Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. *(Place Sticker and/or Print Below)*: Tag#: A 236872

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
1504107 Ontario Inc	o/a Lockwood Brothers Construction		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
2010 Totem Ranch Road West	Oxford Station	ON	K0G 1T0	6132584225

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
745 County Rd #23	Merrickville-Wolford	1	Con # B

County/District/Municipality	City/Town/Village	Province	Postal Code
Leeds	Merrickville	Ontario	K0G 1N0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435789	4978528	Plan 10376	

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Topsoil		Loose	ϕ	1'6"
Brown	Clay		Packed	1'6"	18'
Grey	Clay	Stones	Packed	18'	47'
Grey/Black	Limestone		Hard	47'	121'

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
49'	39'	Cement Pressure Grouted	6.77
39'	ϕ	Bentonite Pressure Grouted	13.54

Method of Construction

☐ Cable Tool ☐ Diamond
☒ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☒ Air percussion
☐ Other, *specify* ____

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* ____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
10"	Open Hole		ϕ	49'
2 1/4"	Steel	.188	ϕ+2	49'

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☒ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify*
☐ Other, *specify*

Water Details

Water found at Depth	Kind of Water	
72' (m/ft) ☐ Gas	☐ Fresh ☒ Untested ☐ Other, *specify* ____	
105' (m/ft) ☐ Gas	☐ Fresh ☒ Untested ☐ Other, *specify* ____	
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, *specify* ____	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
ϕ	49'	9 7/8"
49'	121'	6 1/16"

Results of Well Yield Testing

After test of well yield, water was:
☒ Clear and sand free
☐ Other, *specify* ____

If pumping discontinued, give reason:

Pump intake set at (m/ft): 115'

Pumping rate (l/min / GPM): 20 gpm

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 23.75

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 100'

Recommended pump rate (l/min / GPM): 10 gpm

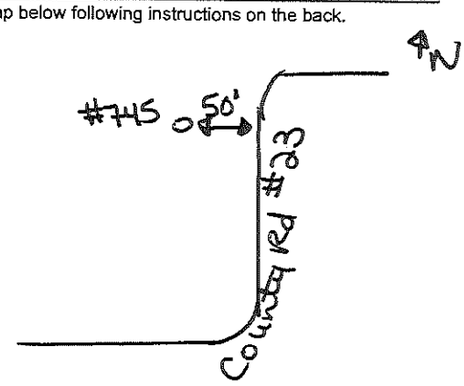
Well production (l/min/ GPM):

Disinfected? ☒ Yes ☐ No 145

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	21.55		23.75
1	23.5	1	21.75
2	23.55	2	21.7
3	23.55	3	21.7
4	23.6	4	21.7
5	23.6	5	21.7
10	23.65	10	21.65
15	23.7	15	21.65
20	23.725	20	21.6
25	23.75	25	21.6
30	23.75	30	21.6
40	23.75	40	21.55
50	23.75	50	↓
60	23.75	60	↓

Map of Well Location

Please provide a map below following instructions on the back.



Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
1425486 Ontario Ltd o/a Splash Well Drilling	4877

Business Address (Street Number/Name)	Municipality
PO Box 1083	Prescott

Province	Postal Code	Business E-mail Address
ON	K0E 1T0	

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
6139254885	Ferguson, Johnathon

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
4042		2018/07/17

Comments: 145 Chlorine after Drilling ϕ Chlorine after Yield Test

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2018/07/17	2018/06/26

Ministry Use Only

Audit No. Z292384

Received AUG 01 2018

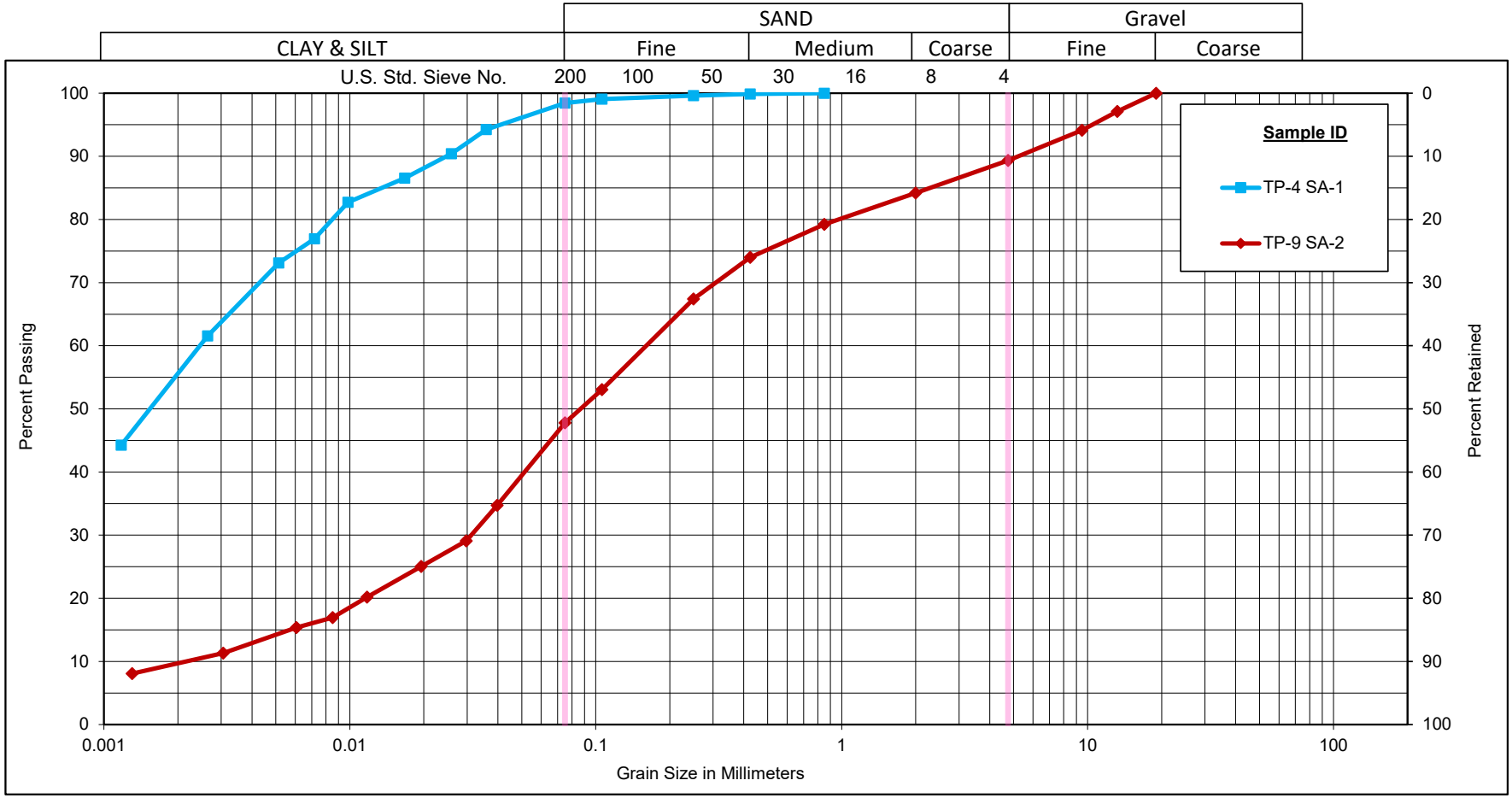
506E (2014/11)

Ministry's Copy

ATTACHMENT C

GRAIN SIZE ANALYSES OF REPRESENTATIVE SOIL SAMPLES

Unified Soil Classification System



Sample ID	Depth	% Gravel	% Sand	% Silt	% Clay
TP-4 SA-1	N/A	0.0	1.6	44.4	54.0
TP-9 SA-2	N/A	10.6	41.6	38.8	9.0

Stantec

GRAIN SIZE DISTRIBUTION

Kollaard Associates Engineers, File #210816

819 Burrits Rapids Road

Figure No.

Project No. 122410003

Stantec

Particle-Size Analysis of Soils

LS702

AASHTO T88

PROJECT DETAILS			
Client:	**Kollaard Associates Engineers, File #210816**	Project No.:	**122410003**
Project:	**819 Burrits Rapids Road**	Test Method:	**LS702**
Material Type:	**Soil**	Sampled By:	**Kollaard Associates Engineers**
Source:	**TP-4**	Date Sampled:	**March 8, 2023**
Sample No.:	**SA-1**	Tested By:	**Brian Prevost**
Sample Depth	**N/A**	Date Tested:	**March**

WASH TEST DATA	
Oven Dry Mass In Hydrometer Analysis (g)	50.86
Sample Weight after Hydrometer and Wash (g)	0.88
Percent Passing No. 200 Sieve (%)	**98.3**
Percent Passing Corrected (%)	**98.27**

PERCENT LOSS IN SIEVE	
Sample Weight Before Sieve (g)	**180.40**
Sample Weight After Sieve (g)	**179.60**
Percent Loss in Sieve (%)	**0.44**

SOIL INFORMATION		
Liquid Limit (LL)		
Plasticity Index (PI)		
Soil Classification		
Specific Gravity (G_s)	2.750	
Sg. Correction Factor (α)	0.978	
Mass of Dispersing Agent/Litre	48	g

CALCULATION OF DRY SOIL MASS	
Oven Dried Mass (W_o), (g)	42.58
Air Dried Mass (W_a), (g)	43.05
Hygroscopic Corr. Factor ($F=W_o/W_a$)	0.9891
Air Dried Mass in Analysis (M_a), (g)	51.42
Oven Dried Mass in Analysis (M_o), (g)	50.86
Percent Passing 2.0 mm Sieve (P_{10}), (%)	100.00
Sample Represented (W), (g)	50.86

HYDROMETER DETAILS	
Volume of Bulb (V_B), (cm^3)	63.0
Length of Bulb (L_2), (cm)	14.47
Length from '0' Reading to Top of Bulb (L_1), (cm)	10.29
Scale Dimension (h_s), (cm/Div)	0.155
Cross-Sectional Area of Cylinder (A), (cm^2)	27.25
Meniscus Correction (H_m), (g/L)	1.0

SIEVE ANALYSIS		
Sieve Size mm	**Cum. Wt. Retained**	**Percent Passing**
75.0		100.0
63.0		100.0
53.0		100.0
37.5		100.0
26.5		100.0
19.0		100.0
13.2		100.0
9.5		100.0
4.75		100.0
2.00	0.0	100.0
Total (C + F)[1]	179.60	
0.850	0.00	100.00
0.425	0.07	99.86
0.250	0.19	99.63
0.106	0.48	99.06
0.075	0.80	98.43
PAN	0.82	

Note 1: (C + F) = Coarse + Fine

START TIME 8:57 AM

HYDROMETER ANALYSIS

Date	Time	Elapsed Time T Mins	H_s Divisions g/L	H_c Divisions g/L	Temperature T_c °C	Corrected Reading $R = H_s - H_c$ g/L	Percent Passing P %	L cm	η Poise	K	Diameter D mm
#VALUE!	8:58 AM	1	57.0	8.0	20.5	49.0	94.26	7.37904	9.96839	0.013205	0.03587
#VALUE!	8:59 AM	2	55.0	8.0	20.5	47.0	90.41	7.68904	9.96839	0.013205	0.02589
#VALUE!	9:02 AM	5	53.0	8.0	20.5	45.0	86.57	7.99904	9.96839	0.013205	0.01670
#VALUE!	9:12 AM	15	51.0	8.0	20.5	43.0	82.72	8.30904	9.96839	0.013205	0.00983
#VALUE!	9:27 AM	30	48.0	8.0	20.0	40.0	76.95	8.77404	10.09098	0.013286	0.00719
#VALUE!	9:57 AM	60	46.0	8.0	20.5	38.0	73.10	9.08404	9.96839	0.013205	0.00514
#VALUE!	1:07 PM	250	40.0	8.0	20.5	32.0	61.5587	10.01404	9.96839	0.013205	0.00264
#VALUE!	8:57 AM	1440	31.0	8.0	20.5	23.0	44.2453	11.40904	9.96839	0.013205	0.00118

Remarks:

Reviewed By: Brian Prevost

Date: March 16, 2023

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Stantec

Particle-Size Analysis of Soils

LS702

AASHTO T88

PROJECT DETAILS			
Client:	**Kollaard Associates Engineers, File #210816**	Project No.:	**122410003**
Project:	**819 Burrits Rapids Road**	Test Method:	**LS702**
Material Type:	**Soil**	Sampled By:	**Kollaard Associates Engineers**
Source:	**TP-9**	Date Sampled:	**March 8, 2023**
Sample No.:	**SA-2**	Tested By:	**Brian Prevost**
Sample Depth	**N/A**	Date Tested:	**March**

WASH TEST DATA	
Oven Dry Mass In Hydrometer Analysis (g)	101.99
Sample Weight after Hydrometer and Wash (g)	44.94
Percent Passing No. 200 Sieve (%)	**55.9**
Percent Passing Corrected (%)	**47.10**

PERCENT LOSS IN SIEVE	
Sample Weight Before Sieve (g)	**869.60**
Sample Weight After Sieve (g)	**868.40**
Percent Loss in Sieve (%)	**0.14**

SOIL INFORMATION		
Liquid Limit (LL)		
Plasticity Index (PI)		
Soil Classification		
Specific Gravity (G_s)	2.750	
Sg. Correction Factor (α)	0.978	
Mass of Dispersing Agent/Litre	24	g

CALCULATION OF DRY SOIL MASS	
Oven Dried Mass (W_o), (g)	79.40
Air Dried Mass (W_a), (g)	79.53
Hygroscopic Corr. Factor ($F=W_o/W_a$)	0.9984
Air Dried Mass in Analysis (M_a), (g)	102.16
Oven Dried Mass in Analysis (M_o), (g)	101.99
Percent Passing 2.0 mm Sieve (P_{10}), (%)	84.20
Sample Represented (W), (g)	121.13

SIEVE ANALYSIS		
Sieve Size mm	**Cum. Wt. Retained**	**Percent Passing**
75.0		100.0
63.0		100.0
53.0		100.0
37.5		100.0
26.5		100.0
19.0	0.0	100.0
13.2	25.2	97.1
9.5	50.9	94.1
4.75	92.6	89.4
2.00	137.4	84.2
Total (C + F)[1]	868.40	
0.850	6.03	79.22
0.425	12.36	74.00
0.250	20.33	67.42
0.106	37.72	53.06
0.075	44.12	47.78
PAN	44.46	

Note 1: (C + F) = Coarse + Fine

HYDROMETER DETAILS	
Volume of Bulb (V_B), (cm^3)	63.0
Length of Bulb (L_2), (cm)	14.47
Length from '0' Reading to Top of Bulb (L_1), (cm)	10.29
Scale Dimension (h_s), (cm/Div)	0.155
Cross-Sectional Area of Cylinder (A), (cm^2)	27.25
Meniscus Correction (H_m), (g/L)	1.0

START TIME 9:23 AM

HYDROMETER ANALYSIS

Date	Time	Elapsed Time T Mins	H_s Divisions g/L	H_c Divisions g/L	Temperature T_c °C	Corrected Reading $R = H_s - H_c$ g/L	Percent Passing P %	L cm	η Poise	K	Diameter D mm
#VALUE!	9:24 AM	1	47.0	4.0	20.0	43.0	34.73	8.92904	10.09098	0.013286	0.03970
#VALUE!	9:25 AM	2	40.0	4.0	20.0	36.0	29.08	10.01404	10.09098	0.013286	0.02973
#VALUE!	9:28 AM	5	35.0	4.0	20.0	31.0	25.04	10.78904	10.09098	0.013286	0.01952
#VALUE!	9:38 AM	15	29.0	4.0	20.0	25.0	20.19	11.71904	10.09098	0.013286	0.01174
#VALUE!	9:53 AM	30	25.0	4.0	20	21.0	16.96	12.33904	10.09098	0.013286	0.00852
#VALUE!	10:23 AM	60	23.0	4.0	20.5	19.0	15.35	12.64904	9.96839	0.013205	0.00606
#VALUE!	1:33 PM	250	18.0	4.0	20.5	14.0	11.31	13.42404	9.96839	0.013205	0.00306
#VALUE!	9:23 AM	1440	14.0	4.0	20.5	10.0	8.08	14.04404	9.96839	0.013205	0.00130

Remarks:

Reviewed By: Brian Prevost

Date: March 16, 2023

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ATTACHMENT D

RESULTS OF LABORATORY NITROGEN TESTING OF RECEIVING AQUIFER SAMPLES

TABLE IX

SUMMARY OF SUBDIVISION WATER CHEMISTRY FOR TEST WELLS

Parameter	Guideline	AH1	AH2	AH5	AH10
		18-Apr-23	18-Apr-23	18-Apr-23	18-Apr-23
Background Nitrogen					
Ammonia [mg/l]		0.031	<0.020	<0.020	0.043
Nitrate [mg/l]	MAC 10.0	<0.1	<0.1	<0.1	<0.1
Nitrite [mg/l]	MAC 1.0	<0.1	<0.1	<0.1	<0.1
TKN [mg/l]	AO 500	0.178	0.196	<0.100	0.244

Guideline refers to Ontario Drinking Water Standards, Objectives and Guidelines except where noted
* O. Reg 153/04 standard Table 2 for potable groundwater
** Health Canada health related maximum

eurofins | Environment Testing
146 Colonnade Rd, Unit 8, Ottawa, ON K2E 7Y1 (613) 727-5692

OFFICIAL CERTIFICATE OF ANALYSIS : 3549860

WORK REQUEST : 100209928

Report Date : 2023-04-24

Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention : Colleen Vermeersch

Reception Date : 2023-04-18
Project : 210816
Sampler : Katie Linton
PO Number : Not Applicable
Temperature : 11 °C

Analysis	Quantity	External Method
Ammonia, Total (Water, Colorimetry)	4	Modified from EPA 350.1
Nitrate (Water, IC)	4	Modified from SM 4110 B and C
Nitrite (Water, IC)	4	Modified from SM 4110 B and C
Total Kjeldahl Nitrogen (Water, Colorimetry)	4	Modified from EPA 351.2

Criteria :
A : Ontario Regulation 169/03 (Groundwater, Non-Potable)

Sample status upon receipt :
6844543 6844544 6844545 6844546
Compliant

Certificate Comments :
6844545
Sediment not included in TKN analysis.

Notes :
- All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated.
- Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/
- Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Legend :
RL : Reporting limit
QC : Reference material (QC)
N/A : Not applicable
1 : Results in annex
* : Analysis conducted by external subcontracting
^ : Analysis not accredited

eurofins | Environment Testing
146 Colonnade Rd, Unit 8, Ottawa, ON K2E 7Y1 (613) 727-5692

OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Kollaard Associates Inc.
Project : 210816

Reception Date: 2023-04-18

						Eurofins Sample No :	**6844543**	**6844544**	**6844545**	**6844546**
						Matrix :	Ground Water	Ground Water	Ground Water	Ground Water
						Sampling Date :	2023-04-18	2023-04-18	2023-04-18	2023-04-18
						Client Sample Identification :	TP1	TP2	TP5	TP10
Anions	**RL**	**Unit**	**Criteria**							
			A	**B**	**C**					
Nitrate (as Nitrogen)	0.1	mg/L	10				<0.1	<0.1	<0.1	<0.1
Nitrite (as Nitrogen)	0.1	mg/L	1				<0.1	<0.1	<0.1	<0.1

Eurofins Sample No :	**6844543**	**6844544**	**6844545**	**6844546**		
Matrix :	Ground Water	Ground Water	Ground Water	Ground Water		
Sampling Date :	2023-04-18	2023-04-18	2023-04-18	2023-04-18		
Client Sample Identification :	TP1	TP2	TP5	TP10		
Nutrients **RL** **Unit**						
Ammonia (Total, as Nitrogen) 0.02 mg/L	0.031	<0.020	<0.020	0.043		
Total Kjeldahl Nitrogen 0.1 mg/L	0.178	0.196	<0.100	0.244		

Approved by : R. Zafari
Raheleh Zafari,
Ottawa, Environmental Chemist, PhD

eurofins | Environment Testing
146 Colonnade Rd, Unit 8, Ottawa, ON K2E 7Y1 (613) 727-5692

OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Kollaard Associates Inc.
Project : 210816

Reception Date: 2023-04-18

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Ammonia, Total (Water, Colorimetry)									
Method : Ammonia (Water, Colorimetry). Internal method: OTT-I-NUT-WI46201.									
Ammonia (Total, as Nitrogen)	mg/L	0.02	<0.020	101	80-120	102	80-120	4	0-20
Associated Samples : 6844543, 6844544, 6844545, 6844546								Prep Date: 2023-04-21 Analysis Date: 2023-04-21	
Nitrate (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrate (as Nitrogen)	mg/L	0.1	<0.1	101	92-110	97	80-120	2	0-20
Associated Samples : 6844543, 6844544, 6844545, 6844546								Prep Date: 2023-04-19 Analysis Date: 2023-04-20	
Nitrite (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrite (as Nitrogen)	mg/L	0.1	<0.1	91	90-110	83	80-120	-	0-20
Associated Samples : 6844543, 6844544, 6844545, 6844546								Prep Date: 2023-04-19 Analysis Date: 2023-04-20	
Total Kjeldahl Nitrogen (Water, Colorimetry)									
Method : TKN (Water, colorimetry). Internal method: OTT-I-NUT-WI46201.									
Total Kjeldahl Nitrogen	mg/L	0.1	<0.100	107	75-121	116	70-130	-	0-20
Associated Samples : 6844543, 6844544, 6844545, 6844546								Prep Date: 2023-04-21 Analysis Date: 2023-04-21	

Where RPD % is reported as "-" the calculation is not available because one or both of the duplicates is within 5 times the RL.

eurofins

STANDARD CHAIN-OF-CUSTODY

146 Colonnade Road, Unit #8, Ottawa, ON, K2E 7Y1 - Phone: 613-727-5692, Fax: 613-727-5222

Eurofins Workorder #: 100209928

CLIENT INFORMATION

Company: Kollaard Associates Inc.
Contact: Colleen Vermeersch
Address: 210 Prescott St, Kemptville, ON, K0G 1J0
Telephone: 613-860-0923 ext230 Cell:
Email: #1: colleen@kollaard.ca
Email: #2:
Project: 210816 Quote #: 170314

INVOICE INFORMATION (SAME AS CLIENT INFORMATION: YES ☐ NO ☐)

Company: Kollaard Associates Inc. Fax:
Contact: Sharon Kollaard Email: #1: admin@kollaard.ca
Address: Email: #2:
Telephone: PO #:

TURN-AROUND TIME (Business Days)

☐ 1 Day* (100%) ☐ 2 Day** (50%) ☐ 3-5 Days (25%) ☑ 5-7 Days (Standard)

Please contact Lab in advance to determine rush availability.
*For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%.
**For results reported after rush due date, surcharges will apply: before 12:00 - 50%, after 12:00 - 25%.

REGULATION/GUIDELINE REQUIRED

☐ Sanitary Sewer, City:
☐ Storm Sewer, City:
☐ ODWSOG
☐ PWQO
☐ O.Reg 347/558
☐ Other:

☐ O. Reg 153 Table # ____, Coarse / Fine, Surface / subsurface. Type: Com-Ind / Res-Park / Agri / GW / All Other / Sediment
The sample results from this submission will form part of a formal Record of Site Condition (RSC) under O.Reg. 153/04 ☐ Yes ☐ No

☐ O.Reg 406 Excess Soils
☐ TCLP ☐ SPLP
Table # _____ Full depth/ Strat/ Ceiling/ Leachate
Type: Com-Ind / Res-Park / Agri/All Other
Category: Surface / Subsurface

The optimal temperature conditions during transport should be less than 10°C. Sample(s) cannot be frozen, unless otherwise indicated or agreed upon with the Laboratory. Note that this COC is not to be used for drinking water samples. The COC must be complete upon submission of the samples, there will be a $25 surcharge if required information is missing (required fields are shaded in grey).

Sample Details / Sample Analysis Required

Sample ID	Date/Time Collected	Sample Matrix	# of Containers	O.Reg.153 parameters: PHC F1 - F4	BTEX	VOCs	PAHs	PCBs	Metals + Inorganic	Metals only	Nitrates	Nitrites	TKN	Ammonia	RN# (Lab Use Only)
TP1	April 18/23	W	2								✓	✓	✓	✓	6844543
TP2	"	W	2								✓	✓	✓	✓	44
TP5	"	W	2								✓	✓	✓	✓	45
TP10	"	W	2								✓	✓	✓	✓	46

	PRINT	SIGN	DATE/TIME	TEMP (°C)
Sampled By:	Katie Linton		Apr 18/23	
Relinquished By:			4/18/23	11
Received By:				

COMMENTS:

CUSTODY SEAL: ☐ YES ☐ NO Ice packs submitted: ☐ Yes ☐ No

ATTACHMENT E

SEPTIC EFFLUENT DILUTION CALCULATIONS

January 2025 210816

SEPTIC EFFLUENT DILUTION CALCULATIONS

Number of Lots	29		
Gross Site Area	240,247	m^2	
Env. Can. Water Surplus (NPI)	377	mm	

Hard Surface Area (Post-Development)

Roadways (As designed)	10,820		
Driveways (20 metres x 10 metres x 29lots)	5,800		
Dwellings (326 m^2 x 29 lots)	9,454		
Hard Landscaping Pool Area, Etc per Lot (174m^2)	5,046		
Total	31,120	m^2	

Net Infiltration Area = Gross Site Area - Hard Surface Area (Post-Development)

209,127 m^2

Vegetative Cover (pre development)

treed area	192,198	m^2	~80%
grass area	48,049	m^2	~20%

Vegetative Cover (post development)

Soft surface area	209,127	m^2	
Areas of tree removal (roads, building/septic)	144,519	m^2	
treed area	47,679	m^2	~20%

Infiltration Reduction Factor:

Topography (rolling)	0.20	
Receiving Soil (Tight impervious clay)	0.10	
Cover (cultivated/Woodland)	0.12	~20% retained trees
Total IRF	0.42	

Septic Dilution For 29 Septic Systems:

$$\frac{\text{Number of Lots} \times 365\ m^3 \text{ Effluent Per Year} \times 40\ mg/L\ NO_3}{\text{Number of Lots} \times 365\ m^3 \text{ Effluent Per Year} + (\text{Net Infiltration Area} \times \text{NPI} \times \text{IRF})} = 9.7\ mg/L\ NO_3\text{-N}$$

Kemptville CS WATER BUDGET MEANS FOR THE PERIOD 1998-2022 DC20492

LAT.... 45.00 WATER HOLDING CAPACITY...100 MM HEAT INDEX... 37.99
LONG... 75.63 LOWER ZONE..... 60 MM A..... 1.099

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC P
31- 1	-9.0	65	19	23	1	1	0	40	49	100	307
28- 2	-7.4	55	16	28	1	1	0	43	60	100	363
31- 3	-1.7	67	40	64	8	8	0	96	23	100	430
30- 4	6.1	81	78	26	32	32	0	72	0	100	512
31- 5	13.5	75	75	0	82	82	0	14	0	78	588
30- 6	18.2	92	92	0	115	110	-4	7	0	53	679
31- 7	20.8	84	84	0	135	107	-27	2	0	28	763
31- 8	19.9	84	84	0	119	86	-32	2	0	23	846
30- 9	15.6	86	86	0	79	74	-5	1	0	35	932
31-10	8.8	92	92	0	39	38	-1	14	0	75	93
30-11	2.3	72	59	10	12	12	0	36	3	96	166
31-12	-4.6	79	38	18	2	2	0	50	26	100	246
AVE	6.8 TTL	933	763	169	625	553	-69	377			

Kemptville CS STANDARD DEVIATIONS FOR THE PERIOD 1998-2022 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC P
31- 1	3.0	33	19	24	1	1	0	38	36	1	71
28- 2	2.8	27	12	23	1	1	0	29	50	0	80
31- 3	2.5	28	23	32	6	6	0	37	52	0	86
30- 4	1.5	40	40	51	7	7	0	59	0	2	100
31- 5	1.6	40	40	0	11	11	0	24	0	26	114
30- 6	1.1	40	40	0	8	10	8	17	0	40	130
31- 7	1.3	39	39	0	10	34	38	8	0	31	151
31- 8	1.2	51	51	0	8	30	32	7	0	33	160
30- 9	1.2	36	36	0	7	12	12	4	0	33	147
31-10	1.6	37	37	0	7	8	3	23	0	28	37
30-11	2.0	21	22	9	5	5	0	31	6	11	45
31-12	2.9	32	20	15	2	2	0	25	32	0	51

ATTACHMENT F

RESULTS OF LABORATORY TESTING OF TEST WELL WATER SAMPLES

Certificate of Analysis

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1979593
Date Submitted: 2022-06-17
Date Reported: 2022-06-20
Project: 210816
COC #: 892043

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Emma-Dawn Ferguson, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: http://www.cala.ca/scopes/2602.pdf.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

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Certificate of Analysis

eurofins | Environment Testing

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1979593
Date Submitted: 2022-06-17
Date Reported: 2022-06-20
Project: 210816
COC #: 892043

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1631951 Water 2022-06-17 TW1-3hrs	1631952 Water 2022-06-17 TW1-6hrs
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0		0	0
	Heterotrophic Plate Count	0	ct/1mL			4	6
	Total Coliforms	0	ct/100mL	MAC 0		0	0

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Analytical Method: AMBCOLM1
additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

eurofins | Environment Testing

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210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1979598
Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892043

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

Emma-Dawn Ferguson 2022.06.23 16:45:40 -04'00'

APPROVAL: _____
Emma-Dawn Ferguson, Chemist

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Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1979598
Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892043

Group	Analyte	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.	1631961 Water 2022-06-17 TW1-3hrs	1631962 Water 2022-06-17 TW1-6hrs
Anions	Cl	1	mg/L	AO 250		18	18
	F	0.10	mg/L	MAC 1.5		0.62	0.64
	N-NO2	0.10	mg/L	MAC 1.0		<0.10	<0.10
	N-NO3	0.10	mg/L	MAC 10.0		<0.10	<0.10
	SO4	1	mg/L	AO 500		24	24
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500		261	258
	Colour (True)	2	TCU			<2	<2
	Conductivity	5	uS/cm			541	541
	pH	1.00		6.5-8.5		7.78	7.86
	Phenols	0.001	mg/L			<0.001	<0.001
	S2-	0.01	mg/L	AO 0.05		<0.01	<0.01
	TDS (COND - CALC)	1	mg/L	AO 500		352	352
	Turbidity	0.1	NTU	AO 5		1.4	1.5
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100		268*	268*
Indices/Calc	Ion Balance	0.01				0.99	1.00
Metals	Ag	0.0001	mg/L			<0.0001	<0.0001
	Al	0.01	mg/L	OG 0.1		<0.01	<0.01
	As	0.001	mg/L	IMAC 0.01		<0.001	<0.001
	B	0.01	mg/L	IMAC 5.0		0.15	0.15
	Ba	0.01	mg/L	MAC 1.0		0.17	0.17
	Be	0.0005	mg/L			<0.0005	<0.0005
	Ca	1	mg/L			61	61
	Cd	0.0001	mg/L	MAC 0.005		<0.0001	<0.0001
	Co	0.0002	mg/L			<0.0002	<0.0002
	Cr	0.001	mg/L	MAC 0.05		<0.001	<0.001

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

eurofins | Environment Testing

Certificate of Analysis

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Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1979598
Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892043

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1631961 Water 2022-06-17 TW1-3hrs	1631962 Water 2022-06-17 TW1-6hrs
Metals	Cu	0.001	mg/L	AO 1		0.003	<0.001
	Fe	0.03	mg/L	AO 0.3		0.20	0.20
	Hg	0.0001	mg/L	MAC 0.001		<0.0001	<0.0001
	K	1	mg/L			3	3
	Mg	1	mg/L			28	28
	Mn	0.01	mg/L	AO 0.05		0.03	0.03
	Mo	0.005	mg/L			<0.005	<0.005
	Na	1	mg/L	AO 200		17	17
	Ni	0.005	mg/L			<0.005	<0.005
	Pb	0.001	mg/L	MAC 0.010		<0.001	<0.001
	Sb	0.0005	mg/L	IMAC 0.006		<0.0005	<0.0005
	Se	0.001	mg/L	MAC 0.05		<0.001	<0.001
	Sr	0.001	mg/L			1.24	1.24
	Tl	0.0001	mg/L			<0.0001	<0.0001
	U	0.001	mg/L	MAC 0.02		<0.001	<0.001
	V	0.001	mg/L			<0.001	<0.001
	Zn	0.01	mg/L	AO 5		0.02	0.01
Nutrients	N-NH3	0.010	mg/L			0.108	0.122
	Total Kjeldahl Nitrogen	0.100	mg/L			0.286	0.278
Subcontract	Tannin & Lignin	1	mg/L			<1.0	<1.0
Subcontract-Inorg	DOC	0.5	mg/L	AO 5		1.9	2.0

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Report Number: 1979598
Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892043

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 424075 **Analysis/Extraction Date** 2022-06-18 **Analyst** CK **Method** C SM2130B			
Turbidity	<0.1 NTU	100	70-130
Run No 424100 **Analysis/Extraction Date** 2022-06-20 **Analyst** AaN **Method** SM 4110			
Chloride	<1 mg/L	100	90-110
N-NO2	<0.10 mg/L	106	90-110
N-NO3	<0.10 mg/L	103	90-110
SO4	<1 mg/L	105	90-110
Run No 424183 **Analysis/Extraction Date** 2022-06-20 **Analyst** AsA **Method** SM2320,2510,4500H/F			
Alkalinity (CaCO3)	<5 mg/L	98	90-110
Conductivity	<5 uS/cm	99	90-110
F	<0.10 mg/L	100	90-110
pH		99	90-110
Run No 424191 **Analysis/Extraction Date** 2022-06-20 **Analyst** SD **Method** EPA 200.8			
Silver	<0.0001 mg/L	111	80-120
Aluminum	<0.01 mg/L	100	80-120

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Report Number: 1979598
Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892043

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Arsenic	<0.001 mg/L	96	80-120
Boron (total)	<0.01 mg/L	106	80-120
Barium	<0.01 mg/L	105	80-120
Beryllium	<0.0005 mg/L	108	80-120
Cadmium	<0.0001 mg/L	106	80-120
Cobalt	<0.0002 mg/L	101	80-120
Chromium Total	<0.001 mg/L	104	80-120
Copper	<0.001 mg/L	104	80-120
Iron	<0.03 mg/L	103	80-120
Mercury	<0.0001 mg/L	110	80-120
Manganese	<0.01 mg/L	104	80-120
Molybdenum	<0.005 mg/L	97	80-120
Nickel	<0.005 mg/L	105	80-120
Lead	<0.001 mg/L	109	80-120
Antimony	<0.0005 mg/L	91	80-120
Selenium	<0.001 mg/L	102	80-120
Strontium	<0.001 mg/L	101	80-120
Thallium	<0.0001 mg/L	107	80-120

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Report Number: 1979598
Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892043

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Uranium	<0.001 mg/L	100	80-120
Vanadium	<0.001 mg/L	101	80-120
Zinc	<0.01 mg/L	107	80-120
Run No 424271 **Analysis/Extraction Date** 2022-06-21 **Analyst** SKH **Method** EPA 351.2			
Total Kjeldahl Nitrogen	0.125 mg/L	95	70-130
Run No 424339 **Analysis/Extraction Date** 2022-06-21 **Analyst** AET **Method** SUBCONTRACT-A			
Tannin & Lignin	<1.0 mg/L	99	
Run No 424345 **Analysis/Extraction Date** 2022-06-22 **Analyst** ML **Method** EPA 350.1			
N-NH3	<0.010 mg/L	101	80-120
Run No 424372 **Analysis/Extraction Date** 2022-06-23 **Analyst** AsA **Method** C SM2120C			
Colour (True)	<2 TCU		80-120
Run No 424377 **Analysis/Extraction Date** 2022-06-22 **Analyst** Z S **Method** SM5530D/EPA420.2			
Phenols	<0.001 mg/L	113	50-120

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Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892043

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 424403 **Analysis/Extraction Date** 2022-06-23 **Analyst** Z S **Method** M SM3120B-3500C			
Calcium	<1 mg/L	100	90-110
Potassium	<1 mg/L	99	87-113
Magnesium	<1 mg/L	95	76-124
Sodium	<1 mg/L	105	82-118
Run No 424404 **Analysis/Extraction Date** 2022-06-23 **Analyst** ML **Method** EPA 350.1			
N-NH3	<0.010 mg/L	99	80-120
Run No 424409 **Analysis/Extraction Date** 2022-06-23 **Analyst** AET **Method** C SM2340B			
Hardness as CaCO3			
Ion Balance			
TDS (COND - CALC)			
Run No 424422 **Analysis/Extraction Date** 2022-06-22 **Analyst** AET **Method** SUBCONTRACT-CA-INORG			
DOC			
Run No 424423 **Analysis/Extraction Date** 2022-06-23 **Analyst** AsA **Method** C SM4500-S2-D			

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Report Number: 1979598
Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892043

QC Summary

Analyte	Blank	QC % Rec	QC Limits
S2-	<0.01 mg/L	96	80-120

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Certificate of Analysis

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1980294
Date Submitted: 2022-06-28
Date Reported: 2022-06-30
Project: 210816
COC #: 892499

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Emma-Dawn Ferguson, Chemist

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Certificate of Analysis

eurofins | Environment Testing

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Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
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Invoice to: Kollaard Associates Inc.

Report Number: 1980294
Date Submitted: 2022-06-28
Date Reported: 2022-06-30
Project: 210816
COC #: 892499

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1634144 Water 2022-06-27 TW2-3hrs	1634145 Water 2022-06-27 TW2-6hrs
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0		0	0
	Heterotrophic Plate Count	0	ct/1mL			27	9
	Total Coliforms	0	ct/100mL	MAC 0		0	0

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Analytical Method: AMBCOLM1
additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1980295
Date Submitted: 2022-06-28
Date Reported: 2022-07-04
Project: 210816
COC #: 892499

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Emma-Dawn Ferguson, Chemist

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Certificate of Analysis

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1980295
Date Submitted: 2022-06-28
Date Reported: 2022-07-04
Project: 210816
COC #: 892499

Group	Analyte	MRL	Units	Guideline	Lab I.D. 1634146 Sample Matrix Water Sample Type Sampling Date 2022-06-27 Sample I.D. TW2-3hrs	Lab I.D. 1634147 Sample Matrix Water Sample Type Sampling Date 2022-06-27 Sample I.D. TW2-6hrs
Anions	Cl	1	mg/L	AO 250	55	57
	F	0.10	mg/L	MAC 1.5	0.62	0.59
	N-NO2	0.10	mg/L	MAC 1.0	<0.10	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	0.13	0.11
	SO4	1	mg/L	AO 500	28	28
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500	240	246
	Colour (True)	2	TCU		<2	<2
	Conductivity	5	uS/cm		625	639
	DOC	0.5	mg/L	AO 5	1.6	1.7
	pH	1.00		6.5-8.5	7.80	7.85
	Phenols	0.001	mg/L		<0.001	<0.001
	S2-	0.01	mg/L	AO 0.05	<0.01	<0.01
	TDS (COND - CALC)	1	mg/L	AO 500	406	415
	Turbidity	0.1	NTU	AO 5	5.8*	11.4*
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100	265*	265*
Indices/Calc	Ion Balance	0.01			0.99	0.97
Metals	Ag	0.0001	mg/L		<0.0001	<0.0001
	Al	0.01	mg/L	OG 0.1	<0.01	<0.01
	As	0.001	mg/L	IMAC 0.01	<0.001	<0.001
	B	0.01	mg/L	IMAC 5.0	0.18	0.18
	Ba	0.01	mg/L	MAC 1.0	0.16	0.16
	Be	0.0005	mg/L		<0.0005	<0.0005
	Ca	1	mg/L		60	60
	Cd	0.0001	mg/L	MAC 0.005	<0.0001	<0.0001
	Co	0.0002	mg/L		<0.0002	<0.0002

Guideline = ODWSOG *** = Guideline Exceedence**

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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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COC #: 892499

Group	Analyte	MRL	Units	Guideline	1634146 Water 2022-06-27 TW2-3hrs	1634147 Water 2022-06-27 TW2-6hrs
	Lab I.D.				1634146	1634147
	Sample Matrix				Water	Water
	Sample Type					
	Sampling Date				2022-06-27	2022-06-27
	Sample I.D.				TW2-3hrs	TW2-6hrs
Metals	Cr	0.001	mg/L	MAC 0.05	<0.001	<0.001
	Cu	0.001	mg/L	AO 1	<0.001	<0.001
	Fe	0.03	mg/L	AO 0.3	0.42*	0.52*
	Hg	0.0001	mg/L	MAC 0.001	<0.0001	<0.0001
	K	1	mg/L		5	5
	Mg	1	mg/L		28	28
	Mn	0.01	mg/L	AO 0.05	0.02	0.02
	Mo	0.005	mg/L		<0.005	<0.005
	Na	1	mg/L	AO 200	33	34
	Ni	0.005	mg/L		<0.005	<0.005
	Pb	0.001	mg/L	MAC 0.010	<0.001	<0.001
	Sb	0.0005	mg/L	IMAC 0.006	<0.0005	<0.0005
	Se	0.001	mg/L	MAC 0.05	<0.001	<0.001
	Sr	0.001	mg/L		1.18	1.20
	Tl	0.0001	mg/L		<0.0001	<0.0001
	U	0.001	mg/L	MAC 0.02	<0.001	<0.001
	V	0.001	mg/L		<0.001	<0.001
	Zn	0.01	mg/L	AO 5	0.02	<0.01
Nutrients	N-NH3	0.010	mg/L		0.217	0.208
	Total Kjeldahl Nitrogen	0.100	mg/L		0.377	0.237
Subcontract	Tannin & Lignin	1	mg/L		<1.0	1

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Project: 210816
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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 424630 **Analysis/Extraction Date** 2022-06-28 **Analyst** SD **Method** EPA 200.8			
Silver	<0.0001 mg/L	117	80-120
Aluminum	<0.01 mg/L	108	80-120
Arsenic	<0.001 mg/L	98	80-120
Boron (total)	<0.01 mg/L	101	80-120
Barium	<0.01 mg/L	106	80-120
Beryllium	<0.0005 mg/L	103	80-120
Cadmium	<0.0001 mg/L	101	80-120
Cobalt	<0.0002 mg/L	106	80-120
Chromium Total	<0.001 mg/L	109	80-120
Copper	<0.001 mg/L	112	80-120
Iron	<0.03 mg/L	108	80-120
Mercury	<0.0001 mg/L	117	80-120
Manganese	<0.01 mg/L	108	80-120
Molybdenum	<0.005 mg/L	101	80-120
Nickel	<0.005 mg/L	111	80-120
Lead	<0.001 mg/L	114	80-120

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Date Submitted: 2022-06-28
Date Reported: 2022-07-04
Project: 210816
COC #: 892499

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Antimony	<0.0005 mg/L	94	80-120
Selenium	<0.001 mg/L	95	80-120
Strontium	<0.001 mg/L	102	80-120
Thallium	<0.0001 mg/L	113	80-120
Uranium	<0.001 mg/L	99	80-120
Vanadium	<0.001 mg/L	105	80-120
Zinc	<0.01 mg/L	110	80-120
Run No 424651 **Analysis/Extraction Date** 2022-06-28 **Analyst** CK **Method** C SM2130B			
Turbidity	<0.1 NTU	99	70-130
Run No 424698 **Analysis/Extraction Date** 2022-06-29 **Analyst** ML **Method** EPA 350.1			
N-NH3	<0.010 mg/L	99	80-120
Run No 424716 **Analysis/Extraction Date** 2022-06-30 **Analyst** AaN **Method** SM 4110			
Chloride	<1 mg/L	120	90-110
N-NO2	<0.10 mg/L	106	90-110
N-NO3	<0.10 mg/L	106	90-110
SO4	<1 mg/L	110	90-110

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 424737 **Analysis/Extraction Date** 2022-06-29 **Analyst** SKH **Method** EPA 351.2			
Total Kjeldahl Nitrogen	<0.100 mg/L	100	70-130
Run No 424740 **Analysis/Extraction Date** 2022-06-30 **Analyst** AsA **Method** C SM2120C			
Colour (True)	<2 TCU		80-120
Run No 424784 **Analysis/Extraction Date** 2022-06-30 **Analyst** Z S **Method** M SM3120B-3500C			
Calcium	<1 mg/L	99	90-110
Potassium	<1 mg/L	103	87-113
Magnesium	<1 mg/L	97	76-124
Sodium	<1 mg/L	99	82-118
Run No 424807 **Analysis/Extraction Date** 2022-06-30 **Analyst** IP **Method** SM5530D/EPA420.2			
Phenols	<0.001 mg/L	101	50-120
Run No 424821 **Analysis/Extraction Date** 2022-06-29 **Analyst** AET **Method** SUBCONTRACT-A			
Tannin & Lignin	<1.0 mg/L	100	

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Date Submitted: 2022-06-28
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Project: 210816
COC #: 892499

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 424854 **Analysis/Extraction Date** 2022-06-30 **Analyst** AsA **Method** SM2320,2510,4500H/F			
Alkalinity (CaCO3)	<5 mg/L	101	90-110
Conductivity	<5 uS/cm	99	90-110
F	<0.10 mg/L	103	90-110
pH		99	90-110
Run No 424855 **Analysis/Extraction Date** 2022-06-30 **Analyst** AsA **Method** SM 5310B			
DOC	<0.5 mg/L	99	80-120
Run No 424860 **Analysis/Extraction Date** 2022-07-04 **Analyst** AET **Method** C SM2340B			
Hardness as CaCO3			
Ion Balance			
TDS (COND - CALC)			
Run No 424871 **Analysis/Extraction Date** 2022-07-04 **Analyst** AsA **Method** C SM4500-S2-D			
S2-	<0.01 mg/L	85	80-120

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Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1979595
Date Submitted: 2022-06-17
Date Reported: 2022-06-20
Project: 210816
COC #: 892044

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Emma-Dawn Ferguson, Chemist

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Certificate of Analysis

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Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1979595
Date Submitted: 2022-06-17
Date Reported: 2022-06-20
Project: 210816
COC #: 892044

Group	Analyte	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.		
					1631955 / Water / / 2022-06-16 / TW3-3hrs	1631956 / Water / / 2022-06-16 / TW3-6hrs
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0	0	0
	Heterotrophic Plate Count	0	ct/1mL		65	26
	Total Coliforms	0	ct/100mL	MAC 0	0	0

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Analytical Method: AMBCOLM1
additional QA/QC information available on request.

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Report Number: 1979599
Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892044

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Report Comments:

APPROVAL: _____
Emma-Dawn Ferguson, Chemist

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COC #: 892044

Group	Analyte	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.	
					1631963 Water 2022-06-16 TW3-3hrs	1631964 Water 2022-06-16 TW3-6hrs
Anions	Cl	1	mg/L	AO 250	48	49
	F	0.10	mg/L	MAC 1.5	0.25	0.25
	N-NO2	0.10	mg/L	MAC 1.0	<0.10	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	<0.10	<0.10
	SO4	1	mg/L	AO 500	47	47
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 30-500	316	315
	Colour (True)	2	TCU		<2	<2
	Conductivity	5	uS/cm		739	746
	pH	1.00		6.5-8.5	7.80	7.85
	Phenols	0.001	mg/L		<0.001	0.004
	S2-	0.01	mg/L	AO 0.05	<0.01	<0.01
	TDS (COND - CALC)	1	mg/L	AO 500	480	485
	Turbidity	0.1	NTU	AO 5	6.5*	5.2*
Hardness	Hardness as CaCO3	1	mg/L	OG 80-100	400*	400*
Indices/Calc	Ion Balance	0.01			0.99	0.99
Metals	Ag	0.0001	mg/L		<0.0001	<0.0001
	Al	0.01	mg/L	OG 0.1	<0.01	<0.01
	As	0.001	mg/L	IMAC 0.01	<0.001	<0.001
	B	0.01	mg/L	IMAC 5.0	0.04	0.04
	Ba	0.01	mg/L	MAC 1.0	0.28	0.28
	Be	0.0005	mg/L		<0.0005	<0.0005
	Ca	1	mg/L		86	86
	Cd	0.0001	mg/L	MAC 0.005	<0.0001	<0.0001
	Co	0.0002	mg/L		<0.0002	<0.0002
	Cr	0.001	mg/L	MAC 0.05	<0.001	<0.001

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COC #: 892044

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1631963 Water 2022-06-16 TW3-3hrs	1631964 Water 2022-06-16 TW3-6hrs
Metals	Cu	0.001	mg/L	AO 1		<0.001	<0.001
	Fe	0.03	mg/L	AO 0.3		0.57*	0.53*
	Hg	0.0001	mg/L	MAC 0.001		<0.0001	<0.0001
	K	1	mg/L			3	3
	Mg	1	mg/L			45	45
	Mn	0.01	mg/L	AO 0.05		0.02	0.02
	Mo	0.005	mg/L			<0.005	<0.005
	Na	1	mg/L	AO 200		11	11
	Ni	0.005	mg/L			<0.005	<0.005
	Pb	0.001	mg/L	MAC 0.010		<0.001	<0.001
	Sb	0.0005	mg/L	IMAC 0.006		<0.0005	<0.0005
	Se	0.001	mg/L	MAC 0.05		<0.001	<0.001
	Sr	0.001	mg/L			0.418	0.413
	Tl	0.0001	mg/L			<0.0001	<0.0001
	U	0.001	mg/L	MAC 0.02		<0.001	<0.001
	V	0.001	mg/L			<0.001	<0.001
	Zn	0.01	mg/L	AO 5		0.03	0.01
Nutrients	N-NH3	0.010	mg/L			0.198	0.208
	Total Kjeldahl Nitrogen	0.100	mg/L			0.403	0.475
Subcontract	Tannin & Lignin	1	mg/L			<1.0	<1.0
Subcontract-Inorg	DOC	0.5	mg/L	AO 5		2.7	2.7

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Project: 210816
COC #: 892044

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 424075 **Analysis/Extraction Date** 2022-06-18 **Analyst** CK **Method** C SM2130B			
Turbidity	<0.1 NTU	100	70-130
Run No 424100 **Analysis/Extraction Date** 2022-06-20 **Analyst** AaN **Method** SM 4110			
Chloride	<1 mg/L	100	90-110
N-NO2	<0.10 mg/L	106	90-110
N-NO3	<0.10 mg/L	103	90-110
SO4	<1 mg/L	105	90-110
Run No 424191 **Analysis/Extraction Date** 2022-06-20 **Analyst** SD **Method** EPA 200.8			
Silver	<0.0001 mg/L	111	80-120
Aluminum	<0.01 mg/L	100	80-120
Arsenic	<0.001 mg/L	96	80-120
Boron (total)	<0.01 mg/L	106	80-120
Barium	<0.01 mg/L	105	80-120
Beryllium	<0.0005 mg/L	108	80-120
Cadmium	<0.0001 mg/L	106	80-120

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Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1979599
Date Submitted: 2022-06-17
Date Reported: 2022-06-23
Project: 210816
COC #: 892044

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Cobalt	<0.0002 mg/L	101	80-120
Chromium Total	<0.001 mg/L	104	80-120
Copper	<0.001 mg/L	104	80-120
Iron	<0.03 mg/L	103	80-120
Mercury	<0.0001 mg/L	110	80-120
Manganese	<0.01 mg/L	104	80-120
Molybdenum	<0.005 mg/L	97	80-120
Nickel	<0.005 mg/L	105	80-120
Lead	<0.001 mg/L	109	80-120
Antimony	<0.0005 mg/L	91	80-120
Selenium	<0.001 mg/L	102	80-120
Strontium	<0.001 mg/L	101	80-120
Thallium	<0.0001 mg/L	107	80-120
Uranium	<0.001 mg/L	100	80-120
Vanadium	<0.001 mg/L	101	80-120
Zinc	<0.01 mg/L	107	80-120

Run No 424271 **Analysis/Extraction Date** 2022-06-21 **Analyst** SKH
Method EPA 351.2

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range