)	Low Level Total Suspended Solids	PH								
511949	POND	JUNE 4/15	11:00	SW	N/A	+	+	+	+	+								
"	"			SW														
"	"			SW														
"	"			SW														
"	"			SW														

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified).
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: _____ Time Required: _____
Rush Confirmation Number: _____ (call lab for #)

of Bottles: 5
Comments:

05-Jun-15 10:00
Antonella Brasil
B5A7293
HGI ENV-646

RELINQUISHED BY: (Signature/Print) STAN CROZELLE	Date: (YY/MM/DD) JUNE 4/15	Time 11:00	RECEIVED BY: (Signature/Print) MUS... NAR...	Date: (YY/MM/DD) JUN 10/15	Time 10:00	# jars used and not submitted	Laboratory Use Only				
							Time Sensitive	Temperature (°C) on Receipt 15/14/14	Custody Seal	Yes	No
									Present	✓	
									Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM. White: Maxxam Yellow: Client

melted ice

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 517466-02-01

Attention:Alicia Kimberley

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/06/18
 Report #: R3469862
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5B2869

Received: 2015/06/12, 09:26

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/06/17	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/06/17	2015/06/17	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/06/15	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/06/15	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/06/17	2015/06/17	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/06/13	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5B2869
Report Date: 2015/06/18

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

RESULTS OF ANALYSES OF WATER

Maxxam ID		AKZ833		
Sampling Date		2015/06/11 11:00		
COC Number		517466-02-01		
	Units	517466 POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	1.7	0.50	4063306
Inorganics				
pH	pH	8.66	N/A	4064885
Phenols-4AAP	mg/L	ND	0.0010	4065090
Total Suspended Solids	mg/L	5	1	4065068
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.7	0.50	4069592
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4069596
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable ND = Not detected				

Maxxam Job #: B5B2869
Report Date: 2015/06/18

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

GENERAL COMMENTS

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

Package 1	19.7°C
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Results relate only to the items tested.

Maxxam Job #: B5B2869
Report Date: 2015/06/18

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4064885	pH	2015/06/15			102	98 - 103			0.71	N/A		
4065068	Total Suspended Solids	2015/06/13					ND,RDL=1	mg/L	3.2	25	96	85 - 115
4065090	Phenols-4AAP	2015/06/15	97	80 - 120	97	85 - 115	ND, RDL=0.0010	mg/L	NC	20		
4069592	Total Oil & Grease	2015/06/17			98	85 - 115	ND, RDL=0.50	mg/L	1.5	25		
4069596	Total Oil & Grease Mineral/Synthetic	2015/06/17			94	85 - 115	ND, RDL=0.50	mg/L	2.1	25		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B5B2869
Report Date: 2015/06/18

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).




Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

12-Jun-15 09:26
 Antonella Brasil
 B5B2869
 ASR/AL ENV-891

INVOICE TO:

Company Name: #26238 Coco Paving Inc
 Attention: Anthony Rossi/Dave Sanders
 Address: 949 Wilson Ave
 Toronto ON M3K 1G2
 Tel: (416) 570-7052 x Fax:
 Email: ARossi@cocogroup.com; DSanders@cocogroup.com

REPORT TO:

Company Name:
 Attention: Alicia Kimberly
 Address:
 Tel: (705) 722-4492 x Fax:
 Email: Alicia_Kimberley@golder.com

PROJECT INFORMATION:

Quotation #: B47292
 P.O. #:
 Project: 1407634
 Project Name:
 Site #: McCarthy
 Sampled By:

Barcode: B5B2869
 Barcode: ASR/AL ENV-891
 Barcode: C#517466-02-01

Page of
 e Only:
 Bottle Order #:
 517466
 Project Manager:
 Antonella Brasil

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)

Table 1 Res/Park Medium/Fine
 Table 2 Ind/Comm Coarse
 Table 3 Agri/Other For RSC
 Table

Other Regulations

CCME Sanitary Sewer Bylaw
 Reg 558 Storm Sewer Bylaw
 MISA Municipality
 PWQO
 Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)?

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr / V / I	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										# of Bottles	Comments	
						Oil & Grease - AV/MT	pH	Phenols (4AAP)	Low Level Total Suspended Solids	pH								
517466	POND	June 11/15	11:00am	SW	N/A	X	X	X	X	X							5	
517466	POND	"	"	SW														
517466	POND	"	"	SW														
517466	POND	"	"	SW														
517466	POND	"	"	SW														

Turnaround Time (TAT) Required:
 Please provide advance notice for rush projects

Regular (Standard) TAT:
 (will be applied if Rush TAT is not specified):
 Standard TAT = 5-7 Working days for most tests.
 Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
 Date Required: _____ Time Required: _____
 Rush Confirmation Number: _____ (call lab for #)

*** RELINQUISHED BY: (Signature/Print)** Teresa Cronk
Date: (YY/MM/DD) June 11/15 **Time** 11:00am

RECEIVED BY: (Signature/Print) Alex Vahdati
Date: (YY/MM/DD) 2015/06/12 **Time** 09:26

jars used and not submitted

Laboratory Use Only

Time Sensitive: Temperature (°C) on Receipt: 20/19/20
 Custody Seal: Present Intact
 Yes No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM. White: Maxxam Yellow: Client

PLEASE SAMPLE REGARDLESS OF TEMPERATURE OF WATER. No Ice

Your Project #: 1407634
 Site#: McCarthy
 Site Location: MCCARTHY
 Your C.O.C. #: 517466-03-01

Attention: Alicia Kimberley

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/06/25
 Report #: R3494101
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5B9060

Received: 2015/06/19, 10:15

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/06/24	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/06/23	2015/06/24	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/06/23	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/06/25	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/06/23	2015/06/24	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/06/22	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5B9060
Report Date: 2015/06/25

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

RESULTS OF ANALYSES OF WATER

Maxxam ID		AMD645	AMD645		
Sampling Date		2015/06/18 13:18	2015/06/18 13:18		
COC Number		517466-03-01	517466-03-01		
	Units	POND	POND Lab-Dup	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	ND		0.50	4074751
Inorganics					
pH	pH	8.81		N/A	4076829
Phenols-4AAP	mg/L	ND		0.0010	4075217
Total Suspended Solids	mg/L	6	5	1	4075728
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	ND		0.50	4078053
Total Oil & Grease Mineral/Synthetic	mg/L	ND		0.50	4078055
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate ND = Not detected					

Maxxam Job #: B5B9060
Report Date: 2015/06/25

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

GENERAL COMMENTS

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

Package 1	17.7°C
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Results relate only to the items tested.

Maxxam Job #: B5B9060
Report Date: 2015/06/25

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4075217	Phenols-4AAP	2015/06/25	96	80 - 120	94	85 - 115	ND, RDL=0.0010	mg/L	4.9	20		
4075728	Total Suspended Solids	2015/06/22					ND,RDL=1	mg/L	7.1	25	98	85 - 115
4076829	pH	2015/06/23			102	98 - 103			0.35	N/A		
4078053	Total Oil & Grease	2015/06/24			97	85 - 115	ND, RDL=0.50	mg/L	0.52	25		
4078055	Total Oil & Grease Mineral/Synthetic	2015/06/24			93	85 - 115	ND, RDL=0.50	mg/L	0.54	25		

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.

Maxxam Job #: B5B9060
Report Date: 2015/06/25

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your Project #: 1407634
 Site#: McCarthy
 Your C.O.C. #: 511949-02-01

Attention: Alicia Kimberley

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/07/03
 Report #: R3537616
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5C4457

Received: 2015/06/26, 09:27

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/07/03	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/07/02	2015/07/03	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/06/28	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/06/29	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/07/02	2015/07/03	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/06/29	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5C4457
Report Date: 2015/07/03

Golder Associates Ltd
Client Project #: 1407634
Sampler Initials: TC

RESULTS OF ANALYSES OF WATER

Maxxam ID		ANG205		
Sampling Date		2015/06/25 14:00		
COC Number		511949-02-01		
	Units	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	ND	0.50	4082981
Inorganics				
pH	pH	8.83	N/A	4084727
Phenols-4AAP	mg/L	ND	0.0010	4084961
Total Suspended Solids	mg/L	6	1	4085001
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	ND	0.50	4089573
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4089580
RDL = Reportable Detection Limit QC Batch = Quality Control Batch ND = Not detected N/A = Not Applicable				

Maxxam Job #: B5C4457
Report Date: 2015/07/03

Golder Associates Ltd
Client Project #: 1407634
Sampler Initials: TC

GENERAL COMMENTS

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

Package 1	15.3°C
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Results relate only to the items tested.

Maxxam Job #: B5C4457
Report Date: 2015/07/03

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Sampler Initials: TC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4084727	pH	2015/06/28			101	98 - 103			0.12	N/A		
4084961	Phenols-4AAP	2015/06/29	92	80 - 120	98	85 - 115	ND, RDL=0.0010	mg/L	NC	20		
4085001	Total Suspended Solids	2015/06/29					ND,RDL=1	mg/L	NC	25	98	85 - 115
4089573	Total Oil & Grease	2015/07/03	94	75 - 125	94	85 - 115	ND, RDL=0.50	mg/L	0.54	25		
4089580	Total Oil & Grease Mineral/Synthetic	2015/07/03	93	75 - 125	95	85 - 115	ND, RDL=0.50	mg/L	0.53	25		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B5C4457
Report Date: 2015/07/03

Golder Associates Ltd
Client Project #: 1407634
Sampler Initials: TC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Brad Newman, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 517466-05-01

Attention:Alicia Kimberley

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/07/10
 Report #: R3569578
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5C9337

Received: 2015/07/03, 10:17

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/07/10	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/07/09	2015/07/10	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/07/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/07/08	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/07/09	2015/07/10	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/07/07	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5C9337
Report Date: 2015/07/10

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

RESULTS OF ANALYSES OF WATER

Maxxam ID		AOF433	AOF433		
Sampling Date		2015/07/02 15:00	2015/07/02 15:00		
COC Number		517466-05-01	517466-05-01		
	Units	POND	POND Lab-Dup	RDL	QC Batch
Calculated Parameters					
Total Animal/Vegetable Oil and Grease	mg/L	ND		0.50	4090444
Inorganics					
pH	pH	7.74		N/A	4095323
Phenols-4AAP	mg/L	ND		0.0010	4094917
Total Suspended Solids	mg/L	5	5	1	4094181
Petroleum Hydrocarbons					
Total Oil & Grease	mg/L	ND		0.50	4098799
Total Oil & Grease Mineral/Synthetic	mg/L	ND		0.50	4098815
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate ND = Not detected					

Maxxam Job #: B5C9337
Report Date: 2015/07/10

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

GENERAL COMMENTS

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

Package 1	19.7°C
-----------	--------

Results relate only to the items tested.

Maxxam Job #: B5C9337
Report Date: 2015/07/10

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4094181	Total Suspended Solids	2015/07/07					ND,RDL=1	mg/L	NC	25	97	85 - 115
4094917	Phenols-4AAP	2015/07/08	100	80 - 120	104	85 - 115	ND, RDL=0.0010	mg/L	5.0	20		
4095323	pH	2015/07/08			101	98 - 103			0.69	N/A		
4098799	Total Oil & Grease	2015/07/10	98	75 - 125	96	85 - 115	ND, RDL=0.50	mg/L	NC	25		
4098815	Total Oil & Grease Mineral/Synthetic	2015/07/10			94	85 - 115	ND, RDL=0.50	mg/L	0.53	25		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B5C9337
Report Date: 2015/07/10

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Brad Newman, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Analytics International Corporation o/a Maxxam Analytics
 6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

3-Jul-15 10:17

Antonella Brasil



B5C9337

RDV

ENV-849

Page of
 Bottle Order #:
 517466
 Project Manager:
 Antonella Brasil

INVOICE TO:

Company Name: #26238 Coco Paving Inc
 Attention: Anthony Rossi/Dave Sanders
 Address: 949 Wilson Ave
 Toronto ON M3K 1G2
 Tel: (416) 570-7052 x
 Email: ARossi@cocogroup.com; DSanders@cocogroup.com

REPORT TO:

Company Name:
 Attention: Alicia Kimberley
 Address:
 Tel: (705) 722-4492 x
 Email: Alicia_Kimberley@golder.com

PROJECT INFORMATION:

Quotation #: B47292
 P.O. #:
 Project: 1407634
 Project Name:
 Site #: McCarthy
 Sampled By:



CS17466-05-01

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)

Table 1 Resi/Park Medium/Fine
 Table 2 Ind/Comm Coarse
 Table 3 Agri/Other For RSC
 Table

Other Regulations

CCME Sanitary Sewer Bylaw
 Reg 558 Storm Sewer Bylaw
 MISA Municipality
 PWOO
 Other

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr / VI	Oil & Grease - AV/MT	pH	Phenols (4AAP)	Low Level Total Suspended Solids										
1	317466 Pond	July 15 3:00pm	SW	N/A	X	X	X	X	X										
2	Pond																		
3	Pond																		
4	Pond																		
5	Pond																		
6																			
7																			
8																			
9																			
10																			

Turnaround Time (TAT) Required:
 Please provide advance notice for rush projects

Regular (Standard) TAT:
 (will be applied if Rush TAT is not specified):
 Standard TAT = 5-7 Working days for most tests.
 Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
 Date Required: _____ Time Required: _____
 Rush Confirmation Number: _____ (call lab for #)

* RELINQUISHED BY: (Signature/Print) Steve Cronk	Date: (YY/MM/DD) July 15 2015	Time 3:00pm	RECEIVED BY: (Signature/Print) Alex Vahdati	Date: (YY/MM/DD) July 15 2015	Time 10:17	# jars used and not submitted	Laboratory Use Only				
							Time Sensitive	Temperature (°C) on Receipt 20 / 19 / 20 no ice	Custody Seal	Yes	No
									Intact	✓	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM White: Maxxam Yellow: Client

NO ICE

Maxxam Analytics International Corporation o/a Maxxam Analytics

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 520617-03-01

Attention: Alicia Kimberley

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/07/17
 Report #: R3577292
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5D4673
Received: 2015/07/10, 09:25

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/07/16	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/07/16	2015/07/16	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/07/13	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/07/14	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/07/16	2015/07/16	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/07/13	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====

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Maxxam Job #: B5D4673
Report Date: 2015/07/17

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

RESULTS OF ANALYSES OF WATER

Maxxam ID		APG732		
Sampling Date		2015/07/09 14:00		
COC Number		520617-03-01		
	Units	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.70	0.50	4100115
Inorganics				
pH	pH	8.57	N/A	4101545
Phenols-4AAP	mg/L	ND	0.0010	4103074
Total Suspended Solids	mg/L	5	1	4102036
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.70	0.50	4107676
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4107681
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable ND = Not detected				

Maxxam Job #: B5D4673
Report Date: 2015/07/17

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

GENERAL COMMENTS

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

Package 1	20.7°C
-----------	--------

Results relate only to the items tested.

Maxxam Job #: B5D4673
Report Date: 2015/07/17

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4101545	pH	2015/07/13			102	98 - 103			0.21	N/A		
4102036	Total Suspended Solids	2015/07/13					ND,RDL=1	mg/L	11	25	98	85 - 115
4103074	Phenols-4AAP	2015/07/14	95	80 - 120	99	85 - 115	ND, RDL=0.0010	mg/L	NC	20		
4107676	Total Oil & Grease	2015/07/16			98	85 - 115	ND, RDL=0.50	mg/L	2.9	25		
4107681	Total Oil & Grease Mineral/Synthetic	2015/07/16			95	85 - 115	ND, RDL=0.50	mg/L	1.6	25		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B5D4673
Report Date: 2015/07/17

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

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Maxxam Analytics International Corporation o/a Maxxam Analytics
 6740 Campobello Road, Mississauga, Ontario Canada L5N2L8 Tel: (905) 817-5700 Toll-Free 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

10-Jul-15 09:25

Stephen McMillan



B5D4673

FW

ENV-878



C#520617-03-01

INVOICE TO:

Company Name: #26238 Coco Paving Inc
 Attention: Anthony Rossi/Dave Sanders
 Address: 949 Wilson Ave
 Toronto ON M3K 1G2
 Tel: (416) 570-7052 x
 Email: ARossi@cocogroup.com; DSanders@cocogroup.com

REPORT TO:

Company Name:
 Attention: Dawn Hoyle
 Address:
 Tel:
 Email: Dawn_Hoyle@golder.com

PROJECT INFORMATION:

Quotation #: B47292
 P.O. #: 1407634
 Project Name:
 Site #: Teresa Crank
 Sampled By:

Page of
Only:
 Bottle Order #: 520617
 Project Manager: Stephen McMillan

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)

Table 1 Res/Park Medium/Fine*
 Table 2 Ind/Comm Coarse
 Table 3 Agri/Other For RSC
 Table

Other Regulations

CCME Sanitary Sewer Bylaw
 Reg 558 Storm Sewer Bylaw
 MISA Municipality _____
 PWOO
 Other _____

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Field Filtered (please circle):
 Metals / Hg / Cr-VI
 Low Level Total Suspended Solids
 Oil & Grease - AV/MT
 Phenols (4AAP)
 pH PH

Turnaround Time (TAT) Required:
 Please provide advance notice for rush projects

Regular (Standard) TAT:
 (will be applied if Rush TAT is not specified)
 Standard TAT = 5-7 Working days for most tests.

Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
 Date Required: _____ Time Required: _____
 Rush Confirmation Number: _____ (call lab for #)

Include Criteria on Certificate of Analysis (Y/N)?						Field Filtered (please circle): Metals / Hg / Cr-VI	Low Level Total Suspended Solids	Oil & Grease - AV/MT	Phenols (4AAP)	pH	PH										
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix																	
1	520617	POND	July 9/15	2:00pm	SW	N/A	X	X	X	X	X										
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

* RELINQUISHED BY: (Signature/Print) Teresa Crank Date: (YY/MM/DD) July 9/15 Time 2:00pm

RECEIVED BY: (Signature/Print) HARWIN CREWAL Date: (YY/MM/DD) 2015/07/10 Time 09:25

jars used and not submitted _____

Laboratory Use Only

Time Sensitive _____ Temperature (°C) on Receipt 21/20/21

Custody Seal	Yes	No
Present	<u>Y</u>	
Intact	<u>Y</u>	

White: Maxxam Yellow: Client

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Please sample regardless of temperature we had no ice. No ice

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 520617-01-01

Attention: Alicia Kimberley

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/07/23
 Report #: R3596695
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5E0334

Received: 2015/07/17, 10:05

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/07/23	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/07/23	2015/07/23	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/07/20	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/07/22	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/07/23	2015/07/23	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/07/19	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager

Email: ABrasil@maxxam.ca

Phone# (905)817-5817

=====

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Maxxam Job #: B5E0334
Report Date: 2015/07/23

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

RESULTS OF ANALYSES OF WATER

Maxxam ID		AQI420		
Sampling Date		2015/07/16 13:00		
COC Number		520617-01-01		
	Units	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	0.90	0.50	4109436
Inorganics				
pH	pH	8.25	N/A	4111995
Phenols-4AAP	mg/L	ND	0.0010	4112365
Total Suspended Solids	mg/L	16	1	4111554
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	0.90	0.50	4116908
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4116909
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable ND = Not detected				

Maxxam Job #: B5E0334
Report Date: 2015/07/23

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

GENERAL COMMENTS

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

Package 1	22.0°C
-----------	--------

Results relate only to the items tested.

Maxxam Job #: B5E0334
Report Date: 2015/07/23

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4111554	Total Suspended Solids	2015/07/19					ND,RDL=1	mg/L	NC	25	98	85 - 115
4111995	pH	2015/07/20			102	98 - 103			0.48	N/A		
4112365	Phenols-4AAP	2015/07/22	91	80 - 120	99	85 - 115	ND, RDL=0.0010	mg/L	NC	20		
4116908	Total Oil & Grease	2015/07/23	92	75 - 125	97	85 - 115	ND, RDL=0.50	mg/L	NC	25		
4116909	Total Oil & Grease Mineral/Synthetic	2015/07/23	89	75 - 125	94	85 - 115	ND, RDL=0.50	mg/L	NC	25		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B5E0334
Report Date: 2015/07/23

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: TC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #26238 Coco Paving Inc	Company Name: Dawn Hoyle	Quotation #: B47292	Maxxam Job #:	Attention: Anthony Rossi/Dave Sanders	Attention: Dawn Hoyle	P.O. #: 1407634	Bottle Order #:
Address: 949 Wilson Ave Toronto ON M3K 1G2	Address:	Project: 1407634	Barcode: 520617	Tel: (416) 570-7052 x	Tel: Dawn_Hoyle@golder.com	Project Name:	COC #:
Email: ARossi@cocogroup.com; DSanders@cocogroup.com	Email: Dawn_Hoyle@golder.com	Site #:	Project Manager: Stephen McMillan	Fax:	Fax:	Sampled By: <u>Teresa Cronk</u>	Barcode: C#520617-01-01

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY						ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required: Please provide advance notice for rush projects							
Regulation 153 (2011)			Other Regulations			Special Instructions										Regular (Standard) TAT: <i>(will be applied if Rush TAT is not specified):</i> Standard TAT = 5-7 Working days for most tests. <i>Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.</i>							
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input type="checkbox"/> Medium/Fine	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw		Field Filtered (please circle): Metals / Hg / Cr / V /	Low Level Total Suspended Solids	Oil & Grease - AV/MT	Phenols (AAP)	pH	pH											Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)	
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw																			
<input type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	Municipality _____																			
<input type="checkbox"/> Table _____			<input type="checkbox"/> PWQO	<input type="checkbox"/> Other _____																			
Include Criteria on Certificate of Analysis (Y/N)?																		# of Bottles		Comments			
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix																			
520617	POND	July 16/15	100pm	SW	N/A	X	X	X	X	X													
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

17-Jul-15 10:05
 Stephen McMillan

 BSE0334
 RGN ENV-848

* RELINQUISHED BY: (Signature/Print) <u>Teresa Cronk</u>		Date: (YY/MM/DD) <u>July 16/15</u>	Time <u>100pm</u>	RECEIVED BY: (Signature/Print) <u>Alex Kachub</u>	Date: (YY/MM/DD) <u>2015.07.17</u>	Time <u>10:05</u>	# jars used and not submitted	Laboratory Use Only				
								Time Sensitive	Temperature (°C) on Receipt <u>22, 22, 22</u> <u>19, 50</u>	Custody Seal	Yes	No
										Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
										Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM. White: Maxxam Yellow: Client

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 520617-04-01

Attention:Alicia Kimberley

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/07/30
 Report #: R3613360
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5E6184

Received: 2015/07/24, 10:35

Sample Matrix: Water
 # Samples Received: 1

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
Animal and Vegetable Oil & Grease	1	N/A	2015/07/30	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2015/07/30	2015/07/30	CAM SOP-00326	EPA1664B m,SM5520A m
pH	1	N/A	2015/07/27	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2015/07/28	CAM SOP-00444	OMOE E3179 m
TPH (Heavy Oil) (1)	1	2015/07/30	2015/07/30	CAM SOP-00326	EPA1664B m,SM5520F m
Low Level Total Suspended Solids	1	N/A	2015/07/26	CAM SOP-00428	SM 22 2540D m

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) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Stephen McMillan, Project Manager

Email: smcmillan@maxxam.ca

Phone# (905)817-5700 Ext:5735

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5E6184
Report Date: 2015/07/30

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

RESULTS OF ANALYSES OF WATER

Maxxam ID		ARJ823		
Sampling Date		2015/07/23 12:00		
COC Number		520617-04-01		
	Units	POND	RDL	QC Batch
Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	ND	0.50	4119510
Inorganics				
pH	pH	8.07	N/A	4120973
Phenols-4AAP	mg/L	ND	0.0010	4121221
Total Suspended Solids	mg/L	47	1	4121332
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	ND	0.50	4127497
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.50	4127519
RDL = Reportable Detection Limit QC Batch = Quality Control Batch ND = Not detected N/A = Not Applicable				

Maxxam Job #: B5E6184
Report Date: 2015/07/30

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

GENERAL COMMENTS

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

Package 1	15.7°C
-----------	--------

Samples received with temp>10 C but cooling media present.

Results relate only to the items tested.

Maxxam Job #: B5E6184
Report Date: 2015/07/30

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4120973	pH	2015/07/27			102	98 - 103			0.022	N/A		
4121221	Phenols-4AAP	2015/07/28	98	80 - 120	102	85 - 115	ND, RDL=0.0010	mg/L	NC	20		
4121332	Total Suspended Solids	2015/07/26					ND,RDL=1	mg/L	3.6	25	95	85 - 115
4127497	Total Oil & Grease	2015/07/30			98	85 - 115	ND, RDL=0.50	mg/L	2.6	25		
4127519	Total Oil & Grease Mineral/Synthetic	2015/07/30			94	85 - 115	ND, RDL=0.50	mg/L	1.6	25		

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 (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 (one or both samples < 5x RDL).

Maxxam Job #: B5E6184
Report Date: 2015/07/30

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: SG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

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Maxxam Analytics International Corporation o/a Maxxam Analytics
 6740 Campobello Road, Mississauga, Ontario Canada L5N 2L6 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page of

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #26238 Coco Paving Inc		Company Name: Dawn Hoyle		Quotation #: B47292		Maxxam Job #:	
Attention: Anthony Rossi/Dave Sanders		Attention: Dawn Hoyle		P.O. #:		Bottle Order #:	
Address: 949 Wilson Ave		Address:		Project: 1407634		520617	
Toronto ON M3K 1G2				Project Name:		COC #:	
Tel: (416) 570-7052 x		Tel:		Site #:		Project Manager:	
Fax:		Fax:		Sampled By: Stan Grozette		Stephen McMillan	
Email: ARossi@cocogroup.com; DSanders@cocogroup.com		Email: Dawn_Hoyle@golder.com				C#520617-04-01	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY					ANALYSIS REQUESTED (PLEASE BE SPECIFIC)										Turnaround Time (TAT) Required:	
Regulation 153 (2011)			Other Regulations		Special Instructions										Please provide advance notice for rush projects	
<input type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input type="checkbox"/> Medium/Fine	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw											Regular (Standard) TAT:	
<input type="checkbox"/> Table 2	<input type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw											Regular (Standard) TAT: (will be applied if Rush TAT is not specified):	
<input type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	<input type="checkbox"/> Municipality											Standard TAT = 5-7 Working days for most tests.	
<input type="checkbox"/> Table			<input type="checkbox"/> PWQO	<input type="checkbox"/> Other											Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.	
Include Criteria on Certificate of Analysis (Y/N)?					Field Filtered (please circle):	Metals / Hg / Cr / VI	Low Level Total Suspended Solids	Oil & Grease - AV/MT	Phenols (4AAP)	pH	PH	Job Specific Rush TAT (if applies to entire submission)				
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix								Date Required:	Time Required:			
1 511941	POND	July 23/15	12pm	SW	N/A	X	X	X	X	X						
2																
3																
4																
5																
6																
7																
8																
9																
10																

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# Jars used and not submitted	Laboratory Use Only				
Teresa Cronk		July 23/15	12pm	FATIMA SHAHID		2015/07/24	10:35		Time Sensitive	Temperature (°C) on Receipt:	Custody Seal	Yes	No
Teresa Cronk										15/16/16	Present	Y	
											Intact	Y	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Maxxam Analytics International Corporation o/a Maxxam Analytics

MELTED WARM ICE
FS 2015/07/24

Your Project #: 1407634
 Site#: 1407634
 Site Location: MCCARTHY
 Your C.O.C. #: 511948-01-01

Attention: Alicia Beynon

Golder Associates Ltd
 121 Commerce Park Drive
 Unit L
 Barrie, ON
 L4N 8X1

Report Date: 2015/06/04
 Report #: R3452995
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5A1828
Received: 2015/05/29, 08:30

Sample Matrix: Water
 # Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Alkalinity	3	N/A	2015/06/03	CAM SOP-00448	SM 22 2320 B m
Carbonate, Bicarbonate and Hydroxide	3	N/A	2015/06/04	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	2	N/A	2015/06/02	CAM SOP-00463	EPA 325.2 m
Chloride by Automated Colourimetry	1	N/A	2015/06/03	CAM SOP-00463	EPA 325.2 m
Conductivity	3	N/A	2015/06/03	CAM SOP-00414	SM 22 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2015/06/02	CAM SOP-00446	SM 22 5310 B m
Fluoride	3	2015/06/02	2015/06/03	CAM SOP-00449	SM 22 4500-F C m
Hardness (calculated as CaCO3)	3	N/A	2015/06/02	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals by ICPMS	3	2015/06/01	2015/06/02	CAM SOP-00447	EPA 6020A m
Total Metals Analysis by ICPMS	3	N/A	2015/06/03	CAM SOP-00447	EPA 6020A m
Ion Balance (% Difference)	3	N/A	2015/06/04		
Anion and Cation Sum	3	N/A	2015/06/04		
Total Ammonia-N	3	N/A	2015/06/03	CAM SOP-00441	EPA GS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (2)	3	N/A	2015/06/02	CAM SOP-00440	SM 22 4500-NO3I/NO2B
Total Oil and Grease	3	2015/06/01	2015/06/01	CAM SOP-00326	EPA1664B m,SM5520A m
pH	3	N/A	2015/06/03	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	3	N/A	2015/06/02	CAM SOP-00444	OMOE E3179 m
Sat. pH and Langelier Index (@ 20C)	3	N/A	2015/06/04		
Sat. pH and Langelier Index (@ 4C)	3	N/A	2015/06/04		
Sulphate by Automated Colourimetry	3	N/A	2015/06/02	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	3	N/A	2015/06/02	CAM SOP-00428	SM 22 2540C m
Total Kjeldahl Nitrogen in Water	3	2015/06/02	2015/06/02	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	3	2015/06/02	2015/06/03	CAM SOP-00407	SM 4500 P B H m
Low Level Total Suspended Solids	3	N/A	2015/06/03	CAM SOP-00428	SM 22 2540D m

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.

Your Project #: 1407634
Site#: 1407634
Site Location: MCCARTHY
Your C.O.C. #: 511948-01-01

Attention:Alicia Beynon

Golder Associates Ltd
121 Commerce Park Drive
Unit L
Barrie, ON
L4N 8X1

Report Date: 2015/06/04
Report #: R3452995
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5A1828
Received: 2015/05/29, 08:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: ABrasil@maxxam.ca
Phone# (905)817-5817

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

RESULTS OF ANALYSES OF WATER

Maxxam ID			AJA532		AJA533		AJA534		
Sampling Date			2015/05/28 14:00		2015/05/28 13:13		2015/05/28 10:30		
COC Number			511948-01-01		511948-01-01		511948-01-01		
	Units	Criteria	POND	QC Batch	SW1	QC Batch	SW2	RDL	QC Batch

Calculated Parameters									
Anion Sum	me/L	-	7.12	4043235	6.88	4043235	7.32	N/A	4043235
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	92	4043953	190	4043953	280	1.0	4043953
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1.4	4043953	1.9	4043953	2.8	1.0	4043953
Cation Sum	me/L	-	7.66	4043235	7.55	4043235	7.84	N/A	4043235
Hardness (CaCO3)	mg/L	-	180	4043955	260	4043955	350	1.0	4043955
Ion Balance (% Difference)	%	-	3.62	4043956	4.61	4043956	3.43	N/A	4043956
Langelier Index (@ 20C)	N/A	-	0.289	4043237	0.767	4043237	1.10		4043237
Langelier Index (@ 4C)	N/A	-	0.0410	4043238	0.518	4043238	0.856		4043238
Saturation pH (@ 20C)	N/A	-	7.91	4043237	7.26	4043237	6.92		4043237
Saturation pH (@ 4C)	N/A	-	8.16	4043238	7.51	4043238	7.17		4043238

Inorganics									
Total Ammonia-N	mg/L	-	<0.050	4047257	0.080	4047257	<0.050	0.050	4047257
Conductivity	umho/cm	-	760	4047821	700	4047821	680	1.0	4047821
Total Dissolved Solids	mg/L	-	458	4046416	424	4046416	436	10	4046416
Fluoride (F-)	mg/L	-	0.49	4047822	0.30	4047822	0.14	0.10	4047822
Total Kjeldahl Nitrogen (TKN)	mg/L	-	0.68	4047300	0.76	4047300	0.79	0.10	4047300
Dissolved Organic Carbon	mg/L	-	5.8	4047470	8.1	4047398	14	0.20	4047470
pH	pH	6.5:8.5	8.20	4047818	8.03	4047818	8.03	N/A	4047818
Phenols-4AAP	mg/L	0.001	<0.0010	4046785	<0.0010	4046785	<0.0010	0.0010	4046785
Total Phosphorus	mg/L	0.01	0.023	4047698	0.026	4047698	0.063	0.004	4047698
Total Suspended Solids	mg/L	-	26	4046804	27	4046804	3	1	4046804
Dissolved Sulphate (SO4)	mg/L	-	130	4046505	86	4046724	54	1	4046724
Alkalinity (Total as CaCO3)	mg/L	-	93	4047801	190	4047801	280	1.0	4047801
Dissolved Chloride (Cl)	mg/L	-	86	4046502	42	4046721	19	1	4046721
Nitrite (N)	mg/L	-	0.016	4046601	<0.010	4046697	<0.010	0.010	4046697
Nitrate (N)	mg/L	-	0.31	4046601	<0.10	4046697	<0.10	0.10	4046697

Petroleum Hydrocarbons									
Total Oil & Grease	mg/L	-	<0.50	4045802	<0.50	4045802	<0.50	0.50	4045802

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: ONTARIO PROVINCIAL WATER QUALITY OBJECTIVES
Ref. to MOEE Water Management document dated Feb.1999
N/A = Not Applicable

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID			AJA532	AJA533	AJA534		
Sampling Date			2015/05/28 14:00	2015/05/28 13:13	2015/05/28 10:30		
COC Number			511948-01-01	511948-01-01	511948-01-01		
	Units	Criteria	POND	SW1	SW2	RDL	QC Batch
Metals							
Total Aluminum (Al)	ug/L	-	120	1000	31	5.0	4049515
Total Antimony (Sb)	ug/L	20	<0.50	<0.50	<0.50	0.50	4049515
Dissolved Arsenic (As)	ug/L	100	<1.0	<1.0	<1.0	1.0	4046487
Total Arsenic (As)	ug/L	100	<1.0	<1.0	<1.0	1.0	4049515
Total Barium (Ba)	ug/L	-	24	51	49	2.0	4049515
Total Beryllium (Be)	ug/L	11	<0.50	<0.50	<0.50	0.50	4049515
Total Boron (B)	ug/L	200	420	270	84	10	4049515
Dissolved Cadmium (Cd)	ug/L	0.2	<0.10	<0.10	<0.10	0.10	4046487
Total Cadmium (Cd)	ug/L	0.2	<0.10	<0.10	<0.10	0.10	4049515
Dissolved Calcium (Ca)	ug/L	-	38000	79000	120000	200	4046487
Total Calcium (Ca)	ug/L	-	38000	91000	120000	200	4049515
Dissolved Chromium (Cr)	ug/L	-	<5.0	<5.0	<5.0	5.0	4046487
Total Chromium (Cr)	ug/L	-	<5.0	<5.0	<5.0	5.0	4049515
Total Cobalt (Co)	ug/L	0.9	<0.50	0.81	<0.50	0.50	4049515
Dissolved Copper (Cu)	ug/L	5	<1.0	<1.0	<1.0	1.0	4046487
Total Copper (Cu)	ug/L	5	1.4	1.7	<1.0	1.0	4049515
Dissolved Iron (Fe)	ug/L	300	<100	<100	<100	100	4046487
Total Iron (Fe)	ug/L	300	140	1300	170	100	4049515
Dissolved Lead (Pb)	ug/L	5	<0.50	<0.50	<0.50	0.50	4046487
Total Lead (Pb)	ug/L	5	<0.50	0.61	<0.50	0.50	4049515
Dissolved Magnesium (Mg)	ug/L	-	21000	16000	12000	50	4046487
Total Magnesium (Mg)	ug/L	-	20000	16000	11000	50	4049515
Dissolved Manganese (Mn)	ug/L	-	3.4	7.8	<2.0	2.0	4046487
Total Manganese (Mn)	ug/L	-	22	220	89	2.0	4049515
Total Molybdenum (Mo)	ug/L	40	2.5	1.6	0.52	0.50	4049515
Dissolved Nickel (Ni)	ug/L	25	<1.0	<1.0	<1.0	1.0	4046487
Total Nickel (Ni)	ug/L	25	2.3	4.1	5.2	1.0	4049515
Dissolved Potassium (K)	ug/L	-	7400	5600	4000	200	4046487
Total Potassium (K)	ug/L	-	7400	6000	4000	200	4049515
Total Silicon (Si)	ug/L	-	390	2500	1900	50	4049515
Total Selenium (Se)	ug/L	100	<2.0	<2.0	<2.0	2.0	4049515
Total Silver (Ag)	ug/L	0.1	<0.10	<0.10	<0.10	0.10	4049515
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: ONTARIO PROVINCIAL WATER QUALITY OBJECTIVES							
Ref. to MOEE Water Management document dated Feb.1999							

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID			AJA532	AJA533	AJA534		
Sampling Date			2015/05/28 14:00	2015/05/28 13:13	2015/05/28 10:30		
COC Number			511948-01-01	511948-01-01	511948-01-01		
	Units	Criteria	POND	SW1	SW2	RDL	QC Batch
Dissolved Sodium (Na)	ug/L	-	88000	49000	18000	100	4046487
Total Sodium (Na)	ug/L	-	82000	46000	17000	100	4049515
Total Strontium (Sr)	ug/L	-	1300	980	490	1.0	4049515
Total Thallium (Tl)	ug/L	0.3	<0.050	<0.050	<0.050	0.050	4049515
Total Titanium (Ti)	ug/L	-	8.5	48	5.6	5.0	4049515
Total Vanadium (V)	ug/L	6	0.54	2.4	0.65	0.50	4049515
Dissolved Zinc (Zn)	ug/L	30	<5.0	<5.0	<5.0	5.0	4046487
Total Zinc (Zn)	ug/L	30	<5.0	5.2	7.2	5.0	4049515
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: ONTARIO PROVINCIAL WATER QUALITY OBJECTIVES							
Ref. to MOEE Water Management document dated Feb.1999							

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

TEST SUMMARY

Maxxam ID: AJA532
Sample ID: POND
Matrix: Water

Collected: 2015/05/28
Shipped:
Received: 2015/05/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	4047801	N/A	2015/06/03	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	4043953	N/A	2015/06/04	Automated Statchk
Chloride by Automated Colourimetry	KONE	4046502	N/A	2015/06/03	Deonarine Ramnarine
Conductivity	AT	4047821	N/A	2015/06/03	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	4047470	N/A	2015/06/02	Elsamma Alex
Fluoride	ISE	4047822	2015/06/02	2015/06/03	Surinder Rai
Hardness (calculated as CaCO3)		4043955	N/A	2015/06/02	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	4046487	2015/06/01	2015/06/02	Prempal Bhatti
Total Metals Analysis by ICPMS	ICP/MS	4049515	N/A	2015/06/03	Arefa Dabhad
Ion Balance (% Difference)	CALC	4043956	N/A	2015/06/04	Automated Statchk
Anion and Cation Sum	CALC	4043235	N/A	2015/06/04	Automated Statchk
Total Ammonia-N	LACH/NH4	4047257	N/A	2015/06/03	Charles Opoku-Ware
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	4046601	N/A	2015/06/02	Chandra Nandlal
Total Oil and Grease	BAL	4045802	2015/06/01	2015/06/01	Francis Afonso
pH	AT	4047818	N/A	2015/06/03	Surinder Rai
Phenols (4AAP)	TECH/PHEN	4046785	N/A	2015/06/02	Bramdeo Motiram
Sat. pH and Langelier Index (@ 20C)	CALC	4043237	N/A	2015/06/04	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	4043238	N/A	2015/06/04	Automated Statchk
Sulphate by Automated Colourimetry	KONE	4046505	N/A	2015/06/02	Deonarine Ramnarine
Total Dissolved Solids	BAL	4046416	N/A	2015/06/02	Alpa Patel
Total Kjeldahl Nitrogen in Water	SKAL	4047300	2015/06/02	2015/06/02	Louise Harding
Total Phosphorus (Colourimetric)	LACH/P	4047698	2015/06/02	2015/06/03	Viorica Rotaru
Low Level Total Suspended Solids	BAL	4046804	N/A	2015/06/03	Bansari Ray

Maxxam ID: AJA533
Sample ID: SW1
Matrix: Water

Collected: 2015/05/28
Shipped:
Received: 2015/05/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	4047801	N/A	2015/06/03	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	4043953	N/A	2015/06/04	Automated Statchk
Chloride by Automated Colourimetry	KONE	4046721	N/A	2015/06/02	Deonarine Ramnarine
Conductivity	AT	4047821	N/A	2015/06/03	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	4047398	N/A	2015/06/02	Elsamma Alex
Fluoride	ISE	4047822	2015/06/02	2015/06/03	Surinder Rai
Hardness (calculated as CaCO3)		4043955	N/A	2015/06/02	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	4046487	2015/06/01	2015/06/02	Prempal Bhatti
Total Metals Analysis by ICPMS	ICP/MS	4049515	N/A	2015/06/03	Arefa Dabhad
Ion Balance (% Difference)	CALC	4043956	N/A	2015/06/04	Automated Statchk
Anion and Cation Sum	CALC	4043235	N/A	2015/06/04	Automated Statchk
Total Ammonia-N	LACH/NH4	4047257	N/A	2015/06/03	Charles Opoku-Ware
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	4046697	N/A	2015/06/02	Chandra Nandlal
Total Oil and Grease	BAL	4045802	2015/06/01	2015/06/01	Francis Afonso
pH	AT	4047818	N/A	2015/06/03	Surinder Rai

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

TEST SUMMARY

Maxxam ID: AJA533
Sample ID: SW1
Matrix: Water

Collected: 2015/05/28
Shipped:
Received: 2015/05/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phenols (4AAP)	TECH/PHEN	4046785	N/A	2015/06/02	Bramdeo Motiram
Sat. pH and Langelier Index (@ 20C)	CALC	4043237	N/A	2015/06/04	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	4043238	N/A	2015/06/04	Automated Statchk
Sulphate by Automated Colourimetry	KONE	4046724	N/A	2015/06/02	Deonarine Ramnarine
Total Dissolved Solids	BAL	4046416	N/A	2015/06/02	Alpa Patel
Total Kjeldahl Nitrogen in Water	SKAL	4047300	2015/06/02	2015/06/02	Louise Harding
Total Phosphorus (Colourimetric)	LACH/P	4047698	2015/06/02	2015/06/03	Viorica Rotaru
Low Level Total Suspended Solids	BAL	4046804	N/A	2015/06/03	Bansari Ray

Maxxam ID: AJA534
Sample ID: SW2
Matrix: Water

Collected: 2015/05/28
Shipped:
Received: 2015/05/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	4047801	N/A	2015/06/03	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	4043953	N/A	2015/06/04	Automated Statchk
Chloride by Automated Colourimetry	KONE	4046721	N/A	2015/06/02	Deonarine Ramnarine
Conductivity	AT	4047821	N/A	2015/06/03	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	4047470	N/A	2015/06/02	Elsamma Alex
Fluoride	ISE	4047822	2015/06/02	2015/06/03	Surinder Rai
Hardness (calculated as CaCO3)		4043955	N/A	2015/06/02	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	4046487	2015/06/01	2015/06/02	Prempal Bhatti
Total Metals Analysis by ICPMS	ICP/MS	4049515	N/A	2015/06/03	Arefa Dabhad
Ion Balance (% Difference)	CALC	4043956	N/A	2015/06/04	Automated Statchk
Anion and Cation Sum	CALC	4043235	N/A	2015/06/04	Automated Statchk
Total Ammonia-N	LACH/NH4	4047257	N/A	2015/06/03	Charles Opoku-Ware
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	4046697	N/A	2015/06/02	Chandra Nandlal
Total Oil and Grease	BAL	4045802	2015/06/01	2015/06/01	Francis Afonso
pH	AT	4047818	N/A	2015/06/03	Surinder Rai
Phenols (4AAP)	TECH/PHEN	4046785	N/A	2015/06/02	Bramdeo Motiram
Sat. pH and Langelier Index (@ 20C)	CALC	4043237	N/A	2015/06/04	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	4043238	N/A	2015/06/04	Automated Statchk
Sulphate by Automated Colourimetry	KONE	4046724	N/A	2015/06/02	Deonarine Ramnarine
Total Dissolved Solids	BAL	4046416	N/A	2015/06/02	Alpa Patel
Total Kjeldahl Nitrogen in Water	SKAL	4047300	2015/06/02	2015/06/02	Louise Harding
Total Phosphorus (Colourimetric)	LACH/P	4047698	2015/06/02	2015/06/03	Viorica Rotaru
Low Level Total Suspended Solids	BAL	4046804	N/A	2015/06/03	Bansari Ray

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
4045802	FA	Spiked Blank	Total Oil & Grease	2015/06/01		93	%	85 - 115
4045802	FA	RPD	Total Oil & Grease	2015/06/01	4.5		%	25
4045802	FA	Method Blank	Total Oil & Grease	2015/06/01	<0.50		mg/L	
4046416	ALP	QC Standard	Total Dissolved Solids	2015/06/02		100	%	90 - 110
4046416	ALP	Method Blank	Total Dissolved Solids	2015/06/02	<10		mg/L	
4046416	ALP	RPD	Total Dissolved Solids	2015/06/02	13		%	25
4046487	PBA	Matrix Spike	Dissolved Arsenic (As)	2015/06/02		104	%	80 - 120
			Dissolved Cadmium (Cd)	2015/06/02		104	%	80 - 120
			Dissolved Calcium (Ca)	2015/06/02		NC	%	80 - 120
			Dissolved Chromium (Cr)	2015/06/02		103	%	80 - 120
			Dissolved Copper (Cu)	2015/06/02		99	%	80 - 120
			Dissolved Iron (Fe)	2015/06/02		102	%	80 - 120
			Dissolved Lead (Pb)	2015/06/02		102	%	80 - 120
			Dissolved Magnesium (Mg)	2015/06/02		NC	%	80 - 120
			Dissolved Manganese (Mn)	2015/06/02		NC	%	80 - 120
			Dissolved Nickel (Ni)	2015/06/02		101	%	80 - 120
			Dissolved Potassium (K)	2015/06/02		NC	%	80 - 120
			Dissolved Sodium (Na)	2015/06/02		NC	%	80 - 120
			Dissolved Zinc (Zn)	2015/06/02		100	%	80 - 120
4046487	PBA	Spiked Blank	Dissolved Arsenic (As)	2015/06/02		102	%	80 - 120
			Dissolved Cadmium (Cd)	2015/06/02		108	%	80 - 120
			Dissolved Calcium (Ca)	2015/06/02		103	%	80 - 120
			Dissolved Chromium (Cr)	2015/06/02		104	%	80 - 120
			Dissolved Copper (Cu)	2015/06/02		103	%	80 - 120
			Dissolved Iron (Fe)	2015/06/02		104	%	80 - 120
			Dissolved Lead (Pb)	2015/06/02		105	%	80 - 120
			Dissolved Magnesium (Mg)	2015/06/02		101	%	80 - 120
			Dissolved Manganese (Mn)	2015/06/02		104	%	80 - 120
			Dissolved Nickel (Ni)	2015/06/02		106	%	80 - 120
			Dissolved Potassium (K)	2015/06/02		102	%	80 - 120
			Dissolved Sodium (Na)	2015/06/02		102	%	80 - 120
			Dissolved Zinc (Zn)	2015/06/02		101	%	80 - 120
4046487	PBA	Method Blank	Dissolved Arsenic (As)	2015/06/02	<1.0		ug/L	
			Dissolved Cadmium (Cd)	2015/06/02	<0.10		ug/L	
			Dissolved Calcium (Ca)	2015/06/02	<200		ug/L	
			Dissolved Chromium (Cr)	2015/06/02	<5.0		ug/L	
			Dissolved Copper (Cu)	2015/06/02	<1.0		ug/L	
			Dissolved Iron (Fe)	2015/06/02	<100		ug/L	
			Dissolved Lead (Pb)	2015/06/02	<0.50		ug/L	
			Dissolved Magnesium (Mg)	2015/06/02	<50		ug/L	
			Dissolved Manganese (Mn)	2015/06/02	<2.0		ug/L	
			Dissolved Nickel (Ni)	2015/06/02	<1.0		ug/L	
			Dissolved Potassium (K)	2015/06/02	<200		ug/L	
			Dissolved Sodium (Na)	2015/06/02	<100		ug/L	
			Dissolved Zinc (Zn)	2015/06/02	<5.0		ug/L	
4046487	PBA	RPD	Dissolved Iron (Fe)	2015/06/02	NC		%	20
			Dissolved Lead (Pb)	2015/06/02	NC		%	20
			Dissolved Sodium (Na)	2015/06/02	7.6		%	20
4046502	DRM	Matrix Spike	Dissolved Chloride (Cl)	2015/06/03		NC	%	80 - 120
4046502	DRM	Spiked Blank	Dissolved Chloride (Cl)	2015/06/03		102	%	80 - 120
4046502	DRM	Method Blank	Dissolved Chloride (Cl)	2015/06/03	<1		mg/L	
4046502	DRM	RPD	Dissolved Chloride (Cl)	2015/06/03	0.35		%	20

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
4046505	DRM	Matrix Spike	Dissolved Sulphate (SO4)	2015/06/02		NC	%	75 - 125
4046505	DRM	Spiked Blank	Dissolved Sulphate (SO4)	2015/06/02		105	%	80 - 120
4046505	DRM	Method Blank	Dissolved Sulphate (SO4)	2015/06/02	<1		mg/L	
4046505	DRM	RPD	Dissolved Sulphate (SO4)	2015/06/02	0.27		%	20
4046601	C_N	Matrix Spike	Nitrite (N)	2015/06/02		95	%	80 - 120
			Nitrate (N)	2015/06/02		94	%	80 - 120
4046601	C_N	Spiked Blank	Nitrite (N)	2015/06/02		96	%	80 - 120
			Nitrate (N)	2015/06/02		99	%	80 - 120
4046601	C_N	Method Blank	Nitrite (N)	2015/06/02	<0.010		mg/L	
			Nitrate (N)	2015/06/02	<0.10		mg/L	
4046601	C_N	RPD	Nitrite (N)	2015/06/02	NC		%	25
			Nitrate (N)	2015/06/02	NC		%	25
4046697	C_N	Matrix Spike	Nitrite (N)	2015/06/02		98	%	80 - 120
			Nitrate (N)	2015/06/02		97	%	80 - 120
4046697	C_N	Spiked Blank	Nitrite (N)	2015/06/02		97	%	80 - 120
			Nitrate (N)	2015/06/02		98	%	80 - 120
4046697	C_N	Method Blank	Nitrite (N)	2015/06/02	<0.010		mg/L	
			Nitrate (N)	2015/06/02	<0.10		mg/L	
4046697	C_N	RPD	Nitrite (N)	2015/06/02	NC		%	25
			Nitrate (N)	2015/06/02	NC		%	25
4046721	DRM	Matrix Spike	Dissolved Chloride (Cl)	2015/06/02		NC	%	80 - 120
4046721	DRM	Spiked Blank	Dissolved Chloride (Cl)	2015/06/02		103	%	80 - 120
4046721	DRM	Method Blank	Dissolved Chloride (Cl)	2015/06/02	<1		mg/L	
4046721	DRM	RPD	Dissolved Chloride (Cl)	2015/06/02	0.93		%	20
4046724	DRM	Matrix Spike	Dissolved Sulphate (SO4)	2015/06/02		NC	%	75 - 125
4046724	DRM	Spiked Blank	Dissolved Sulphate (SO4)	2015/06/02		105	%	80 - 120
4046724	DRM	Method Blank	Dissolved Sulphate (SO4)	2015/06/02	<1		mg/L	
4046724	DRM	RPD	Dissolved Sulphate (SO4)	2015/06/02	1.1		%	20
4046785	BMO	Matrix Spike	Phenols-4AAP	2015/06/02		96	%	80 - 120
4046785	BMO	Spiked Blank	Phenols-4AAP	2015/06/02		97	%	85 - 115
4046785	BMO	Method Blank	Phenols-4AAP	2015/06/02	<0.0010		mg/L	
4046785	BMO	RPD	Phenols-4AAP	2015/06/02	NC		%	20
4046804	RAY	QC Standard	Total Suspended Solids	2015/06/03		96	%	85 - 115
4046804	RAY	Method Blank	Total Suspended Solids	2015/06/03	<1		mg/L	
4046804	RAY	RPD	Total Suspended Solids	2015/06/03	2.0		%	25
4047257	COP	Matrix Spike	Total Ammonia-N	2015/06/03		105	%	80 - 120
4047257	COP	Spiked Blank	Total Ammonia-N	2015/06/03		103	%	85 - 115
4047257	COP	Method Blank	Total Ammonia-N	2015/06/03	<0.050		mg/L	
4047257	COP	RPD	Total Ammonia-N	2015/06/03	0.97		%	20
4047300	LHA	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2015/06/02		98	%	80 - 120
4047300	LHA	QC Standard	Total Kjeldahl Nitrogen (TKN)	2015/06/02		98	%	80 - 120
4047300	LHA	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2015/06/02		99	%	80 - 120
4047300	LHA	Method Blank	Total Kjeldahl Nitrogen (TKN)	2015/06/02	<0.10		mg/L	
4047300	LHA	RPD	Total Kjeldahl Nitrogen (TKN)	2015/06/02	NC		%	20
4047398	EAX	Matrix Spike	Dissolved Organic Carbon	2015/06/02		91	%	80 - 120
4047398	EAX	Spiked Blank	Dissolved Organic Carbon	2015/06/02		101	%	80 - 120
4047398	EAX	Method Blank	Dissolved Organic Carbon	2015/06/02	<0.20		mg/L	
4047398	EAX	RPD	Dissolved Organic Carbon	2015/06/02	NC		%	20
4047470	EAX	Matrix Spike	Dissolved Organic Carbon	2015/06/02		97	%	80 - 120
4047470	EAX	Spiked Blank	Dissolved Organic Carbon	2015/06/02		99	%	80 - 120
4047470	EAX	Method Blank	Dissolved Organic Carbon	2015/06/02	<0.20		mg/L	
4047470	EAX	RPD	Dissolved Organic Carbon	2015/06/02	2.6		%	20

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
4047698	VRO	Matrix Spike	Total Phosphorus	2015/06/03		94	%	80 - 120
4047698	VRO	QC Standard	Total Phosphorus	2015/06/03		101	%	80 - 120
4047698	VRO	Spiked Blank	Total Phosphorus	2015/06/03		103	%	80 - 120
4047698	VRO	Method Blank	Total Phosphorus	2015/06/03	<0.004		mg/L	
4047698	VRO	RPD	Total Phosphorus	2015/06/03	NC		%	20
4047801	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2015/06/03		94	%	85 - 115
4047801	SAU	Method Blank	Alkalinity (Total as CaCO3)	2015/06/03	<1.0		mg/L	
4047801	SAU	RPD	Alkalinity (Total as CaCO3)	2015/06/03	0.35		%	25
4047818	SAU	Spiked Blank	pH	2015/06/03		101	%	98 - 103
4047818	SAU	RPD	pH	2015/06/03	0.29		%	N/A
4047821	SAU	Spiked Blank	Conductivity	2015/06/03		101	%	85 - 115
4047821	SAU	Method Blank	Conductivity	2015/06/03	<1.0		umho/c	
4047821	SAU	RPD	Conductivity	2015/06/03	0.46		%	25
4047822	SAU	Matrix Spike	Fluoride (F-)	2015/06/03		98	%	80 - 120
4047822	SAU	Spiked Blank	Fluoride (F-)	2015/06/03		100	%	80 - 120
4047822	SAU	Method Blank	Fluoride (F-)	2015/06/03	<0.10		mg/L	
4047822	SAU	RPD	Fluoride (F-)	2015/06/03	NC		%	20
4049515	ADA	Matrix Spike	Total Aluminum (Al)	2015/06/03		113	%	80 - 120
			Total Antimony (Sb)	2015/06/03		108	%	80 - 120
			Total Arsenic (As)	2015/06/03		106	%	80 - 120
			Total Barium (Ba)	2015/06/03		101	%	80 - 120
			Total Beryllium (Be)	2015/06/03		102	%	80 - 120
			Total Boron (B)	2015/06/03		103	%	80 - 120
			Total Cadmium (Cd)	2015/06/03		105	%	80 - 120
			Total Calcium (Ca)	2015/06/03		NC	%	80 - 120
			Total Chromium (Cr)	2015/06/03		103	%	80 - 120
			Total Cobalt (Co)	2015/06/03		103	%	80 - 120
			Total Copper (Cu)	2015/06/03		104	%	80 - 120
			Total Iron (Fe)	2015/06/03		105	%	80 - 120
			Total Lead (Pb)	2015/06/03		101	%	80 - 120
			Total Magnesium (Mg)	2015/06/03		101	%	80 - 120
			Total Manganese (Mn)	2015/06/03		102	%	80 - 120
			Total Molybdenum (Mo)	2015/06/03		106	%	80 - 120
			Total Nickel (Ni)	2015/06/03		104	%	80 - 120
			Total Potassium (K)	2015/06/03		104	%	80 - 120
			Total Silicon (Si)	2015/06/03		102	%	80 - 120
			Total Selenium (Se)	2015/06/03		110	%	80 - 120
			Total Silver (Ag)	2015/06/03		103	%	80 - 120
			Total Sodium (Na)	2015/06/03		NC	%	80 - 120
			Total Strontium (Sr)	2015/06/03		NC	%	80 - 120
			Total Thallium (Tl)	2015/06/03		100	%	80 - 120
			Total Titanium (Ti)	2015/06/03		101	%	80 - 120
			Total Vanadium (V)	2015/06/03		104	%	80 - 120
			Total Zinc (Zn)	2015/06/03		105	%	80 - 120
4049515	ADA	Spiked Blank	Total Aluminum (Al)	2015/06/03		109	%	80 - 120
			Total Antimony (Sb)	2015/06/03		107	%	80 - 120
			Total Arsenic (As)	2015/06/03		106	%	80 - 120
			Total Barium (Ba)	2015/06/03		101	%	80 - 120
			Total Beryllium (Be)	2015/06/03		102	%	80 - 120
			Total Boron (B)	2015/06/03		104	%	80 - 120
			Total Cadmium (Cd)	2015/06/03		106	%	80 - 120
			Total Calcium (Ca)	2015/06/03		106	%	80 - 120

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			Total Chromium (Cr)	2015/06/03		103	%	80 - 120
			Total Cobalt (Co)	2015/06/03		103	%	80 - 120
			Total Copper (Cu)	2015/06/03		106	%	80 - 120
			Total Iron (Fe)	2015/06/03		105	%	80 - 120
			Total Lead (Pb)	2015/06/03		102	%	80 - 120
			Total Magnesium (Mg)	2015/06/03		105	%	80 - 120
			Total Manganese (Mn)	2015/06/03		103	%	80 - 120
			Total Molybdenum (Mo)	2015/06/03		106	%	80 - 120
			Total Nickel (Ni)	2015/06/03		103	%	80 - 120
			Total Potassium (K)	2015/06/03		105	%	80 - 120
			Total Silicon (Si)	2015/06/03		106	%	80 - 120
			Total Selenium (Se)	2015/06/03		115	%	80 - 120
			Total Silver (Ag)	2015/06/03		106	%	80 - 120
			Total Sodium (Na)	2015/06/03		103	%	80 - 120
			Total Strontium (Sr)	2015/06/03		104	%	80 - 120
			Total Thallium (Tl)	2015/06/03		101	%	80 - 120
			Total Titanium (Ti)	2015/06/03		104	%	80 - 120
			Total Vanadium (V)	2015/06/03		103	%	80 - 120
			Total Zinc (Zn)	2015/06/03		106	%	80 - 120
4049515	ADA	Method Blank	Total Aluminum (Al)	2015/06/03	<5.0		ug/L	
			Total Antimony (Sb)	2015/06/03	<0.50		ug/L	
			Total Arsenic (As)	2015/06/03	<1.0		ug/L	
			Total Barium (Ba)	2015/06/03	<2.0		ug/L	
			Total Beryllium (Be)	2015/06/03	<0.50		ug/L	
			Total Boron (B)	2015/06/03	<10		ug/L	
			Total Cadmium (Cd)	2015/06/03	<0.10		ug/L	
			Total Calcium (Ca)	2015/06/03	<200		ug/L	
			Total Chromium (Cr)	2015/06/03	<5.0		ug/L	
			Total Cobalt (Co)	2015/06/03	<0.50		ug/L	
			Total Copper (Cu)	2015/06/03	<1.0		ug/L	
			Total Iron (Fe)	2015/06/03	<100		ug/L	
			Total Lead (Pb)	2015/06/03	<0.50		ug/L	
			Total Magnesium (Mg)	2015/06/03	<50		ug/L	
			Total Manganese (Mn)	2015/06/03	<2.0		ug/L	
			Total Molybdenum (Mo)	2015/06/03	<0.50		ug/L	
			Total Nickel (Ni)	2015/06/03	<1.0		ug/L	
			Total Potassium (K)	2015/06/03	<200		ug/L	
			Total Silicon (Si)	2015/06/03	<50		ug/L	
			Total Selenium (Se)	2015/06/03	<2.0		ug/L	
			Total Silver (Ag)	2015/06/03	<0.10		ug/L	
			Total Sodium (Na)	2015/06/03	<100		ug/L	
			Total Strontium (Sr)	2015/06/03	<1.0		ug/L	
			Total Thallium (Tl)	2015/06/03	<0.050		ug/L	
			Total Titanium (Ti)	2015/06/03	<5.0		ug/L	
			Total Vanadium (V)	2015/06/03	<0.50		ug/L	
			Total Zinc (Zn)	2015/06/03	<5.0		ug/L	
4049515	ADA	RPD	Total Aluminum (Al)	2015/06/03	0.71		%	20
			Total Antimony (Sb)	2015/06/03	NC		%	20
			Total Arsenic (As)	2015/06/03	NC		%	20
			Total Barium (Ba)	2015/06/03	12		%	20
			Total Beryllium (Be)	2015/06/03	NC		%	20
			Total Boron (B)	2015/06/03	NC		%	20

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			Total Cadmium (Cd)	2015/06/03	NC		%	20
			Total Calcium (Ca)	2015/06/03	6.3		%	20
			Total Chromium (Cr)	2015/06/03	NC		%	20
			Total Cobalt (Co)	2015/06/03	NC		%	20
			Total Copper (Cu)	2015/06/03	NC		%	20
			Total Iron (Fe)	2015/06/03	NC		%	20
			Total Lead (Pb)	2015/06/03	NC		%	20
			Total Magnesium (Mg)	2015/06/03	7.5		%	20
			Total Manganese (Mn)	2015/06/03	NC		%	20
			Total Molybdenum (Mo)	2015/06/03	NC		%	20
			Total Nickel (Ni)	2015/06/03	NC		%	20
			Total Potassium (K)	2015/06/03	5.4		%	20
			Total Silicon (Si)	2015/06/03	NC		%	20
			Total Selenium (Se)	2015/06/03	NC		%	20
			Total Silver (Ag)	2015/06/03	NC		%	20
			Total Sodium (Na)	2015/06/03	8.0		%	20
			Total Strontium (Sr)	2015/06/03	9.4		%	20
			Total Thallium (Tl)	2015/06/03	NC		%	20
			Total Titanium (Ti)	2015/06/03	NC		%	20
			Total Vanadium (V)	2015/06/03	NC		%	20
			Total Zinc (Zn)	2015/06/03	NC		%	20

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 spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of 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 (one or both samples < 5x RDL).

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5A1828
Report Date: 2015/06/04

Golder Associates Ltd
Client Project #: 1407634
Site Location: MCCARTHY
Sampler Initials: DEH

**Exceedence Summary Table – Prov. Water Quality Obj.
Result Exceedences**

Sample ID	Maxxam ID	Parameter	Criteria	Result	DL	Units
POND	AJA532-07	Total Boron (B)	200	420	10	ug/L
POND	AJA532-04	Total Phosphorus	0.01	0.023	0.004	mg/L
SW1	AJA533-07	Total Boron (B)	200	270	10	ug/L
SW1	AJA533-07	Total Iron (Fe)	300	1300	100	ug/L
SW1	AJA533-04	Total Phosphorus	0.01	0.026	0.004	mg/L
SW2	AJA534-04	Total Phosphorus	0.01	0.063	0.004	mg/L

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

48H *Daphnia magna* SINGLE CONCENTRATION TEST

Sample Informations

Sample Lab Number	6594366
Sample ID	POND
Type of sample	SURFACE WATER
Sample point	McCARTHY
Collection method	ND
Collection date/time	2015-05-28 / 02:00 PM
Collected by	DEH JEB
Sample received (date and time)	2015-05-29 / 10:20 AM
Condition upon reception	TEMPERATURE: 9,7°C
Sample storage	4°C/DARKNESS TILL USED FOR THE ANALYSIS

Initial parameters prior to testing

Sample appearance:	COLORLESS/CLEAR/SOME PARTICLES/WEAK ODOUR
Temperature (°C):	19,5
pH:	8,4
Conductivity (µS/cm):	672
Dissolved oxygen (mg/L):	8,9
Pre aeration time (minutes)	0
Pre aeration rate (ml/min/L)	NA
Sample hardness (mg/L CaCO ₃):	176
Sample adjusted hardness (mg/L CaCO ₃):	NA
Sample pre-treatment:	NONE

Test conditions

Organism (age):	<i>Daphnia magna</i> (< 24hours)
Analysis method:	SPE 1/RM/11, 1990, mod.05/1996; SPE 1/RM/14, 2000
Method modification:	NONE
Mortality of culture 7 days prior to testing:	<1%
Time to first brood:	9
Average brood size:	26
Test solution volume (ml):	300
Number exposed/concentration:	30 (10 ORGANISMS/VESSEL)
Loading density (ml/organism):	30
Photoperiod (light intensity):	16hours light/8hours dark (400-800lux)
Dilution water:	Dechlorinated tap water, adjusted hardness
Control water hardness (mg/L CaCO ₃):	167

48H *Daphnia magna* SINGLE CONCENTRATION TEST

Analysis details

Test initiation date/time (T0h) June 2, 2015 / 11:20 AM
 Test ending date/time (T48h) June 4, 2015 / 11:20 AM
 Technician(s): MP

Sample concentration (% v/v)	Temperature (°C)		pH		Dissolved oxygen (mg/L)		Conductivity (µS/cm)	Number exposed	Immobility (48h)		Mortality (48h)	
	0h	48h	0h	48h	0h	48h	0h	0h	Nombre	%	Nombre	%
0 (CTRL)	20,2	20,3	8,3	8,2	8,3	8,8	388	10	0	0	0	0
0 (CTRL)	20,2	20,4	8,3	8,3	8,3	8,8	388	10	0	0	0	0
0 (CTRL)	20,2	19,9	8,3	8,3	8,3	8,9	388	10	0	0	0	0
100	19,7	20,0	8,4	8,3	9,1	9,0	675	10	0	0	0	0
100	19,7	19,7	8,4	8,3	9,1	8,9	675	10	0	0	0	0
100	19,7	20,5	8,4	8,3	9,1	8,9	675	10	0	0	0	0

Additional Observations:

Reference toxicant data

Reference toxicant: Potassium dichromate (K₂Cr₂O₇)

Date of test: 2015-06-02

48h-LC50 (mg/L Cr): 0,200

95% Lower confidence limit (mg/L Cr): 0,128

95% Upper confidence limit (mg/L Cr): 0,249

Historic geometric mean LC50 (mg/L Cr): 0,221

-2S Warning limit (mg/L Cr): 0,146

+2S Warning limit (mg/L Cr): 0,335

ANNEX

96H SINGLE CONCENTRATION Rainbow Trout TEST

Sample Information

Sample Lab Number:	6594366
Sample ID:	POND
Type of Sample:	SURFACE WATER
Sample point:	McCARTHY
Collection method:	ND
Collection date/time	2015-05-28 / 02:00 PM
Collected by:	PEH JEB
Sample received (date/time):	2015-05-29 / 10:20 AM
Condition upon reception:	TEMPERATURE: 9,7°C
Sample storage:	4°C/DARKNESS TILL USED FOR THE ANALYSIS

Initial parameters prior to testing

Sample appearance:	GREENISH/CLEAR/SOME PARTICLES/WEAK ODOUR
Temperature (°C):	14,7
pH:	8,5
Conductivity (µS/cm)	675
Dissolved oxygen (mg/L):	9,5
Pre aeration time (minutes):	30
Pre aeration rate (ml/min/L):	6,5 ± 1
Sample pre-treatment	NONE

Test Conditions

Organisms:	Rainbow Trout (<i>Oncorhynchus mykiss</i>)		
Provenance:	Pisciculture des Arpents verts		
Acclimatation time:	> 2 WEEKS		
Trout Batch No:	APV180515		
Mortality 7 days prior to testing:	0,0%		
Control mean weight (g):	0,30		
± standard deviation:	0,09		
Control mean fork length (mm):	34,1	Min: 30,4	Max: 39,0
± standard deviation:	3,3		
Number exposed/concentration:	10		
Test solution volume (L):	12		
Test solution depth (cm):	21,5		
Loading density (g/L):	0,25		
Dilution water:	Dechlorinated tap water		
Photoperiod:	16 hours light / 8 hours dark		
Analysis method:	SPE 1/RM/9, 1990, mod.1996,2007; SPE 1/RM/13, 2000 mod.05/2007		
Method modification:	NONE		

ANNEX

96H SINGLE CONCENTRATION Rainbow Trout TEST

Analysis Details

Test initiation date/time (T0h) June 2, 2015 / 11:50 AM
 Test ending date/time (T96h) June 6, 2015 / 11:50 AM
 Technician(s): DB DS

Physicochemical Parameters

Sample concentration (%v/v)	Temperature (°C)		pH		Dissolved oxygen (mg/L)		Conductivity (µS/cm)
	0h	96hours	0h	96hours	0h	96hours	0h
0 (CTRL)	14,7	15,8	8,1	8,1	10,0	9,7	306
100	14,9	15,8	8,4	8,1	10,0	9,5	767

Test Results (96 hours)

Sample concentration (%v/v)	Number exposed	Immobile or stressed		Dead	
		Number	%	Number	%
0 (CTRL)	10	0	0	0	0
100	10	0	0	0	0

Reference Toxicant Data

Reference toxicant: Zinc Sulfate (ZnSO ₄ -7H ₂ O)
Date of test: 2015-05-31
96h-LC50 (mg/L Zn): 0,320
95% Lower confidence limit (mg/L Zn): 0,237
95% Upper confidence limit (mg/L Zn): 0,427
Historic geometric mean LC50 (mg/L Zn): 0,535
-2S Warning limit (mg/L Zn): 0,280
+2S Warning limit (mg/L Zn): 1,024

ANNEX

96H SINGLE CONCENTRATION Rainbow Trout TEST

Daily Observations

Sample concentration (%v/v)	24 hours		48 hours		72 hours		96 hours	
	# immobile or stressed	# dead	# immobile or stressed	# dead	# immobile or stressed	# dead	# immobile or stressed	# dead
0 (CTRL)	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0

Additional Observations

48H *Daphnia magna* SINGLE CONCENTRATION TEST

Sample Informations

Sample Lab Number	6635277		
Sample ID	POND		
Type of sample	SURFACE WATER		
Sample point	McCARTHY (BRECHIN)		
Collection method	ND		
Collection date/time	2015-06-09	/	12:00 PM
Collected by	DEH		
Sample received (date and time)	2015-06-10	/	10:30 AM
Condition upon reception	TEMPERATURE: 9,7°C		
Sample storage	ANALYSIS STARTED UPON SAMPLE ARRIVAL AT THE ECOTOXICOLOGY LABORATORY (MTL)		

Initial parameters prior to testing

Sample appearance:	COLORLESS/CLEAR/WEAK ODOUR
Temperature (°C):	22,0
pH:	8,8
Conductivity (µS/cm):	914
Dissolved oxygen (mg/L):	8,5
Pre aeration time (minutes)	0
Pre aeration rate (ml/min/L)	NA
Sample hardness (mg/L CaCO ₃):	160
Sample adjusted hardness (mg/L CaCO ₃):	NA
Sample pre-treatment:	NONE

Test conditions

Organism (age):	<i>Daphnia magna</i> (< 24hours)
Analysis method:	SPE 1/RM/11, 1990, mod.05/1996; SPE 1/RM/14, 2000
Method modification:	NONE
Mortality of culture 7 days prior to testing:	<1%
Time to first brood:	9
Average brood size:	26
Test solution volume (ml):	300
Number exposed/concentration:	30 (10 ORGANISMS/VESSEL)
Loading density (ml/organism):	30
Photoperiod (light intensity):	16hours light/8hours dark (400-800lux)
Dilution water:	Dechlorinated tap water, adjusted hardness
Control water hardness (mg/L CaCO ₃):	173

48H *Daphnia magna* SINGLE CONCENTRATION TEST

Analysis details

Test initiation date/time (T0h) June 11, 2015 / 2:30 PM
 Test ending date/time (T48h) June 13, 2015 / 2:30 PM
 Technician(s): DS

Sample concentration (% v/v)	Temperature (°C)		pH		Dissolved oxygen (mg/L)		Conductivity (µS/cm)	Number exposed	Immobility (48h)		Mortality (48h)	
	0h	48h	0h	48h	0h	48h	0h	0h	Nombre	%	Nombre	%
0 (CTRL)	20,9	21,1	8,4	8,3	8,8	9,5	511	10	0	0	0	0
0 (CTRL)	20,9	21,2	8,4	8,3	8,8	9,5	511	10	0	0	0	0
0 (CTRL)	20,9	21,1	8,4	8,3	8,8	9,1	511	10	0	0	0	0
100	22,0	21,3	8,8	8,3	8,5	9,0	914	10	0	0	0	0
100	22,0	21,2	8,8	8,3	8,5	9,0	914	10	0	0	0	0
100	22,0	21,2	8,8	8,3	8,5	9,0	914	10	0	0	0	0

Additional Observations:

Reference toxicant data

Reference toxicant: Potassium dichromate (K₂Cr₂O₇)

Date of test: 2015-06-10

48h-LC50 (mg/L Cr): 0,213

95% Lower confidence limit (mg/L Cr): 0,164

95% Upper confidence limit (mg/L Cr): 0,260

Historic geometric mean LC50 (mg/L Cr): 0,221

-2S Warning limit (mg/L Cr): 0,146

+2S Warning limit (mg/L Cr): 0,335

ANNEX

96H SINGLE CONCENTRATION Rainbow Trout TEST

Sample Information

Sample Lab Number:	6635277		
Sample ID:	POND		
Type of Sample:	SURFACE WATER		
Sample point:	McCARTHY (BRECHIN)		
Collection method:	ND		
Collection date/time	2015-06-09	/	12:00 PM
Collected by:	DEH		
Sample received (date/time):	2015-06-10	/	10:30
Condition upon reception:	TEMPERATURE: 9:°C		
Sample storage:	4°C/DARKNESS TILL USED FOR THE ANALYSIS		

Initial parameters prior to testing

Sample appearance:	YELLOWISH/SLIGHTLY TURBID/SOME SMALL PARTICLES/STRONG ODOUR		
Temperature (°C):	14,9		
pH:	8,8		
Conductivity (µS/cm)	797		
Dissolved oxygen (mg/L):	8,8		
Pre aeration time (minutes):	30		
Pre aeration rate (ml/min/L):	6,5 ± 1		
Sample pre-treatment	NONE		

Test Conditions

Organisms:	Rainbow Trout (<i>Oncorhynchus mykiss</i>)		
Provenance:	Pisciculture des Arpents verts		
Acclimatation time:	> 2 WEEKS		
Trout Batch No:	APV250515		
Mortality 7 days prior to testing:	0,0%		
Control mean weight (g):	0,58		
± standard deviation:	0,14		
Control mean fork length (mm):	41,6	Min: 35,7	Max: 45,7
± standard deviation:	3,4		
Number exposed/concentration:	10		
Test solution volume (L):	14,4		
Test solution depth (cm):	26		
Loading density (g/L):	0,40		
Dilution water:	Dechlorinated tap water		
Photoperiod:	16 hours light / 8 hours dark		
Analysis method:	SPE 1/RM/9, 1990, mod.1996,2007; SPE 1/RM/13, 2000 mod.05/2007		
Method modification:	NONE		

ANNEX

96H SINGLE CONCENTRATION Rainbow Trout TEST

Analysis Details

Test initiation date/time (T0h) June 12, 2015 / 12:35 PM
 Test ending date/time (T96h) June 16, 2015 / 12:35 PM
 Technician(s): MC DS

Physicochemical Parameters

Sample concentration (%v/v)	Temperature (°C)		pH		Dissolved oxygen (mg/L)		Conductivity (µS/cm)
	0h	96hours	0h	96hours	0h	96hours	0h
0 (CTRL)	15,0	15,2	8,2	8,1	9,8	9,4	339
100	14,6	15,5	8,8	8,1	9,7	9,2	792

Test Results (96 hours)

Sample concentration (%v/v)	Number exposed	Immobile or stressed		Dead	
		Number	%	Number	%
0 (CTRL)	10	0	0	0	0
100	10	0	0	0	0

Reference Toxicant Data

Reference toxicant: Zinc Sulfate (ZnSO ₄ ·7H ₂ O)
Date of test: 2015-06-08
96h-LC50 (mg/L Zn): 0,333
95% Lower confidence limit (mg/L Zn): 0,258
95% Upper confidence limit (mg/L Zn): 0,435
Historic geometric mean LC50 (mg/L Zn): 0,517
-2S Warning limit (mg/L Zn): 0,266
+2S Warning limit (mg/L Zn): 1,006

ANNEX

96H SINGLE CONCENTRATION Rainbow Trout TEST

Daily Observations

Sample concentration (%v/v)	24 hours		48 hours		72 hours		96 hours	
	# immobile or stressed	# dead	# immobile or stressed	# dead	# immobile or stressed	# dead	# immobile or stressed	# dead
0 (CTRL)	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0

Additional Observations

48H *Daphnia magna* SINGLE CONCENTRATION TEST

Sample Informations

Sample Lab Number	6720679
Sample ID	POND
Type of sample	SURFACE WATER
Sample point	MCCARTHY
Collection method	ND
Collection date/time	2015-07-08 / 12:00 PM
Collected by	DAWN HOYLE
Sample received (date and time)	2015-07-09 / 09:35 AM
Condition upon reception	TEMPERATURE: 7,2°C
Sample storage	ANALYSIS STARTED UPON SAMPLE ARRIVAL AT THE ECOTOXICOLOGY LABORATORY (MTL)

Initial parameters prior to testing

Sample appearance:	COLORLESS/CLEAR/A LOT OF FLAKY PARTICLES/ORGANIC DEBRIS
Temperature (°C):	19,9
pH:	8,9
Conductivity (µS/cm):	445
Dissolved oxygen (mg/L):	8,3
Pre aeration time (minutes)	0
Pre aeration rate (ml/min/L)	NA
Sample hardness (mg/L CaCO ₃):	188
Sample adjusted hardness (mg/L CaCO ₃):	NA
Sample pre-treatment:	NONE

Test conditions

Organism (age):	<i>Daphnia magna</i> (< 24hours)
Analysis method:	SPE 1/RM/11, 1990, mod.05/1996; SPE 1/RM/14, 2000
Method modification:	NONE
Mortality of culture 7 days prior to testing:	<1%
Time to first brood:	9
Average brood size:	26
Test solution volume (ml):	200
Number exposed/concentration:	30 (10 ORGANISMS/VESSEL)
Loading density (ml/organism):	20
Photoperiod (light intensity):	16hours light/8hours dark (400-800lux)
Dilution water:	Dechlorinated tap water, adjusted hardness
Control water hardness (mg/L CaCO ₃):	175

48H *Daphnia magna* SINGLE CONCENTRATION TEST

Analysis details

Test initiation date/time (T0h) July 10, 2015 / 2:40 PM
 Test ending date/time (T48h) July 12, 2015 / 2:40 PM
 Technician(s): SBR MC

Sample concentration (% v/v)	Temperature (°C)		pH		Dissolved oxygen (mg/L)		Conductivity (µS/cm)	Number exposed	Immobility (48h)		Mortality (48h)	
	0h	48h	0h	48h	0h	48h	0h	0h	Nombre	%	Nombre	%
0 (CTRL)	21,3	20,6	8,4	8,6	8,1	8,8	383	10	0	0	0	0
0 (CTRL)	21,3	20,4	8,4	8,6	8,1	8,8	383	10	0	0	0	0
0 (CTRL)	21,3	20,8	8,4	8,6	8,1	8,8	383	10	0	0	0	0
100	20,8	20,7	8,8	8,5	8,3	8,8	725	10	0	0	0	0
100	20,8	20,3	8,8	8,5	8,3	8,7	725	10	0	0	0	0
100	20,8	20,3	8,8	8,5	8,3	8,8	725	10	0	0	0	0

Additional Observations:

Reference toxicant data

Reference toxicant: Potassium dichromate (K₂Cr₂O₇)

Date of test: 2015-07-06

48h-LC50 (mg/L Cr): 0,303

95% Lower confidence limit (mg/L Cr): 0,266

95% Upper confidence limit (mg/L Cr): 0,336

Historic geometric mean LC50 (mg/L Cr): 0,219

-2S Warning limit (mg/L Cr): 0,140

+2S Warning limit (mg/L Cr): 0,341

ANNEX

96H SINGLE CONCENTRATION Rainbow Trout TEST

Sample Information

Sample Lab Number:	6720679
Sample ID:	POND
Type of Sample:	SURFACE WATER
Sample point:	MCCARTHY
Collection method:	ND
Collection date/time	2015-07-08 / 12:00 PM
Collected by:	DAWN HOYLE
Sample received (date/time):	2015-07-09 / 09:35 AM
Condition upon reception:	TEMPERATURE: 7,2°C
Sample storage:	ANALYSIS STARTED UPON SAMPLE ARRIVAL AT THE ECOTOXICOLOGY LABORATORY (MTL)

Initial parameters prior to testing

Sample appearance:	YELLOW/CLEAR/SOME COARSE PARTICLES
Temperature (°C):	15,4
pH:	8,9
Conductivity (µS/cm)	781
Dissolved oxygen (mg/L):	8,7
Pre aeration time (minutes):	30
Pre aeration rate (ml/min/L):	6,5 ± 1
Sample pre-treatment	NONE

Test Conditions

Organisms:	Rainbow Trout (<i>Oncorhynchus mykiss</i>)		
Provenance:	Pisciculture des Arpents verts		
Acclimatation time:	> 2 WEEKS		
Trout Batch No:	APV220615		
Mortality 7 days prior to testing:	0,1%		
Control mean weight (g):	0,56		
± standard deviation:	0,10		
Control mean fork length (mm):	41,9	Min: 38,5	Max: 44,8
± standard deviation:	2,2		
Number exposed/concentration:	10		
Test solution volume (L):	14,4		
Test solution depth (cm):	26		
Loading density (g/L):	0,39		
Dilution water:	Dechlorinated tap water		
Photoperiod:	16 hours light / 8 hours dark		
Analysis method:	SPE 1/RM/9, 1990, mod.1996,2007; SPE 1/RM/13, 2000 mod.05/2007		
Method modification:	NONE		

96H SINGLE CONCENTRATION Rainbow Trout TEST

Analysis Details

Test initiation date/time (T0h) July 10, 2015 / 3:40 PM
 Test ending date/time (T96h) July 14, 2015 / 3:50 PM
 Technician(s): CLH AC

Physicochemical Parameters

Sample concentration (%v/v)	Temperature (°C)		pH		Dissolved oxygen (mg/L)		Conductivity (µS/cm)
	0h	96hours	0h	96hours	0h	96hours	0h
0 (CTRL)	16,0	15,2	8,4	8,2	9,7	9,4	326
100	14,4	14,9	8,8	8,1	9,4	9,5	789

Test Results (96 hours)

Sample concentration (%v/v)	Number exposed	Immobile or stressed		Dead	
		Number	%	Number	%
0 (CTRL)	10	0	0	0	0
100	10	0	0	0	0

Reference Toxicant Data

Reference toxicant: Zinc Sulfate (ZnSO ₄ -7H ₂ O)
Date of test: 2015-07-05
96h-LC50 (mg/L Zn): 0,262
95% Lower confidence limit (mg/L Zn): 0,216
95% Upper confidence limit (mg/L Zn): 0,317
Historic geometric mean LC50 (mg/L Zn): 0,503
-2S Warning limit (mg/L Zn): 0,241
+2S Warning limit (mg/L Zn): 1,052

ANNEX

96H SINGLE CONCENTRATION Rainbow Trout TEST

Daily Observations

Sample concentration (%v/v)	24 hours		48 hours		72 hours		96 hours	
	# immobile or stressed	# dead	# immobile or stressed	# dead	# immobile or stressed	# dead	# immobile or stressed	# dead
0 (CTRL)	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0

Additional Observations

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

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