June 27, 2016 Reference No. 11114492-01

City of Kawartha Lakes
Bobcaygeon Service Centre
123 East Street South
Bobcaygeon, Ontario
K0M 1A0

Attention: Michel Gratton (mgratton@city.kawarthalakes.on.ca)

Re: Characterization of Sweepings Stockpiles
City of Kawartha Lakes, Ontario

1. Introduction

At the end of the winter maintenance operations each year the roadways in the City of Kawartha Lakes are swept and the winter sand collected, now referred to as "sweepings", is transported to storage locations. Rather than dispose of the material as a waste, the City of Kawartha Lakes is seeking reuse possibilities for the material. In order to facilitate this possible reuse the sweeping stockpiles were sampled at the Bobcaygeon, Coboconk and Omemee locations. The material was characterized by testing both chemically and for gradation and physical properties. The chemical testing was carried out by submitting samples to SGS Environmental Laboratories, Lakefield, Ontario while the gradation and physical testing was carried out to Ministry of Transport protocol specified in the Laboratory Services Manual by GHD in our Peterborough laboratory.

2. Chemical Testing

The samples consisted primarily of sand and were screened for hydrocarbon vapours with a RKI Eagle II gas detector calibrated with hexane. No elevated vapours were detected in the samples collected. The samples were submitted to SGS Environmental Laboratories in Lakefield for chemical analysis of O. Reg. 153 parameters including pH, Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR), metals, the BTEX volatile organic compounds (VOC), and petroleum hydrocarbons (PHC). The Certificates of Analysis from SGS are attached to this letter (Appendix A) and the results are summarized on Table 2.1 and Table 2.2.

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SMQ ISO 9001:2008

Table 2.1: Inorganic and Metal Parameters Summary

Parameter	Sample Identification			MOECC Table 2 Standards (Residential/ Parkland/ Institutional Property Use)
	SS-1 (Bob)	SS-2 (Cob.)	SS-3 (Ome)	
Moisture Content (%)	2.8	3.8	2.7	-
Metals				
Barium	28	37	18	390
Beryllium	0.08	0.08	0.08	(5) 4
Boron	3	3	4	120
Cadmium	0.04	<0.02	<0.02	1.2
Chromium	12	6.6	3.2	160
Cobalt	1.6	1.9	1.3	22
Copper	8.5	6.2	3.3	(180) 140
Lead	4.2	3.1	2.4	120
Molybdenum	0.6	0.2	0.1	7
Nickel	7.1	4.7	5.6	(130) 100
Silver	0.02	0.01	<0.01	(25) 20
Thallium	<0.02	0.03	<0.02	1
Uranium	0.25	0.26	0.29	23.0
Vanadium	8	10	5	86
Zinc	56	19	10	340
Hydrides				
Antimony	<0.8	<0.8	<0.8	7.5
Arenic	1.1	0.5	1.1	18
Selenium	1.4	1.1	2.2	2.4
ORPs				
Mercury	<0.05	<0.05	<0.05	(1.8) 0.27
Water Soluble Boron	<0.5	<0.5	<0.5	1.5
Sodium Adsorption Ratio [---]	2.06	**6.13**	2.27	5.0
Conductivity [mS/cm]	0.08	**0.78**	0.31	0.70
pH [no unit]	7.87	8.08	8.21	-
Chromium VI	0.5	<0.2	<0.2	(10) 8
Free Cyanide	<0.05	<0.05	<0.05	0.051

NOTES: All units in µg/g unless otherwise noted.
*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act, April 15, 2011* Table 2: Generic Full Depth Site Condition Standards in a Potable Groundwater Condition (Soil other than sediment).
"<" indicates less than laboratory reporting limit, **Bold** indicates an exceedance of the Table 2 RPI Standards*
() Standard in bracket applies to medium and fine textured soils

Table 2.2: Organic Parameters Summary

Parameter	Sample Identification			MOECC Table 2 Standards (Residential/ Parkland/ Industrial Property Use)
	SS-1 (Bob)	SS-2 (Cob.)	SS-3 (Ome)	
BTEX (VOCs)				
Benzene	<0.02	<0.02	<0.02	(0.17) 0.21
Ethylbenzene	<0.05	<0.05	<0.05	(1.6) 1.1
Toluene	<0.05	<0.05	<0.05	(6) 2.3
Xylene (Total)	<0.05	<0.05	<0.05	(25) 3.1
m/p-xylene	<0.05	<0.05	<0.05	-
o-Xylene,	<0.05	<0.05	<0.05	-
PHCs (F1-F4)				
CCME F2 (C10-C16)	<10	<10	<10	(150) 98
CCME F3 (C16-C34)	**431**	172	282	(1300) 300
CCME F4 (C34-C50)	674	469	468	(5600) 2800
CCME F4G-sg (GHH)	1630	1320	910	-
Chromatogram returned to baseline at nC50 [Yes/No}	NO	NO	NO	-

NOTES: All units in µg/g unless otherwise noted.
*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act, April 15, 2011* Table 2: Generic Full Depth Site Condition Standards in a Potable Groundwater Condition (Soil other than sediment).
"<" indicates less than laboratory reporting limit, **Bold** indicates an exceedance of the Table 2 RPI Standards*
() Standard in bracket applies to medium and fine textured soils

The results are compared to The Ministry of the Environment (MOECC) Table 2 Full Depth Generic Site Condition Standards in a Potable Ground Water Condition of the "Soil, Groundwater and Sediment Standards residential, parkland and institutional landuse for use Under Part XV.1 of the Environmental Protection Act" (EPA) dated April 15, 2011, referred to as "SCS" in this letter. The results indicate that Conductivity and Sodium Adsorption Ratio exceed the current MOECC Table 2 SCS for RPI (Residential, Parkland, Institutional) Property usage in the sample from Coboconk, (SS-2). Exceedances in SAR is indicative of impact from road salt and would be expected in the winter sand usage. The MOECC has given an exemption in the EPA regulations for Municipalities where the material is used for safety regarding winter maintenance and thus the material is acceptable for reuse on municipal road right of ways. Hydrocarbons (PHC's) were detected and reported in the samples, and the sample from Bobcaygeon (SS-1) was found to exceed the MOECC Table 2 Regulations for coarse grained soil, but met the Regulation for fine grained soil The presence of the PHC's in all three samples is likely related to the presence of asphalt pieces in the samples. Since both parameters will have a negative impact on plant life, it is recommended that the sweepings be kept off agricultural property.

3. Gradation and Physical Testing

The gradation test yielded results which showed all of the material was less than 4.75 mm in size (see Appendix) with the following results:

Sieve mm	4.75	1.18	0.300	0.150	0.075
% Passing	100	70.2	30.4	15.5	8.2

The material was found to contain some deleterious material but it was less than 2% of sample weight and the micro-deval fine aggregate loss % was 11.4 which is well below the maximum allow for Granular 'B', SSM, drainage granular and cover material.

4. Possible Reuses

Based on the results of the gradation and physical testing the stockpiled sweepings would be suitable for reuse as an equivalent Granular 'B' material for use as:

1) Backfill against exterior building foundations or culverts. The reused screenings should be kept out of high traffic road subbase because of the lack of stone sized particles present. They could be used as upfill to obtain a higher subgrade on road widenings, or grade raises before being covered with Granular 'B' and 'A'.

2) Cover for cables or other utilities where sand cover is specified. The Coefficient of uniformity was found to be 10 with greater than 2.5 specified and the gradation was found to comply with the standard specification.

Sieve mm	4.75	1.18	0.300	0.075
% Specified	75 - 100	0-70	0-30	0-15
% Passing	100	70.2	30.4	8.2

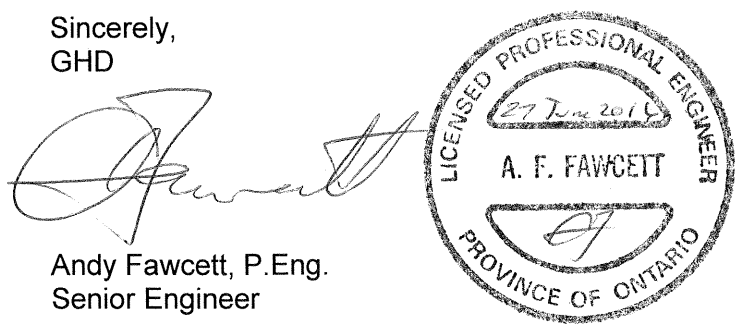
3) Where shouldering granular is found to have become blocked with fines and salt residue, drainage trenches can be placed at regular intervals starting at pavement edge at a depth of 0.3 m below subgrade and extending to the ditch. The trench can have a 100 mm diameter subdrain placed on the bottom and covered to the subbase surface with the reused screening material, packed in lifts with a jumping jack. The remainder of the granular base can be Granular M.

4) The reused screenings had a low enough frost susceptibility and micro deval loss that the material could be used as sand backfill around catchbasins and manholes to prevent frost jacking and differential settlement due to native soil causing arching is it is used immediately against these structures.

The granular did not meet the gradational requirements for reuse as winter sand, mortar sand or Granular O sheet drains due to the 8% passing the 75 um sieve. However if the material was screened and placed through a wash plant the washing would return the sand to a low enough silt content (ie material passing 75 um sieve) to meet the gradational requirement for winter sand or drainage sand.

We trust that this letter report meets with your immediate requirements. Should you have any questions or concerns regarding any aspect of this report, or should you require further assistance, please do not hesitate to contact our office.

Sincerely,
GHD



Andy Fawcett, P.Eng.
Senior Engineer

Encl.
SGS Chemical Certificates of Analysis – Appendix A
GHD Soil Laboratory Testing

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25-May-2016

GHD
Attn : Steve Gagne

347 Pido Rd., Unit #29
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K9J 6Z8,

Phone: 705-749-3317
Fax:

Date Rec. : 18 May 2016
LR Report: **CA15407-MAY16**
Reference: 11114492-01

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Date Extracted / Digested	2: Date Analyzed	3: Analysis Approval Date	4: Analysis Approval Time	5: Table 2 Agricultural or other Property Use	6: Table 2 Residential / Parkland / Institutional Property Use	7: Table 2 Industrial/Commercial/Community Property Use	8: RDL	9: SS-1 (Bob)	10: SS-2 (Cob.)	11: SS-3 (Ome)
Sample Date & Time											
Moisture Content [%]	19-May-16	20-May-16	20-May-16	15:33					2.9	3.8	2.7
INORGANIC PARAMETERS	***	***	***	***	***	***	***	***	***	***	***
METALS	***	***	***	***	***	***	***	***	***	***	***
Barium [µg/g]	19-May-16	20-May-16	21-May-16	09:51	390	390	670	0.01	28	37	18
Beryllium [µg/g]	19-May-16	20-May-16	21-May-16	09:51	(5) 4	(5) 4	(10) 8	0.02	0.08	0.08	0.08
Boron [µg/g]	19-May-16	20-May-16	21-May-16	09:51	120	120	120	1	3	3	4
Cadmium [µg/g]	19-May-16	20-May-16	21-May-16	09:51	1	1.2	1.9	0.02	0.04	< 0.02	< 0.02
Chromium [µg/g]	19-May-16	20-May-16	21-May-16	09:51	160	160	160	0.5	12	6.6	3.2
Cobalt [µg/g]	19-May-16	20-May-16	21-May-16	09:51	22	22	(100) 80	0.01	1.6	1.9	1.3
Copper [µg/g]	19-May-16	20-May-16	21-May-16	09:51	(180) 140	(180) 140	(300) 230	0.1	8.5	6.2	3.3
Lead [µg/g]	19-May-16	20-May-16	21-May-16	09:51	45	120	120	0.1	4.2	3.1	2.4
Molybdenum [µg/g]	19-May-16	20-May-16	21-May-16	09:51	7	7	40	0.1	0.6	0.2	0.1
Nickel [µg/g]	19-May-16	20-May-16	21-May-16	09:51	(130) 100	(130) 100	(340) 270	0.1	7.1	4.7	5.6
Silver [µg/g]	19-May-16	20-May-16	21-May-16	09:51	(25) 20	(25) 20	(50) 40	0.01	0.02	0.01	< 0.01
Thallium [µg/g]	19-May-16	20-May-16	21-May-16	09:51	1	1	3.3	0.02	< 0.02	0.03	< 0.02
Uranium [µg/g]	19-May-16	20-May-16	21-May-16	09:51	23.0	23.0	33	0.002	0.25	0.26	0.29
Vanadium [µg/g]	19-May-16	20-May-16	21-May-16	09:51	86	86	86	3	8	10	5
Zinc [µg/g]	19-May-16	20-May-16	21-May-16	09:51	340	340	340	0.7	56	19	10
HYDRIDES	***	***	***	***	***	***	***	***	***	***	***
Antimony [µg/g]	19-May-16	20-May-16	21-May-16	09:51	8	7.5	(50) 40	0.8	< 0.8	< 0.8	< 0.8

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SGS Canada Inc.
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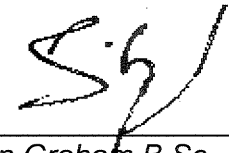
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA15407-MAY16**

Analysis	1: Date Extracted / Digested	2: Date Analyzed	3: Analysis Approval Date	4: Analysis Approval Time	5: Table 2 Agricultural or other Property Use	6: Table 2 Residential / Parkland / Institutional Property Use	7: Table 2 Industrial/Commercial/Community Property Use	8: RDL	9: SS-1 (Bob)	10: SS-2 (Cob.)	11: SS-3 (Ome)
Arsenic [µg/g]	19-May-16	20-May-16	21-May-16	09:51	11	18	18	0.5	1.1	0.5	1.1
Selenium [µg/g]	19-May-16	20-May-16	21-May-16	09:51	2.4	2.4	5.5	0.7	1.4	1.1	2.2
ORPs	***	***	***	***	***	***	***	***	***	***	***
Mercury [µg/g]	19-May-16	24-May-16	24-May-16	12:12	(1.8) 0.25	(1.8) 0.27	(20) 3.9	0.05	< 0.05	< 0.05	< 0.05
Water Soluble Boron [µg/g]	19-May-16	20-May-16	20-May-16	15:50	1.5	1.5	2	0.5	< 0.5	< 0.5	< 0.5
Sodium Adsorption Ratio [---]	24-May-16	24-May-16	24-May-16	16:37	5	5.0	12	0.01	2.06	6.13	2.27
Conductivity [mS/cm]	20-May-16	20-May-16	24-May-16	13:21	0.70	0.70	1.4	0.002	0.08	0.78	0.31
pH [no unit]	20-May-16	20-May-16	20-May-16	13:57	---	---	---	0.05	7.87	8.08	8.21
Chromium VI [µg/g]	19-May-16	20-May-16	24-May-16	12:44	(10) 8	(10) 8	(10) 8	0.2	0.5	< 0.2	< 0.2
Free Cyanide [µg/g]	19-May-16	20-May-16	25-May-16	13:03	0.051	0.051	0.051	0.05	< 0.05	< 0.05	< 0.05
ORGANIC PARAMETERS	***	***	***	***	***	***	***	***	***	***	***
BTEX (VOCs)	***	***	***	***	***	***	***	***	***	***	***
Benzene [µg/g]	19-May-16	19-May-16	24-May-16	16:00	(0.17) 0.21	(0.17) 0.21	(0.4) 0.32	0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene [µg/g]	19-May-16	19-May-16	24-May-16	16:00	(1.6) 1.1	(1.6) 1.1	(1.6) 1.1	0.05	< 0.05	< 0.05	< 0.05
Toluene [µg/g]	19-May-16	19-May-16	24-May-16	16:00	(6) 2.3	(6) 2.3	(9) 6.4	0.05	< 0.05	< 0.05	< 0.05
Xylene (total) [µg/g]	19-May-16	19-May-16	24-May-16	16:00	(25) 3.1	(25) 3.1	(30) 26	0.05	< 0.05	< 0.05	< 0.05
m/p-xylene [µg/g]	19-May-16	19-May-16	24-May-16	16:00	---	---	---	0.05	< 0.05	< 0.05	< 0.05
o-xylene [µg/g]	19-May-16	19-May-16	24-May-16	16:00	---	---	---	0.05	< 0.05	< 0.05	< 0.05
PHCs (F1-F4)	***	***	***	***	***	***	***	***	***	***	***
CCME F2 (C10-C16) [µg/g]	19-May-16	19-May-16	20-May-16	11:01	(150) 98	(150) 98	(250) 230	10	< 10	< 10	< 10
CCME F3 (C16-C34) [µg/g]	19-May-16	19-May-16	20-May-16	11:01	(1300) 300	(1300) 300	(2500) 1700	50	431	172	282
CCME F4 (C34-C50) [µg/g]	19-May-16	19-May-16	20-May-16	11:01	(5600) 2800	(5600) 2800	(6600) 3300	50	674	469	488
CCME F4G-sg (GHH) [µg/g]	19-May-16	24-May-16	25-May-16	15:36	---	---	---	200	1630	1320	910
Chromatogram returned to baseline at nC50 [Yes / No]	19-May-16	19-May-16	20-May-16	11:01	---	---	---		NO	NO	NO



Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

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Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

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CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.
nC6 and nC10 response factors within 30% of response factor for toluene: YES
nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES
C50 response factors within 70% of nC10 + nC16 + nC34 average: YES
Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

RDL - reportable detection limit
ND - Non-detect
NSS - not sufficient sample
RPD - relative percent difference

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LR Report : **CA15407-MAY16**

Quality Control Report

Organic Analysis												
Parameter	Reporting Limit	Unit	Method Blank		LCS / Spike Blank					Matrix Spike / Reference Material		
					RPD	Acceptance Criteria	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
						%		Low	High		Low	High
Petroleum Hydrocarbons (F1) - QCBatchID: GCM0207-MAY16												
CCME F1 (C6-C10)	10	µg/g	<10		ND	30	98	80	120	106	60	140
Petroleum Hydrocarbons (F2-F4) - QCBatchID: GCM0200-MAY16												
CCME F2 (C10-C16)	10	µg/g	< 10		ND	30	114	80	120	108	60	140
CCME F3 (C16-C34)	50	µg/g	< 50		ND	30	114	80	120	108	60	140
CCME F4 (C34-C50)	50	µg/g	< 50		ND	30	114	80	120	108	60	140
Petroleum Hydrocarbons (F4G) - QCBatchID: GCM0224-MAY16												
CCME F4G-sg (GHH)	200	µg/g	<200		18	30	82	80	120	NA	60	140
Volatile Organics - QCBatchID: GCM0207-MAY16												
Benzene	0.02	µg/g	<0.02		ND	50	NV	60	130	89	50	140
Ethylbenzene	0.05	µg/g	<0.05		ND	50	NV	60	130	90	50	140
m/p-xylene	0.05	µg/g	<0.05		ND	50	NV	60	130	92	50	140
o-xylene	0.05	µg/g	<0.05		ND	50	NV	60	130	90	50	140
Toluene	0.05	µg/g	<0.05		ND	50	NV	60	130	93	50	140
Xylene (total)	0.05	µg/g	<0.05		ND	50	NV	60	130	92	50	140

Inorganic Analysis												
Parameter	Reporting Limit	Unit	Method Blank		LCS / Spike Blank					Matrix Spike / Reference Material		
					RPD	Acceptance Criteria	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
						%		Low	High		Low	High
Anions by IC - QCBatchID: DIO0332-MAY16												
Chloride	0.4	µg/g	<0.4		0	20	108	80	120	109	75	125
Cyanide by SFA - QCBatchID: SKA5050-MAY16												
Free Cyanide	0.05	µg/g	<0.05		ND	20	102	80	120	77	75	125
Cyanide by SFA - QCBatchID: SKA5057-MAY16												
Free Cyanide	0.05	µg/g	<0.05		ND	20	106	80	120	NV	75	125
Hexavalent Chromium by IC - QCBatchID: DIO0326-MAY16												
Chromium VI	0.2	µg/g	<0.2		6	20	101	80	120	96	75	125
Mercury by CVAAS - QCBatchID: EHG0030-MAY16												
Mercury	0.05	µg/g	<0.05		ND	20	90	80	120	118	70	130
Metals in aqueous samples - ICP-OES - QCBatchID: ESG0066-MAY16												
SAR Calcium	0.02	mg/L	<0.02		13	20	97	80	120	79	70	130
SAR Magnesium	0.003	mg/L	<0.003		10	20	92	80	120	95	70	130
SAR Sodium	0.01	mg/L	<0.01		8	20	91	80	120	NV	70	130
Metals in aqueous samples - ICP-OES - QCBatchID: ESG8015-MAY16												
SAR Calcium	0.02	mg/L	<0.02		0	20	94	80	120	111	70	130

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LR Report : **CA15407-MAY16**

Inorganic Analysis												
Parameter	Reporting Limit	Unit	Method Blank	RPD	Acceptance Criteria	LCS / Spike Blank			Matrix Spike / Reference Material		
						Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
					%		Low	High		Low	High
SAR Magnesium	0.003	mg/L	<0.003	1	20	96	80	120	111	70	130
SAR Sodium	0.01	mg/L	<0.01	1	20	88	80	120	81	70	130
Metals in Soil - Aqua-regia/ICP-MS - QCBatchID: EMS0093-MAY16											
Antimony	0.8	µg/g	<0.8	ND	20	108	70	130	NV	70	130
Arsenic	0.5	µg/g	<0.5	13	20	104	70	130	83	70	130
Barium	0.01	µg/g	<0.01	3	20	105	70	130	100	70	130
Beryllium	0.02	µg/g	<0.02	2	20	103	70	130	78	70	130
Boron	1	µg/g	<1	0	20	102	70	130	78	70	130
Cadmium	0.02	µg/g	<0.02	6	20	106	70	130	96	70	130
Chromium	0.5	µg/g	<0.5	1	20	104	70	130	110	70	130
Cobalt	0.01	µg/g	<0.01	3	20	106	70	130	90	70	130
Copper	0.1	µg/g	<0.1	2	20	108	70	130	104	70	130
Lead	0.1	µg/g	<0.05	3	20	106	70	130	105	70	130
Molybdenum	0.1	µg/g	<0.1	1	20	102	70	130	96	70	130
Nickel	0.1	µg/g	<0.1	1	20	104	70	130	101	70	130
Selenium	0.7	µg/g	<0.7	13	20	105	70	130	121	70	130
Silver	0.01	µg/g	<0.01	0	20	103	70	130	106	70	130
Thallium	0.02	µg/g	<0.02	6	20	104	70	130	84	70	130
Uranium	0.002	µg/g	<0.002	1	20	107	70	130	93	70	130
Vanadium	3	µg/g	<3	3	20	105	70	130	84	70	130
Zinc	0.7	µg/g	<0.7	2	20	108	70	130	102	70	130
pH - QCBatchID: ARD0057-MAY16											
pH	0.05	no unit		0	20	100	80	120			
Water Soluble Boron - QCBatchID: ESG0059-MAY16											
Water Soluble Boron	0.5	µg/g	<0.5	ND	20	95	80	120	107	70	130

OnLine LIMS

00000688678

Data reported represents the sample submitted to SGS. Reproduction of this analytical report in full or in part is prohibited without prior written approval. Please refer to SGS General Conditions of Services located at http://www.sgs.com/terms_and_conditions_service.htm. (Printed copies are available upon request.)
Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS — Request for Laboratory Services and CHAIN OF CUSTODY

No:

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: DSmeath
Received Date (mm/dd/yyyy): \ \ (mm\dd\yy)
Received Time: : :
Received By (signature): DSmeath
Custody Seal Present: ☐ n/a
Custody Seal Intact: ☐
Cooling Agent Present: ☑
Temperature Upon Receipt (°C): 10 x 3
LAB LIMS #:

REPORT INFORMATION

Company: GHD
Contact: Steve Gagne
Address: 347 Pido Road, Unit 9
Peterborough, ON K9J 6X7
Phone: 705-749-3317
Fax: 705-749-9748
Email: Steve.Gagne@ghd.com

INVOICE INFORMATION

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

PROJECT INFORMATION

Quotation #:
P.O. #: Pending
Project #: 11114497-01
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 3pm or on weekends : TAT begins the next business day

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: Rush Confirmation ID:

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

REGULATIONS

Regulation 153 (2011):
☐ Table 1 ☐ Res/Park Soil Texture:
☒ Table 2 ☐ Ind/Com ☒ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium
☐ Table ____ ☐ Fine

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	COMMENTS: Field Filtered (F) Preserved (P)
1	SS-1 (Bulk)	05/13/16	PM	4	S	
2	SS-2 (Col.)	↓	↓	↓	↓	
3	SS-3 (Comp.)	↓	↓	↓	↓	
4						
5						
6						
7						
8						
9						
10						

Observations/Comments/Special Instructions

Sampled By (NAME): Matt Ellert	Signature:	Date: 05/13/16 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Matt Ellert	Signature:	Date: 05/13/16 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.0
Date of Issue: 01 June, 2014

SIEVE ANALYSIS OF GRANULAR MATERIALS (Various LS Procedures)

CLIENT:	**City of Kawartha Lakes**	**LAB No.**	**AG-16-99**
PROJECT/SITE:	**Quality Testing**	**PROJECT No.**	**11114492-01**

Client:	City of Kawartha Lakes			Sieve Shaker No.:	Mary-Anne
Project:	Quality Testing	Material Type:	Sweepings	Scale No.:	10
Sampled By:	Client	Specification:	OPSS 1010	Project No:	11114492-01
Date Sampled:	1-May-16	Pit or Quarry	n/a	Lab No:	AG-16-99
Date Received:	19-May-16	Source Location:	Omemee	Field No:	n/a

Material Type (check one)

Granular

[ ] A [ ] B-Type 1 [ ] B-Type 2 [ ] B-Type 3 [ ] M [ ] O [X] SSM

Sieve Size mm's	Acceptance Requirements - Percent Passing							Test Results (Percent Passing)
	Granular Type							
	A	B-Type 1	B-Type 2	B-Type 3	M	O	SSM	
Coarse Aggregate Material								
150	N/A	100	---	100	---	---	100	---
106	---	---	100	---	---	---	---	---
37.5	---	---	---	---	---	100	---	---
26.5	100	50-100	50-100	50-100	---	95-100	50-100	**100**
19.0	85-100	---	---	---	100	80-95	---	---
13.2	65-90	---	---	---	75-95	60-80	---	---
9.5	50-73	---	---	32-100	55-80	50-70	---	---
4.75	35-55	20-100	20-55	20-90	35-55	20-45	20-100	**100**
Fine Aggregate Material								
1.18	15-40	10-100	10-40	10-60	15-40	0-15	10-100	**70.2**
0.300	5-22	2-65	5-22	2-35	5-22	---	5-95	**30.4**
0.150	---	---	---	---	---	---	2-65	**15.5**
0.075	2.-8 (2-10*)	0-8 (0-10*)	0-10	0-8 (0-10*)	2-8 (2-10*)	0-5	0-25	**8.1**

Notes:

* Where the aggregate is obtained from a quarry source or an air-cooled blast furnace slag or nickel slag source.

PERFORMED BY:		**DATE:**	24-May-16
VERIFIED BY:		**DATE:**	24-May-16

PHYSICAL PROPERTIES OF GRANULAR MATERIALS (Various LS Procedures)

CLIENT:	**City of Kawartha Lakes**	**LAB No.**	**AG-16-99**
PROJECT/SITE:	**Quality Testing**	**PROJECT No.**	**11114492-01**

Client:	City of Kawartha Lakes			Sieve Shaker No.:	Mary-Anne
Project:	Quality Testing	Material Type:	Sweepings	Scale No.:	10
Sampled By:	Client	Specification:	OPSS 1010	Project No:	11114492-01
Date Sampled:	1-May-16	Pit or Quarry:	n/a	Lab No:	AG-16-99
Date Received	19-May-16	Source Location:	Omemee	Field No:	n/a

Material Type (check one)

Granular

☐ A ☐ B-Type 1 ☐ B-Type 2 ☐ B-Type 3 ☐ M ☐ O ☒ SSM

Laboratory Test , Test Number	Acceptance Requirements – Granular Type							Test Results	
	A	B-Type 1	B-Type 2	B-Type 3	M	O	SSM	Reference Material	Sample
Crushed Particles % minimum, LS-607	60	N/A	100	N/A	60	100	N/A	N/A	N/A
Freeze-Thaw Loss % maximum, LS-614	N/A	N/A	N/A	N/A	N/A	15	N/A	N/A	N/A
2 Faces Crushed %, maximum, LS-617	N/A	N/A	N/A	N/A	N/A	85	N/A	N/A	N/A
Micro-Deval Coarse Aggregate Loss % maximum, LS-618	25	30 (Note 3)	30 (Note 3)	30	25	21	30 (Note 3)	N/A	N/A
Micro-Deval Fine Aggregate Loss % maximum, LS-619	30	35	35	35	30	25	N/A	17.1	11.4
Asphalt Coated Particles % maximum, LS-621	30	30	0	30	30	N/A	N/A	N/A	N/A
Amount of Contamination, LS-630	(Note 2)							N/A	N/A
Plastic Fines, LS-631	NP (Non-Plastic)							N/A	N/A
Determination of Permeability, k, LS-709	(Note 3)							N/A	N/A

Notes:

1. The coarse aggregate Micro-Deval abrasion loss test (LS-618) requirement will be waived if the material has more than 80% passing the 4.75mm sieve.

2. Granular A, B Type 1, B Type 3, or M may contain up to 15% by mass crushed glass and/or ceramic material. Granular A, O, B Type 1, B Type 3, and M shall not contain more than 1.0% by mass of wood, clay brick and/or gypsum and/or gypsum wall board. Granular B Type 2 and SSM shall not contain more than 0.1% by mass of wood.

3. For materials north of the French/Mattawa Rivers only, the coefficient of permeability, k shall be greater than 1.0×10^{-4} cm/s or field experience has demonstrated satisfactory performance. Prior data demonstrating compliance with this requirements for k, shall be acceptable provided that such testing has been done within five years of the material being used and field performance has continually been shown to be satisfactory.

4. Acceptance Requirements derived from OPSS SSP110S13.

PERFORMED BY:		**DATE:**	24-May-16
VERIFIED BY:		**DATE:**	24-May-16