

# 2021 Annual Report Hall's Glen Waste Transfer Station



Provisional Compliance Approval No. A341004

April 27, 2022

Prepared for:  
The Corporation of the Township of Douro-  
Dummer

Cambium Reference: 12987-002

CAMBIUM INC.

866.217.7900

[cambium-inc.com](http://cambium-inc.com)

Peterborough | Barrie | Oshawa | Kingston | Calgary



## Executive Summary

The Hall's Glen Waste Transfer Station is owned and operated by the Township of Douro-Dummer under Ministry of the Environment, Conservation and Parks Environmental Compliance Approval No. A341004. The site is on Lot 25, Concession 4, geographic Township of Dummer, Township of Douro-Dummer, County of Peterborough. The municipal address is 1951 County Road 6, about 10 km north of the community of Warsaw. The total site area is 48.5 ha and has an approved landfill area of 1.0 ha. Closure activities were completed at the site from 2003 to 2005. Currently the site operates as a non-hazardous solid waste and materials transfer station.

This report presents the results of the 2021 activities that were completed at the Hall's Glen Waste Transfer Station. The report and activities have been completed and reported on in general conformance with the November 2010 Ministry of the Environment Technical Guidance Document entitled "**Monitoring and Reporting for Waste Disposal Sites – Groundwater and Surface Water**". The "**Monitoring and Screening Checklist**" is provided in Appendix A.

The water level measurements indicated that the predominant direction of groundwater flow in all overburden and bedrock aquifers is to the southeast.

Although leachate impacts were evident in down-gradient groundwater monitors, the plume decreased in concentration (strength) at greater distances from the waste footprint. Migration of leachate into deeper portions of the bedrock aquifer is restricted due to upwards hydraulic gradients in the areas southeast of the waste mound. Non-waste related sources may be influencing groundwater quality in some areas of the Site.

Historical results have indicated sporadic detections of monochlorobenzene at MW05-1. In November of 2021 monochlorobenzene was detected at MW05-1 and MW05-2 at concentrations marginally greater than laboratory detection limits (and significantly less than ODWQS criteria). The concentrations of all other volatile organic compounds were reported below detectable limits in 2021 at all other wells.



Groundwater is interpreted to discharge to surface down-gradient of the waste mound during at least some times of the year. As such, groundwater quality data of those wells in the area of potential groundwater discharge to surface was compared to the Provincial Water Quality Objectives. Only marginal impacts were reported and were attributed, at least in part, to non-waste related sources such as saturated organic soils, decaying organic vegetation or naturally varying conditions.

Groundwater samples collected from MW08, MW09, MW10, MW11, MW12, and R1 were used to complete the Ministry of the Environment, Conservation and Parks Reasonable Use Concept compliance assessment. Given the RUC exceedances of various parameters were not wholly attributed to Site impacts, and the central location of wells MW08 through MW12, the Site complied with Guideline B-7 in 2021.

All elevated LIP concentrations have decreased (except alkalinity) at the location S1 and it is interpreted that adverse impacts to surface water from the Site have attenuated by the down-gradient Site boundary. S2 is most likely impacted by groundwater discharging into the nearby wetlands; however, due to the persistent dry nature of this location, samples were not able to be collected in 2021.

About 200 tonnes of waste was accepted at the Site in 2021 and transferred to the Peterborough Waste Management Facility. About 60.00 tonnes of blue box recycling and WEEE were diverted from the Site. Furthermore, 5.45 tonnes of MHSW, 17.32 tonnes of scrap metal, and 24.12 tonnes of organics were collected at the Site.

The Township managed the Site in compliance with the PC of A in 2021.

Recommendations have been made regarding the future operation of the Hall's Glen waste disposal site and work to be completed in 2022.



Respectfully submitted,

**Cambium Inc.**

Nicole Heikoop, M.Sc., GIT  
Technologist

Michael Pion, C.E.T.  
Senior Environmental Technologist

Cameron MacDougall, P. Geo.  
Project Manager





## Table of Contents

<b>1.0</b>	<b>Introduction.....</b>	<b>1</b>
1.1	Site Location.....	1
1.2	Site Description .....	1
1.3	Scope of Work.....	2
<b>2.0</b>	<b>Methodology .....</b>	<b>3</b>
2.1	Groundwater Monitoring Program .....	3
2.2	Residential Well Monitoring Program .....	5
2.3	Surface Water Monitoring Program .....	6
2.4	Landfill Gas Monitoring Program .....	7
2.5	Site Review and Operations Overview .....	8
<b>3.0</b>	<b>Geological and Hydrogeological Context .....</b>	<b>9</b>
3.1	Topography and Drainage.....	9
3.1.1	Precipitation Data .....	10
3.2	Hydrogeology .....	10
3.2.1	Well Records .....	11
3.2.2	Groundwater Flow Direction .....	12
3.2.3	Hydraulic Conductivity .....	12
3.2.4	Vertical Gradients.....	13
3.3	Conceptual Site Model .....	14
<b>4.0</b>	<b>Results and Discussion.....</b>	<b>15</b>
4.1	Quality Assurance / Quality Control.....	15
4.2	Groundwater Quality .....	16
4.2.1	Background Groundwater Quality .....	17
4.2.2	Leachate Characteristics.....	17
4.2.3	Down-Gradient Groundwater Quality .....	19
4.2.4	Volatile Organic Compounds.....	21
4.2.5	Residential Groundwater Quality.....	21



4.2.6	Groundwater/Surface Water Interaction .....	22
4.2.7	Groundwater Compliance Assessment .....	24
4.2.8	Groundwater Trigger Mechanism .....	28
4.2.8.1	Trigger Locations.....	28
4.2.8.2	Contingency Plan .....	28
4.2.8.3	2021 Groundwater Assessment .....	29
4.3	Surface Water Quality .....	29
4.3.1	Background Surface Water Quality .....	29
4.3.2	Downstream Surface Water Quality .....	30
4.4	Landfill Gas Monitoring.....	30
4.5	Adequacy of Monitoring Program .....	31
<b>5.0</b>	<b>Site Operations .....</b>	<b>35</b>
5.1	Site Access and Security.....	35
5.2	Training .....	36
5.3	Site Inspections .....	36
5.3.1	Litter Control.....	37
5.3.2	Roads.....	37
5.3.3	Final Cover Integrity .....	38
5.4	Complaints and Incidents .....	38
5.5	Monitoring Well Security.....	38
5.6	Materials Summary .....	38
5.6.1	Site Usage.....	39
5.6.2	Material Diversion.....	40
5.7	Site Documentation Reviews and Updates .....	41
5.8	Operations, Equipment, and Procedures .....	41
5.9	Compliance with Ministry Approval.....	41
<b>6.0</b>	<b>Conclusions and Recommendations .....</b>	<b>42</b>
	<b>References .....</b>	<b>45</b>



**Glossary of Terms..... 47**

**Standard Limitations..... 53**

**List of Embedded Tables**

Embedded Table 1 Site Details..... 2

Embedded Table 2 Groundwater QA/QC Duplicate Locations ..... 5

Embedded Table 3 Coordinates of Surface Water Stations..... 10

Embedded Table 4 Historical and 2021 Precipitation Data ..... 10

Embedded Table 5 Summary of Horizontal Hydraulic Gradients ..... 12

Embedded Table 6 Summary of Hydraulic Conductivity ..... 13

Embedded Table 7 Leachate Indicator Parameters..... 18

Embedded Table 8 Summary of 2021 PWQO/CWQG Exceedances at Select Monitors..... 23

Embedded Table 9 Summary of Site Usage ..... 39

Embedded Table 10 Summary of Diverted Materials..... 40

Embedded Table 11 Summary of Divertible Materials - Private and Curbside..... 41

**Please Note:** Fully accessible appended figures, tables, and appendices are available upon request.

**List of Appended Figures**

- Figure 1 Regional Location Plan
- Figure 2 Sample Location Plan
- Figure 3 Existing Conditions
- Figure 4 Groundwater Elevations (Overburden)
- Figure 5 Groundwater Elevations (Shallow Bedrock)
- Figure 6 Groundwater Elevations (Deep Bedrock)
- Figure 7 Groundwater Configuration (Overburden)
- Figure 8 Groundwater Configuration (Shallow Bedrock)
- Figure 9 Groundwater Configuration (Deep Bedrock)



## List of Appended Tables

Table 1	Environmental Monitoring Program
Table 2	Groundwater Elevation Data
Table 3	Vertical Hydraulic Gradients
Table 4	Groundwater Quality – Overburden
Table 5	Groundwater Quality – Shallow Bedrock
Table 6	Groundwater Quality – Deep Bedrock
Table 7	Groundwater Quality – Residential Wells
Table 8	Groundwater Quality – Volatile Organic Compounds
Table 9	Groundwater Quality – PWQO Comparison
Table 10	Surface Water Quality
Table 11	Landfill Gas Measurements
Table 12	Monthly Summary of Accepted Materials

## List of Appendices

Appendix A	Monitoring and Screening Checklist
Appendix B	Provisional Compliance Approval No. A341004
Appendix C	Field and Precipitation Data
Appendix D	Laboratory Certificates of Analysis
Appendix E	Photographs
Appendix F	Borehole Logs
Appendix G	Ministry Well Records



## 1.0 Introduction

The Corporation of the Township of Douro-Dummer (Township) retained Cambium Inc. (Cambium) to complete the 2021 annual monitoring program for the Hall's Glen Waste Transfer Station (Site). The Site operates under the Ontario Ministry of the Environment, Conservation and Parks (Ministry) Provisional Certificate of Approval (PC of A) No. A341004, most recently amended August 22, 2016 (Appendix B).

To aid in the understanding of the history and development of the Site, the following information is included digitally in the report package:

- **Closure Report** (TSH, 2002a)
- **Design, Operations, Maintenance and Closure Report** (TSH, 2002b)

### 1.1 Site Location

The Site is on Lot 25, Concession 4, geographic Township of Dummer, Township of Douro-Dummer, County of Peterborough (Figure 1). The municipal address for the Site is 1951 Regional Road 6, about 10 km north of the community of Warsaw. The Universal Transverse Mercator (UTM) coordinates for the site entrance area Zone 17, 727911 m east, 4933207 m north, North American Datum (NAD) 83.

### 1.2 Site Description

The Township has owned and operated the Site as a natural attenuation landfill since 1970. The PC of A which approved landfill operations was granted in 1980. Closure activities began in the summer of 2003, where the landfill area was mounded and capped. Final closure activities were completed from 2003 to 2005. An area of Fill Beyond Acceptable Limits (FBAL) on the north side of the waste mound was identified in Drawing 1 of the **Closure Report** (TSH, 2002a). It is understood that the Township addressed the FBAL in 2004 and 2005. To Cambium's knowledge there is currently no FBAL at the Site. Currently the Site operates as a non-hazardous solid waste and materials transfer station.



The Site is in a rural area and is surrounded by agricultural fields and forest; surrounding land use is primarily passive agriculture. Site details are in Embedded Table 1. A Local Topography Plan and an Existing Conditions Plan are included as Figure 2 and Figure 3, respectively.

**Embedded Table 1 Site Details**

Total Site Area	48.5 ha
Approved Area of Refuse Placement	1.0 ha

### 1.3 Scope of Work

The scope of the 2021 work program was based on the results of the 2020 groundwater monitoring program (GHD, 2021), requirements outlined in the PC of A, and included:

- Groundwater elevation monitoring
- Surface water and groundwater sampling and analysis
- Evaluation of groundwater quality against the Ontario Drinking Water Quality Standards (ODWQS) and Reasonable Use Concept (RUC) values developed in accordance with Ministry Guideline B-7
- Evaluation of groundwater quality at select monitoring wells against the Provincial Water Quality Objectives (PWQO)
- Evaluation of surface water quality against the PWQO
- An overview of site development and operations
- Preparation of this annual report

This report presents the results of the 2021 work program, provides an assessment of the current landfill impact of the Site on the surrounding groundwater and surface water environments, and a summary of the operational activities at the Site. Cambium has provided recommendations for the 2022 monitoring program and site operations based on the 2021 results and assessment.



## 2.0 Methodology

The 2021 work program was completed to maintain compliance with the PC of A and Ministry requirements. As such, the environmental monitoring work program was completed consistent with **Guidance Manual for Landfill Sites Receiving Municipal Waste** (MOEE, 1993) and **Monitoring and Reporting for Waste Disposal Sites, Groundwater and Surface Water, Technical Guidance Document** (MOE, 2010).

Field tasks were completed following Cambium's Standard Operating Procedures developed from recognized standard procedures such as those listed above and **Guidance on Sampling and Analytical Methods for use at Contaminated Sites in Ontario** (MOEE, 1996). A health and safety program was developed for site-specific conditions and all Cambium personnel working on the project were familiarized and required to follow the identified protocol.

Groundwater and surface water samples were stored in coolers with freezer packs and maintained at less than 10°C during transport to Caduceon Environmental Laboratories (Caduceon) in Kingston, Ontario. Caduceon is accredited by the Canadian Association for Laboratory Accreditation Inc. for specific environmental tests listed in the scope of accreditation. Groundwater and surface water samples were submitted at the frequency and for analysis of the parameters outlined in Table 1.

### 2.1 Groundwater Monitoring Program

The following tasks were completed as part of the 2021 groundwater monitoring program:

- Prior to sampling, water levels were measured at each monitoring well using an electronic water level tape.
- The purge volume was calculated on-site during each monitoring event using the measured water level, well depth, and the borehole diameter. Each groundwater monitoring well to be sampled was purged of approximately three well bore volumes. For wells with low recovery, at least one saturated borehole volume was purged prior to sampling. Purged water was disposed on-site, down-gradient of each respective well.



- Samples were collected using dedicated polyethylene tubing equipped with inertial-lift foot valves.
- Groundwater samples for metals and dissolved organic carbon (DOC) analysis were field filtered.
- Field measurements were recorded for pH, conductivity, temperature, dissolved oxygen (DO), and oxygen reduction potential (ORP).

Groundwater samples were collected on June 24, June 28, and November 11 from the on-site monitoring wells listed below:

- MW01-1    • MW01-2    • MW02-1    • MW02-2    • MW03-1    • MW03-2
- MW04-1    • MW04-2    • MW05-1    • MW05-2    • MW06-1    • MW06-2
- MW07-1    • MW07-2    • MW08-1    • MW08-2    • MW09-1    • MW09-2
- MW 10-1    • MW 10-2    • MW 11-1    • MW 11-2    • MW 12-1    • MW 12-2
- MW 12-3    • MW 13-1    • MW 13-2

Monitoring wells included in the groundwater monitoring program are shown on Figure 2. The UTM coordinates for the monitoring locations are in Table 2. Groundwater results are discussed in Section 4.2. Field data sheets are in Appendix C. Laboratory Certificates of Analysis are in Appendix D. Photographs of each monitoring location are in Appendix E.

The following deviations from the monitoring program were noted:

- MW01-1 was dry, and wells MW02-1, MW02-2, and MW03-2 had insufficient water to provide a sufficient sample during the spring sampling event.
- MW01-2 and MW02-2 were dry, and MW02-1 had insufficient sampling volumes during the autumn sampling event.



Blind duplicate groundwater samples were collected from the following locations listed in Embedded Table 2 as part of the Quality Assurance/Quality Control (QA/QC) program. As these field duplicates equate to at least 10% of the total samples collected, this is an adequate QA/QC program for groundwater. In addition to these samples, the laboratory completes internal QA/QC. The results of the QA/QC program are presented in Section 4.1.

**Embedded Table 2 Groundwater QA/QC Duplicate Locations**

Spring	Autumn
QA/QC #1: MW05-1	QA/QC #1: MW06-1
QA/QC #2: MW12-1	QA/QC #2: MW04-1
QA/QC #3: MW08-1	QA/QC #3: MW11-2
QA/QC VOCs #1: MW05-1	QA/QC VOCs #1: MW06-1
QA/QC VOCs #2: MW03-1	QA/QC VOCs #2: MW11-2

Notes:

1. Extended VOC suite analysed on QA/QC VOC duplicates.

## 2.2 Residential Well Monitoring Program

Residential well sampling was completed on June 24, June 28, and November 11, 2021, at the locations listed below. The only deviation from the monitoring program was that no samples were collected from wells R2 and R3 as contact with the residents could not be made.

- R1
- R2
- R3
- R4

Well locations are on Figure 2. It is noted that R1 is a 0.05 m diameter PVC monitoring well that was installed to replace the abandoned R1 stone dug well that was sampled historically. To Cambium's knowledge the original R1 well has not recently been used as a private water supply and the existing R1 (monitoring well) is not used as a water supply. The suspected



Ministry well record for R1 is no.:7338879 (MECP, 2021). The record indicates that gravel overburden was encountered to a depth of 2.7 mbgs. Limestone bedrock extended from 2.7 mbgs to 4.7 mbgs. R1 was installed to a depth of 4.7 mbgs and the screen crosses the overburden bedrock interface.

The other three residential wells are water supply wells for single-family residences located east and west of the Site. Installation details and age of wells R2, R3 and R4 are not known, and specific well records could not be assigned to each location. However, suspected well records for these locations were identified (7265867, 5106571 and 5110084 (MECP, 2021)) and indicate that the wells are likely installed in bedrock and ranged in depth between 10.7 mbgs and 16.2 mbgs. Results from the residential well sampling are discussed in Section 4.2.5. Field data sheets are in Appendix C and Laboratory Certificates of Analysis as provided by Caduceon are in Appendix D.

### **2.3 Surface Water Monitoring Program**

The following tasks were completed as part of the 2021 surface water monitoring program:

- Weather conditions prior to and during field events were recorded.
- Surface water samples were collected by immersing the sample container into the water body.
- When sample bottles were prefilled with preservatives, a clean bottle was used to collect and decant the water directly into the sample bottle.
- Surface water samples for mercury (0.45 µm) analysis were filtered by the laboratory.
- Field measurements including pH, conductivity, temperature, DO, and ORP were recorded at each sample location.
- Where possible, depth, width, and flow velocity measurements were collected at each surface water location.



The surface water monitoring program included collection of samples from on-site surface water sample stations S1 and S2 on June 24 and 28, and November 11. The following deviations from the monitoring program were noted:

- Stations S1 and S2 were dry in June.
- Station S2 was dry in November.

Surface water sampling locations are shown on Figure 2. The UTM coordinates for the monitoring locations are in Embedded Table 3. Surface water results are discussed in Section 4.3. Field data sheets are in Appendix C. Laboratory Certificates of Analysis provided by Caduceon are in Appendix D. Photographs of each surface water sample location are in Appendix E.

Blind duplicate surface water samples were collected from station S1 in November as part of the QA/QC program. As these field duplicates equate to at least 10% of the total samples obtained, this is an adequate QA/QC program for surface water. The results of the QA/QC program are presented in Section 4.1.

## 2.4 Landfill Gas Monitoring Program

Landfill gas monitoring was conducted at all existing groundwater monitoring wells in 2021 in conjunction with the spring and autumn monitoring events. The purpose of the monitoring is to assess compliance with Section 4.10 of **Landfill Standards, A Guideline on the Regulatory and Approval Requirements for New and Expanding Landfilling Sites** (MOEE, 1998), which states the concentration of methane gas in the subsurface may not exceed 2.5% by volume at the property boundary.

Total combustible gas concentrations were measured at each location, prior to collecting groundwater levels or samples, using a portable gas meter calibrated to methane. LFG monitoring is conducted on a yearly basis at the Site; the LFG monitoring results for the 2021 monitoring program are discussed in Section 4.4.



## 2.5 Site Review and Operations Overview

Site operations were observed during site visits completed in June, and November 2021. During these visits, the items listed below were inspected on accessed areas of the Site and observations noted in the field file. In January 2022, the Township provided additional 2021 site operations information. Site inspection results are presented in Section 4.5.

- Litter control
- Condition and layout of recycling bins
- Status of monitoring well security
- Condition and layout of access roads, access gates
- Final cover integrity



## 3.0 Geological and Hydrogeological Context

### 3.1 Topography and Drainage

The Site is in the Otonabee River tertiary watershed and the Indian River quaternary watershed. The surface water drainage systems on and near the Site have generally been characterized as stagnant and discontinuous. The local area around the Site is poorly drained and surface water generally pools and is interpreted to infiltrate into the subsurface or evaporate. A defined flow channel through the Site has not been observed by Cambium staff. Unevaluated wetlands are identified within the central area of the Site (east of the waste mound), and are located to the north, east and south of the Site. In general, surface water flow is only interpreted to occur during wetter times of the year. The nearest mapped watercourse is an unnamed tributary about 1.5 km south of the Site which eventually discharges into the Indian River. Topographic maps of the area suggest surface water flow is generally south (during times of year when surface water flow occurs).

There are two surface water monitoring stations included in the existing monitoring program (labelled as S1 and S2). Both of these stations are established within topographic depressions which exhibit periods of low or no flow. The following describes the surface water stations in the approved monitoring program:

- S1 is 700 m southeast of the waste mound and adjacent to residential well R1.
- S2 is 200 m east of the waste mound and has historically monitored the background surface water quality for the Site. Station S2 is located where, according to available mapping, surface water flows south onto the Site from areas north of the property (making this location a background surface water monitoring station). Due to the proximity of station S2 to the waste mound, and the discontinuous nature of the flow surface water systems on-site, this station may be influenced from landfill leachate. See Section 4.3 for more details.

The geospatial coordinates (NAD 83) for the surface water monitoring stations are outlined in Embedded Table 2. Flow and discharge rates measured during the monitoring events are



included in Appendix B. There was no staining observed at any of the surface water monitoring stations that would be indicative of leachate impacted groundwater discharge.

**Embedded Table 3 Coordinates of Surface Water Stations**

Surface Water Station	UTM (Zone 17)
S1	729187 4933099
S2	728686 4933486

### 3.1.1 Precipitation Data

A review of the 2021 precipitation data for Trent U (Government of Canada, 2021) in comparison to the average precipitation data for 1981 to 2010 for Peterborough A (Government of Canada, 2015) indicated that the annual precipitation was normal; however, varied month to month. July and September were the wettest months of the year receiving almost double the climate normal precipitation. Conversely, the driest months of the year were May and August. The monthly precipitation, as well as the amount of precipitation during and in the three days prior to the sampling events is summarized in Embedded Table 4. Refer to Appendix C for field sheets and climate data.

**Embedded Table 4 Historical and 2021 Precipitation Data**

Sampling Date	Average Monthly Precipitation (mm) (1981 – 2010)	2021 Precipitation (mm)	Precipitation During and Prior to Sampling (mm)
June 24	79.9	94.3	2.7
June 28	79.9	94.3	32.0
November 11	86.4	49.4	0.0

## 3.2 Hydrogeology

Based on the assessment completed by GHD and prior consultants, the following summary of the hydrogeology of the Site is provided (GHD, 2021). The Site is in the physiographic region known as the Dummer Moraine. This area can be characterized as relatively flat, stoney ground covered with shallow deposits of glacial till. The average overburden depth in the area



is 3.25 mbgs. The overburden unit is underlain by limestone bedrock from the Lindsay Formation. The bedrock is part of the Trenton-Black River Group and is of Middle Ordovician age.

The current monitoring program consist of 13 multi-level groundwater monitors at the Site. Available information indicates that the monitoring wells intercepted four water bearing units (an overburden aquifer and three bedrock aquifers; Appendix F). The aquifers in which each well has been installed are outlined below. It is noted that the well groupings listed below were based off available information. In some cases, the water bearing strata in which a well is installed was estimated based on available information and assumptions regarding well construction.

- Overburden: MW01-2, MW02-2, MW03-2, MW04-2, MW05-2, MW06-2 and MW07-2
- Shallow Bedrock (determined to be either the first bedrock aquifer encountered beneath overburden, or the shallowest bedrock well in a multi-level bedrock well grouping): MW01-1, MW02-1, MW03-1, MW04-1, MW05-1, MW06-1, MW07-1, MW08-2, MW09-2, MW10-2, MW11-2 and MW12-1
- Deep Bedrock: MW08-1, MW09-1, MW10-1, MW11-1 and MW12-2
- Monitoring well MW12-3 is the deepest well installed in bedrock from the MW12 multilevel well. This well was not included in any of the other aquifer groupings outlined above as no other wells were installed beneath the deep aquifer system.

### **3.2.1 Well Records**

A well record search completed in 2021 indicated that there are 30 wells within 500 m of the Site (MECP, 2021)(Appendix G); 14 of the well records indicate they are used for domestic water supply, 14 of the records were for monitoring wells, and two records are for drilled test holes. The wells were reported to be from 4.3 to 44.8 mbgs and completed in bedrock (Appendix G). There are 12 well records plotted within the Site boundaries; all of which are identified as monitoring wells that are included in the existing groundwater monitoring program.



### 3.2.2 Groundwater Flow Direction

Historically, the regional direction of groundwater flow within the overburden and bedrock deposits has been to the southeast towards Indian River (GHD, 2021). To determine the current groundwater elevation, water table gradient, and groundwater flow direction, water level measurements were collected in the spring and autumn. The water level data were used to calculate the groundwater elevations summarized in Table 2 and shown on Figure 4 (overburden), Figure 5 (shallow bedrock) and Figure 6 (deep bedrock). Groundwater elevation contours and flow directions are shown on Figure 7 (overburden), Figure 8 (shallow bedrock) and Figure 9 (deep bedrock). The predominant direction of groundwater flow in all three aquifers is to the east/southeast. It is noted that a portion of flow in the deep aquifer radiates away to the north, west and south from well MW09-1.

Monitoring well MW13 was not included in the groundwater flow contour mapping since it has never been surveyed (and therefore groundwater elevations cannot be calculated).

The horizontal hydraulic gradient within each aquifer system typically ranged between 0 m/m and 0.024 m/m. It is noted that a high horizontal gradient was noted in the overburden aquifer within the eastern portion of the waste mound in June (0.163 m/m). Well MW02-2 was dry in the autumn, as such horizontal gradients within the waste mound could no be calculated. Embedded Table 5 provides a summary of the gradients measured:

**Embedded Table 5 Summary of Horizontal Hydraulic Gradients**

Unit	June	November
<b>Overburden (southeast)</b>	0.163 m/m – 0.024 m/m	0.018 m/m – 0.016 m/m
Shallow <b>Bedrock (east/southeast)</b>	0.018 m/m – 0.005 m/m	0.014 m/m – 0.004 m/m
Deep Bedrock (variable)	0.007 m/m – 0.0 m/m	0.007 m/m – 0.0 m/m

### 3.2.3 Hydraulic Conductivity

Slug tests were conducted in 2009 by GHD on four wells in order to assess the permeability of some of the water bearing strata on-site. The results of the slug tests indicated that the



overburden soils were silty sand with a relatively high hydraulic conductivity. The bedrock results indicated that the underlying limestone was fractured, also yielding a high conductivity. Embedded Table 6 summarizes the results of the slug tests as reported by GHD (GHD, 2021) .

**Embedded Table 6 Summary of Hydraulic Conductivity**

Well	Test Type	Hydraulic Conductivity (cm/s)	Geometric Mean, K (cm/s)	Aquifer
MW03-1	Falling Head	$6 \times 10^{-3}$	$10 \times 10^{-3}$	Fractured limestone
	Rising Head	$3 \times 10^{-3}$		
MW07-2	Falling Head	$3 \times 10^{-2}$	$10 \times 10^{-2}$	Silty sand, clean sand
	Rising Head	$2 \times 10^{-2}$		
MW08-2	Falling Head	$2 \times 10^{-2}$	$10 \times 10^{-2}$	Silty sand, clean sand
	Rising Head	$4 \times 10^{-2}$		
MW08-1	Falling Head	$4 \times 10^{-3}$	$10 \times 10^{-3}$	Fractured limestone
	Rising Head	$2 \times 10^{-3}$		

### 3.2.4 Vertical Gradients

Vertical hydraulic gradients were calculated between several clustered wells at the Site (Table 3). In general, hydraulic gradients of the wells in close proximity to the waste mound are downwards (at MW03, MW04, MW05, MW06 and MW07), between overburden and the shallow bedrock aquifer. Further away from the waste mound, at wells MW08, MW09, MW10, MW11, and MW12, vertical gradients were upwards between shallow and deep bedrock aquifers. Wells MW08, MW09, MW10, MW11, and MW12 do not include overburden monitors, as such the hydraulic gradient between overburden and bedrock aquifers in the areas south and east of the waste mound cannot be confirmed. However, the shallow bedrock is considered to be hydraulically connected to the overburden and the consistent upwards vertical hydraulic gradients reported at wells MW08, MW09, MW10, MW11, and MW12 suggest that groundwater could discharge to surface during at least some times of the year.



### 3.3 Conceptual Site Model

The Site is underlain by a thin veneer of overburdening soils identified as silty-sand till. Underlying the soil is regionally extensive sedimentary rock of the Lindsay Formation of Middle Ordovician age, with trending drumlins and moraines in a northeast-southwest orientation. These features create natural basins and poor drainage conditions.

In general, precipitation infiltrates the overburden soils in the area of the waste mound. Leachate laden groundwater migrates down into the overburden and bedrock aquifers, where it then migrates, generally, to the east/southeast. Infiltration of leachate laden groundwater into deeper bedrock aquifer units is restricted (as evidenced by the upwards vertical hydraulic gradients observed at wells MW08 through MW12). The vertical hydraulic gradients between the bedrock and overburden in the area of wells MW08 through MW12 have not been confirmed since there were no overburden monitors included at these locations. However, it is possible that groundwater discharges to surface during at least some periods of the year when conditions permit. Further, the consistent upwards vertical gradients suggest that deep bedrock groundwater quality at these wells may also be influenced by non-waste related sources.

Groundwater flow in the overburden and shallow bedrock aquifers is generally east to southeast off the Site. Groundwater flow in the deeper bedrock aquifer is also considered to be towards the southeast, but with variable portions of flow directed to the north and south in the area of MW09-1. Based on this conceptual model, primary receptors of leachate impacted water are downstream surface water systems and potentially groundwater users which draw on the overburden and shallow portions of the bedrock aquifer.



## 4.0 Results and Discussion

Water quality results from the monitoring program are used to assess the existence, extent, and degree of impacts to the groundwater and surface water environments related to waste disposal site activities at the Site.

To ensure appropriate actions are in place to respond to degradation in surface water or groundwater quality beyond an acceptable level, site-specific trigger levels and contingency measures aid in the assessment of impacts from leachate contamination and help to prevent adverse impacts to the environments surrounding the waste disposal site. This section presents the results of the 2021 monitoring program.

### 4.1 Quality Assurance / Quality Control

Results from the analyses completed on the blind duplicate QA/QC samples were evaluated. Parameter concentrations were considered significantly different if the relative percent difference (RPD) between the duplicate and the parent samples was greater than 30% when at least one result was greater than five times the reported detection limit (RDL).

The duplicate analysis indicated that, while in general, the data between duplicate samples showed good correlation; the following parameters reported notable differences:

- Nitrate at MW12-1 and ammonia at MW08-1 in June
- Copper, lead, and chemical oxygen demand (COD) at MW06-1 and copper at S1 in November

There were many discrepancies between the parent and duplicate samples greater than 30% at MW04-1 in November:

boron	calcium	chloride	manganese	magnesium
phosphorus	potassium	dissolved organic carbon (DOC)	hardness	total dissolved solids (TDS)
COD	sodium	sulphate	ammonia	conductivity



Given that the groundwater samples at MW04-1 have persistently been cloudy with sediment, it was inferred the discrepancies were related to the quality of the sample and the difficulty collecting a true duplicate.

Similarly, discrepancies in the surface water samples were attributed to the shallow ponded nature of the surface water locations and the difficulty collecting a representative sample without disturbing sediments. Regardless, the concentrations in the duplicate and original samples for the identified parameters were within historical ranges (where there are enough datasets to establish historical range) except for the following:

- The chloride concentrations in the parent sample for MW04-1 in November were just above historic range; however, could be reasonable for the location.
- The COD concentrations in both the parent and duplicate samples for MW04-1 and MW06-1 in November were above historic range. Because both samples were elevated, the parent concentration is considered representative of water quality at this location.
- The phosphorus concentrations in both the parent and duplicate samples for MW04-1 in November were above historic range. Because both samples were elevated, the parent concentration is considered representative of water quality at this location.

Overall, the water quality data was considered suitable for its intended use, which was to identify changes in water quality and analyzed parameters present at concentrations that do not meet compliance criteria.

## **4.2 Groundwater Quality**

Groundwater analysis data for 2011 to 2021 are in Table 4 through Table 9.

To assess water quality impacts related to landfill site operations, the analytical results for groundwater samples collected on-site were compared to background water quality and historical data, and site compliance was assessed using the ODWQS (MOE, 2006) and RUC (MOEE, 1994a). Furthermore, as groundwater is interpreted to discharge during some times of the year, the results for groundwater samples collected from select monitors were also compared against the PWQO (MOEE, 1994b).



#### **4.2.1 Background Groundwater Quality**

When evaluating the impact of any waste disposal site on a groundwater resource, a reference point or value must be established to assist in determining the magnitude of the impact. In this respect, the quality of the groundwater that is not impacted by the waste disposal site operation (background water quality) should be used for comparison purposes. Nested wells MW01 and MW13 are located about 53 m and 105 m up-gradient/cross-gradient of the waste mound, respectively. These well locations are considered representative of background groundwater conditions of the Site due to their location and direction of groundwater flow. Monitoring wells MW01-1 and MW13-1 are installed in the bedrock, and MW01-2 and MW13-2 are installed in the overburden (or at/just within the overburden/bedrock interface).

The water quality reported from MW01-1 shows that most metals are stable at this location. There may be some influence from road salts due to elevated and variable concentrations of sodium, magnesium, chloride and TDS. Phosphorus was reported at a concentration greater than historical ranges during the November sampling event. This location is within 10 m of the landfill access road, so road salt impacts are not unexpected. MW01-2 is historically dry and therefore there is no data for this well.

Monitoring well MW13-1 generally reports similar water quality as MW01-1. Monitoring well MW13-2 reports similar water quality to both MW01-1 and MW13-1; however, the concentration of parameters associated with road de-icing activities are generally lower (in addition to boron, cadmium, potassium). Chemical Oxygen Demand (COD) was reported at a concentration slightly greater than historical ranges during the November sampling event.

Overall, the water quality at these monitors remained representative of background conditions at the Site in 2021.

#### **4.2.2 Leachate Characteristics**

Nested wells MW02 were installed within the waste mound to capture leachate quality. These wells are regularly reported as or have insufficient supply for sample collection (as was the case during the 2021 sampling program). Nested wells MW05 and MW06 installed on the



down-gradient toe of the waste mound were used to characterize leachate characteristics at Site. Several Leachate Indicator Parameters (LIPs) have been identified at the Site. A parameter was considered a LIP if it has been regularly reported at concentrations greater than background water quality. The LIPs identified at the Site are outlined below in Embedded Table 7, and were identified if the average concentration from the leachate wells was X2 or greater than the average concentration from the background wells.

**Embedded Table 7 Leachate Indicator Parameters**

arsenic	barium	boron	alkalinity	iron
ammonia	manganese	magnesium	phosphorus	potassium
COD	DOC			

MW05-1 (shallow bedrock) generally reports lower concentrations of most parameters than MW05-2 (overburden) except for nitrate, nitrite, DOC, and sulphate, mostly non-LIPs. All LIPs are significantly elevated above background at both MW05 wells. Since 2019, there has been a slight increasing trend reported from both MW05-1 and MW05-2 for many LIPs; however, increasing trends are most pronounced at MW05-2. Slight increasing trends may be developing for arsenic, barium, boron, iron, COD, potassium and phosphorus at monitoring well MW05-2. However, other non-LIPs (such as chloride and zinc) may also be developing increasing trends of concentration. As such, the cause of the increasing concentration trends of LIPs may not be wholly related landfill leachate influences. Further, not all LIPs have been reported at increasing concentrations (such as manganese and magnesium which have developed decreasing and stable concentration trends, (respectively)). Historically, this location commonly reported concentrations that exceeded ODWQS criteria for iron, manganese, alkalinity, hardness, TDS, and DOC.

Similar to MW05-1, well MW06-1 reported lower concentrations for most parameters compared with MW06-2 with the exception of phosphorus, nitrate, nitrite, chloride, and phenols. All LIPs are significantly elevated above background monitoring wells concentrations at the MW06 wells. Some increasing trends of concentration were noted for select LIPs at the MW06 wells. The concentrations of chloride and nitrate (non-LIPs) may be developing an increasing trends



of concentration at the MW06 wells. As such, the cause of the increasing concentration trends of LIPs may not be wholly related landfill leachate influences. The parameters that commonly exceeded the ODWQS at MW06 are similar to those reported from MW05.

Concentrations for LIPs reported from MW05-1, MW05-2, MW06-1, and MW06-2 are all comparable and any variation trends reported from sampling event to sampling event are commonly reflected in each well. In general, MW06-1 reports the lowest LIP concentrations and MW05-2 reports the greatest LIP concentrations. Increasing trends of concentrations were noted for some LIPs at wells MW05 and MW06. However, other non-LIPs also reported increasing trends of concentrations (such as chloride, zinc and nitrate). Water quality at wells MW05 and MW06 could be influenced (at least partially) by non-waste related sources.

#### **4.2.3 Down-Gradient Groundwater Quality**

Nested wells MW03, MW04, MW07, MW08, MW09, MW10, MW11, and MW12 monitor groundwater conditions in the areas east and hydraulically down-gradient the waste mound.

Nested wells MW03 are located 10 m south of the waste mound. Most LIPs were elevated at MW03-2 (overburden) compared with background water quality; however, LIP concentrations reported from MW03-1 (installed in shallow bedrock) were comparable to background water quality for all LIPs. The vertical gradients calculated between the two monitors is slightly downwards; however, the water quality suggests that landfill leachate is not significantly impairing shallow bedrock groundwater conditions. It is assumed that the main component of groundwater flow in the overburden aquifer is horizontal and discharging to the wetlands down-gradient. The water quality in 2021 was generally consistent with historical concentrations with no increasing or decreasing trends.

Nested wells MW04 are located 70 m southeast of the waste mound. Many LIP concentrations reported from both MW04-1 (installed in shallow bedrock) and MW04-2 (installed in overburden) are comparable to background water quality; however, alkalinity concentrations for both wells exceed background and potassium, manganese, magnesium, boron, and ammonia concentrations at MW04-2 are commonly elevated when compared with background. All LIP concentrations are less than those reported from the leachate monitoring wells (MW05



and MW06) indicating that natural attenuation of landfill leachate is occurring between MW04 and the waste mound. In general, water quality in 2021 was consistent with historical concentrations with no increasing or decreasing trends; however, concentrations of phosphorus, COD, and chromium were all elevated compared with historical range in November 2021 at well MW04-1. Monitoring well MW04-2 reported an elevated concentration of COD in June, and an elevated concentration of phosphorus in November of 2021.

Nested wells MW07 are located 35 m east-southeast of the waste mound. In general, LIP concentrations are highly variable at this location and periodically exceed background water quality concentrations. The overburden (MW07-2) and shallow bedrock (MW07-1) wells both report elevated concentrations of LIPs when compared to background water quality. Given the close proximity to the waste mound, elevated LIP concentrations are not unexpected. LIP concentrations reported from the MW07 wells are less than those reported from the leachate characterization well, which indicates that natural attenuation of leachate is occurring on-site. The water quality in 2021 was generally consistent with historical concentrations with no increasing or decreasing trends; however, many parameters were elevated in the June 2021 sampling event and returned to normal ranges in November 2021. Further, lead and nitrate (non-LIPs) were reported at concentrations greater than historical ranges at wells MW07-1 and MW07-2 (respectively) during the November 2021 sampling event.

Nested wells MW08, MW09, MW10, and MW11 are all located approximately 250 to 300 m down-gradient of the waste mound in the east to southeastern direction. These locations include wells installed in the shallow and deep bedrock aquifers. In general, the LIP concentrations from these locations are all similar to one another and parameter concentration trends are commonly reflected in each well. LIP concentrations at these locations are considered to be generally stable and are comparable to concentrations reported from the background monitoring well locations, indicating that leachate impacts have naturally attenuated within 300 m down-gradient of the waste mound. The water quality in 2021 was generally consistent with historical concentrations.



The final nested wells are MW12 which are located 105 m southeast of the waste mound and 35 m southeast of MW04. Monitoring wells MW12-1, MW12-2 and MW12-3 are all installed in the bedrock, with MW12-1 being the shallowest and MW12-3 the deepest.

Most LIP concentrations reported from the MW12 nested wells are less than those reported at MW04 and indicates that dilution/mitigation of leachate impacts is occurring between these two locations. LIP concentrations are generally reported the highest at wells MW12-1 and MW12-2. Monitoring well MW12-3 regularly reports the lowest LIP concentrations.

The water quality in 2021 was generally consistent with historical concentrations with no increasing or decreasing trends. Several LIPs were elevated above historical ranges in November 2021, however the cause of the elevated concentrations may not be wholly due to waste related sources.

#### **4.2.4 Volatile Organic Compounds**

Volatile Organic Compound (VOC) analyses were completed on all wells at least once in 2021. The analyzed parameters varied between wells and sampling seasons (see Table 1). All VOC concentrations were reported less than detectable limits at all wells, except from MW05-1 and MW05-2 during the November sampling event when monochlorobenze was detected (at concentrations of 0.6 ug/L and 0.8 ug/L). The concentrations of monochlorobenze detected at wells MW05-1 and MW05-2 were recorded just above detectable limits (of 0.5 ug/L), and were significantly less than the ODWQS criteria of 80 ug/L. Refer to Table 8 for VOC results.

#### **4.2.5 Residential Groundwater Quality**

To ensure that residential groundwater supplies in the area of the Site are not influenced from leachate, four residential wells are sampled as part of the monitoring program.

R1 lies within the Site boundaries approximately 620 m southeast of the waste mound. The original well was a stone dug well; however, this was abandoned in the summer of 2019 and replaced with a monitoring well installed to a similar depth within the overburden.



R2 lies approximately 750 m east-southeast of the waste mound on the eastern side of 5<sup>th</sup> Line Road North Dummer.

R3 and R4 lie hydraulically up-gradient of the waste mound approximately 500 m southwest and 435 m west, respectively.

In 2021, the only parameters to exceed ODQWS at R1 were iron (June) and manganese (both). Water quality at this location is variable but similar to (or of better quality) than that reported from wells MW08, MW09, MW10 and MW11. In 2021 all parameters reported from R1 were within historical ranges, with exception of phosphorus and COD during both sampling events.

R2 and R3 were unable to be sampled in 2021 as the owners could not be contacted. Historically, these locations each reported concentrations that periodically exceeded ODWQS criteria for copper, iron, lead, manganese, and TDS.

At R4, only TDS exceeded ODWQS criteria during both sampling events in 2021, as is common for this location. Additionally, chloride concentrations have occasionally exceeded ODWQS at this location historically.

In general, water quality at the residential wells is similar to the water quality reported at the background monitoring wells and are interpreted to not be affected by the Site operations.

#### **4.2.6 Groundwater/Surface Water Interaction**

As indicated by the Ministry in their 2014 memorandum, the shallow overburden aquifer may discharge to the wetland located southeast of the landfill and therefore, the groundwater from down-gradient overburden and shallow bedrock wells should be compared against the PWQO criteria (MOEE, 1994b) to determine that water quality will meet provincially regulated surface water standards. As discussed in Section 3.2.4, vertical gradients in the area of nested wells MW08, MW09, MW10, MW11 and MW12 are upwards. The vertical gradients were noted between the shallow and deeper bedrock wells at these locations. None of the wells outlined have an accompanying shallow overburden aquifer, as such groundwater quality comparisons (from the shallow bedrock wells) to the PWQO are for reference only.



For boron concentrations, the Canadian Water Quality Guideline (CWQG) objective for the Protection of Aquatic Life of 1,500 µg/L (CCME, 2007), which is based on more current toxicological information, was used in replacement of the PWQO criteria.

Embedded Table 8 provides a summary of the exceedances in 2021. Refer to Table 9 for a full comparison.

**Embedded Table 8 Summary of 2021 PWQO/CWQG Exceedances at Select Monitors**

Monitoring Well	Parameters
MW08-2	chromium, phosphorus, pH (high)
MW09-2	phosphorus, DO (low)
MW10-2	iron, phosphorus, phenols, DO (low)
MW11-2	iron, phosphorus, DO (low)
MW12-1	phosphorus, phenols

MW08-2, MW09-2, MW10-2, MW11-2 and MW11-2 are all installed in the area where groundwater may discharge to surface during some times of the year. Phosphorus was reported at concentrations greater than PWQO criteria at each well. It is noted that the concentration of phosphorus was reported elevated in the background monitoring well (MW01-1). Further the concentrations of phosphorus reported from wells MW01-1 was greater than that reported from well MW05-2 in November of 2021. These data indicate that the concentrations of phosphorus reported from the wells listed in Embedded Table 8 may be at least partially due to naturally varying conditions, and not wholly from waste related sources. The only other LIP to exceed the PWQO at these locations is iron. Iron consistently exceeds PWQO at MW10-2 and MW11-2 and is consistently slightly elevated compared with background water quality. Iron is considered to have naturally variable concentrations which exceed the PWQO within low-lying, stagnant areas due to natural reducing conditions cause by decaying organic vegetation. The elevated iron concentrations at MW10-2 and MW11-2 may be, in part, attributed to this natural variation.

The chromium concentration reported in June 2021 at MW08-2 is considered to be anomalous and the chromium concentration reported in November 2021 had returned to normal range and complied with the PWQO. Chromium also not a LIP.



Similar to chromium, the elevated concentration of phenols at MW10-2 is considered to be anomalous. It is expected that phenol concentrations will return to normal range in the spring of 2022, but further monitoring is required. The elevated concentration of phenols at MW12-1 were only marginally greater than the PWQO criteria. Phenols are also not a LIP.

The elevated pH at MW08-2 reported by the lab was not observed during the pH reading in the field and is considered to be anomalous to the location.

Due to the nature of DO in groundwater, low DO measurements are not unexpected and are not considered significant for groundwater quality comparisons. Furthermore, DO concentrations are known to fluctuate throughout the year as DO is directly related to environmental conditions and more specifically seasonal impacts. In summer months, cold groundwater discharging into warm surface water will reduce the temperature of the receiving body, thus reducing the surface water's ability to hold oxygen.

Comparing the water quality from the shallow wells of monitors MW08, MW09, MW10, MW11 and MW12 is included herein as a general reference for potential surface water quality. The results of the assessment indicate that phosphorus is elevated at these shallow bedrock wells; however, the source of the phosphorus may not be directly related to waste influences. Other parameter exceedances of the PWQO reported from these wells are considered minor.

#### **4.2.7 Groundwater Compliance Assessment**

The hydrogeological conceptual site model indicates that groundwater may discharge to surface in the areas east of the waste mound. However, there is potential for leachate impacted groundwater to migrate off the Site in the overburden and bedrock aquifers. Migration of leachate into deeper bedrock aquifers is likely restricted since there are upwards hydraulic gradients between deep and shallow bedrock wells onsite.

To ensure appropriate recognition and response to potential degradation in groundwater quality beyond an acceptable level at the down-gradient property boundary occurs, site-specific trigger values and contingency plans have been developed for the Site. These are the RUC values developed in accordance with Ministry Guideline B-7 (MOEE, 1994a). The



Ministry Guideline B-7 states that, in accordance with the appropriate criteria for particular uses, a change in quality of the groundwater on an adjacent property will be accepted only as follows (Ministry Procedure B-7-1):

The quality cannot be degraded by an amount in excess of 50% of the difference between background and the Ontario Drinking Water Standards (ODWQS) for non-health related parameters and in excess of 25% of the difference between background and the ODWQS for health-related parameters. Background is to be the quality of the groundwater prior to any man-made contamination.

The maximum concentration of a particular contaminant that is considered acceptable in the groundwater beneath an adjacent property is calculated in accordance with the following relationship:

$$C_m = C_b + x (C_r - C_b)$$

Where,

$C_m$  is maximum concentration accepted

$C_b$  is background concentration

$C_r$  is maximum concentration permitted in accordance with the ODWQS

$x$  is a constant that reduces the contamination to a level that is considered by the Ministry to have a negligible effect on water use (i.e., 0.5 for non-health related parameters and 0.25 for health-related parameters)

The RUC values were calculated using the median value of the background concentration ( $C_b$ ) from a minimum of the previous five sampling events as required by Ministry Eastern Region Technical Support Section. Where background concentrations were less than the laboratory RDL, the RDL was used as the background concentration. Where the background concentrations exceeded ODWQS, the  $C_b$  value was set as the RUC value. The calculated  $C_m$  values for the Site were set as the RUC values.

The RUC values were calculated for all LIPs with an ODWQS criteria at the Site using background water quality at nested monitors MW01 and MW13 for the overburden and



bedrock, respectively. RUC compliance criteria of the shallow and deep bedrock wells is assessed at MW08, MW09, MW10, MW11 and MW12.

The predominant direction of groundwater flow in the overburden was reported to be towards the southeast, away from the waste mound. There are no overburden monitoring wells installed near the property boundary, with exception of R1. As such R1 is referenced as the RUC compliance well for the overburden.

The following parameters exceeded the RUC criteria at R1 the overburden aquifer in 2021 (Table 4):

- iron (June), manganese

The following parameters exceeded the RUC criteria within the shallow bedrock wells in 2021 (Table 4):

- MW08-2: DOC (June)
- MW09-2: none
- MW10-2: barium, iron (November), manganese
- MW11-2: barium, iron, manganese, DOC (June)
- MW12-1: barium

The following parameters exceeded the RUC criteria in the lower bedrock aquifer in 2021 (Table 5).

- MW08-1: manganese (November), iron (November)
- MW09-1: barium, manganese
- MW10-1: barium, manganese
- MW11-1: barium, manganese
- MW12-2: iron (November), manganese
- MW12-3: manganese (June)



The concentrations of barium, manganese, iron, and DOC were reported in excess of RUC criteria in 2021 from various bedrock wells (shallow and deep).

It is noted that barium is the only health related parameter reported at concentrations greater than RUC criteria (MOE, 2006). The concentrations of barium reported from the compliance wells listed herein are stable and are regularly reported to be less than the ODWQS criteria of 1 mg/L (with exception of the occasional elevated concentration).

Manganese, iron, and DOC are not health related parameters (MOE, 2006). The concentrations of DOC are stable and less than ODWQS criteria.

The concentrations of manganese are stable and less than ODWQS criteria except at R1 where manganese periodically greatly exceeds ODWQS, but is otherwise in compliance. The concentration of most parameters reported from R1 (including LIPs) are typically less than those reported from background water quality. Iron and manganese are occasionally reported at elevated concentrations from R1. Given the absence of other LIPs being reported at elevated concentrations, the occurrences of iron and manganese are considered to be non-waste related.

In summary, parameter concentrations reported at wells MW08, MW09, MW10, MW11, MW12, and R1 are generally stable and RUC criteria exceedances have been reported for select parameters at some of these wells. Wells MW08 through MW12 are centrally located within the Site, as such further attenuation of leachate influences in the groundwater is expected prior to migration off-site. R1 is the most down-gradient the waste mound and is located at the southeastern boundary of the Site. Influences from landfill leachate were not reported at R1 in 2021.

Residential well R2 was not sampled in 2021, however this well has not reported an influence from landfill leachate in the past.

The available information suggests that the leachate plume generated from the waste mound extends southeast of the waste mound. The leachate plume decreases in strength with distance away from the waste mound, indicating that natural attenuation processes are occurring on-site. No landfill leachate influences were noted at R1 in 2021 (or at R2 in the



past). The Site has been closed since 2005 and the leachate plume is considered stable. As such, the risk of landfill leachate influence off-site groundwater users is considered low to negligible.

#### **4.2.8 Groundwater Trigger Mechanism**

Based on the assessment completed by GHD in 2020, the following details pertain to the groundwater trigger mechanism (GHD, 2021). The groundwater trigger mechanism and contingency plan was derived from historical elevated VOC concentrations at down-gradient monitoring wells MW08 to MW11. The trigger mechanism criteria were developed as followed:

- VOC concentrations should not exceed 50% of the maximum acceptable concentration (MAC).
- VOC concentrations should not exceed 75% of the interim maximum acceptable concentration (IMAC).

##### **4.2.8.1 Trigger Locations**

Down-gradient monitoring wells MW08 to MW11 have been determined to be the primary trigger sampling points to monitoring groundwater impacts.

##### **4.2.8.2 Contingency Plan**

If a trigger value is exceeded, the following contingency actions should be initiated:

1. Collect a confirmatory sample at the specific location.
2. If a second exceedance is reported, sample the down-gradient wells to confirm that impacts are not migrating off-site. If exceedances are reported in the down-gradient monitors, collect an additional confirmatory sample.
3. If the impacts are determined to be migrating off-site, then the down-gradient private residential well owners must be notified. In addition, samples must be collected at the residential wells monthly for the parameter(s) of concern.



4. The Township must provide an alternative water supply to the residents (i.e. bottled water, temporary water supply, new well, etc.) until the exceedance of the trigger value subsides.
5. If impacted groundwater is migrating off-site (greater than Guideline B-7 values, MECP Table 2 Standards, or the ODWQS), remediation measures will need to be undertaken or additional buffer lands will need to be acquired.

#### 4.2.8.3 2021 Groundwater Assessment

No VOCs were detected from wells MW08 through MW11 in 2021; therefore, the Site was in compliance with the VOC groundwater trigger mechanism and no adverse effects from VOCs are interpreted in the groundwater down-gradient of the waste mound.

### 4.3 Surface Water Quality

The 2014 to 2021 surface water quality data are in Table 10. The surface water data have been compared with background water quality and historical data, and compliance was assessed using the PWQO (MOEE, 1994b).

#### 4.3.1 Background Surface Water Quality

Background surface water quality has been collected from the S2 location since the initiation of the surface water sampling program.

Historically, the water quality at S2 has reported the following parameters with concentrations elevated above PWQO criteria: copper, total phosphorus, phenols, and occasionally elevated (basic) pH. Due to dry conditions, a surface water sample was not able to be collected at S2 in 2021; however, it is noted that cadmium and iron exceeded PWQO criteria in November of 2020.

The legitimacy of station S2 to act as a background surface water monitoring station for the Site is questionable (Figure 2). Runoff generated from the waste mound generally flows in a southeastern direction; however, it is suspected that there is a component of radial flow in the area of S2 due to a northeast-southwest trending topographical high that would deflect surface water flow in the northeastern to northwestern direction and potentially towards station S2.



Station S2 is also of poor quality since it established at a general ponded area of the Site that does not receive regular, sustained surface water flow. Between 2016 and 2021 only five samples have been collected from station S2, and they have reported variable water quality. As outlined in Section 4.5, Cambium recommends that the surface water sampling program be modified to account for current conditions at the Site.

#### **4.3.2 Downstream Surface Water Quality**

The location of S1 is 695 m southeast of the waste mound and has been historically interpreted to represent downstream surface water quality at the Site.

In general, the water quality reported from station S1 is of better quality than S2. The only parameter to consistently report elevated concentrations at S1 compared with S2 is alkalinity. No parameters were to exceed PWQO at S1 in November 2021 (location was dry in June 2021).

Station S2 is interpreted to be possibly influenced by runoff from the waste mound. Further, station S2 is a poor quality sampling location which regularly reports adverse data. Also, station S1 appears to be located in a separate flow catchment, and is therefore not considered to be downstream of the waste mound. As such, it is not unexpected that S2 would report higher concentrations of LIPs when compared to S1.

As outlined in Section 4.5, Cambium recommends that the surface water sampling program be modified to add a new surface water station in the area southeast of the waste mound (near the property boundary) to monitor downstream conditions. In this case station S1 will act as the background surface water quality monitoring location.

#### **4.4 Landfill Gas Monitoring**

Landfill gas (LFG), specifically methane and carbon dioxide, is derived from the decomposition of organic wastes. Production of LFG from landfilled wastes normally reaches a maximum rate approximately two years after placement and may continue at this rate for many years. The biological decomposition process results in the generation of LFG until some period, likely decades, after the landfilling of that waste ceases. Methane is explosive at volumes of 5%



methane by volume to 17% methane by volume (50,000 ppm to 170,000 ppm) in air (Werner Sölken, 2021). The 2021 LFG results are included in Table 10 and Appendix C. Landfill gas measurements for methane, and hydrogen sulphide were recorded at all groundwater monitoring wells during the spring and autumn samplings events in 2021.

The only monitors to exhibit detectable concentrations of methane were nested monitors MW02, and MW12 in November. There were no detectable concentrations of hydrogen sulphide at any monitoring wells in 2021.

Methane concentrations were below the lower explosive limit at all monitoring wells except MW02-2 where concentrations were measured at 17% methane by volume. Given that MW02-2 is installed within the waste mound, high concentrations of methane were not unexpected. Caution should be taken when working around the waste mound, as concentrations in the autumn were within the lower explosive limit. As there were no methane concentrations at the property boundaries greater than 2.5% by volume the Site complied with Section 4.10 of **Landfill Standards, A Guideline on the Regulatory and Approval Requirements for New and Expanding Landfilling Sites** (MOEE, 1998).

#### **4.5 Adequacy of Monitoring Program**

Cambium has reviewed historical data and determined that reductions to the current environmental monitoring programs are appropriate. In general, historical and recent (2021) environmental monitoring data indicate the following:

- Site related impacts were generally stable in the overburden and bedrock groundwater aquifers on-site. Furthermore, natural attenuation is occurring as LIP concentrations decrease with distance from the waste mound. Some increasing trends in parameter concentrations have been noted at the monitoring wells located immediately adjacent the waste mound, however down-gradient water quality is generally stable. Increasing trends of some LIPs could be partially due to non-waste related sources.
- Iron and phosphorus concentrations were elevated greater than PWQO criteria in some down-gradient monitoring wells. Additionally, iron exceeded the RUC criteria at monitoring



wells MW10-2, MW11-2, and MW12-2 in 2021. It is noted that the concentration of phosphorus was reported elevated in the background monitoring well MW01-1 and R1 (indicating that the source of iron may be non-waste related). Further, iron concentrations can be elevated in stagnant areas due to natural reducing conditions caused by decaying organic vegetation; this indicates that elevated down-gradient concentrations of both parameters are at least partially due to naturally varying conditions, and not wholly from waste related sources.

- No VOCs were detected at any monitoring wells in 2021, with exception of MW05-1 and MW05-2. In November 2021, these wells reported detectable concentrations of monochlorobenzene marginally greater than laboratory detection limits (and significantly less than ODWQS criteria).
- The established groundwater trigger mechanism was not enacted in 2021.
- Surface water conditions at the Site do not allow for continuous collection of representative samples at the Site. Modifications to the established surface water monitoring program are warranted.
- Landfill gas readings are stable.

The Site has been closed to active on-site waste disposal operations since 2005. It is Cambium's opinion that sufficient data has been collected for groundwaters and landfill gas to indicate that generally stable concentration ranges have been established. Continuing the established monitoring program is considered excessive as off-site influences of landfill leachate have not been detected. Cambium proposes the following amendments to the established environmental monitoring program:

1. Groundwater and landfill gas monitoring frequencies be reduced to once annually (to be completed in the spring).
2. Wells MW03-1, MW03-2, MW04-1, MW04-2, MW07-1 and MW07-2 are located immediately down-gradient the waste mound to the southeast. These wells generally report elevated concentrations of LIPs, but at lower concentrations than the leachate



characterization wells (which is expected). These wells do not provide additional information that aids in determining Site compliance. Cambium recommends that monitoring of these wells is discontinued. All other monitoring wells and residential wells should remain in the sampling program (as listed below):

- MW01-1    • MW01-2    • MW02-1    • MW02-2    • MW05-1    • MW05-2
- MW06-1    • MW06-2    • MW08-1    • MW08-2    • MW09-1    • MW09-2
- MW10-1    • MW10-2    • MW11-1    • MW11-2    • MW12-1    • MW12-2
- MW12-3    • R1            • R2            • R3            • R4

3. Samples collected from monitoring wells and residential wells should be analyzed for those parameters outlined in Column 2, Schedule 5 of the Landfill Standards (in addition to arsenic, manganese, phosphorus, potassium, and hardness).
4. Water levels should be measured from all monitoring wells once per year (spring).
5. Wells MW05-1 and MW05-2 should be analyzed for benzene, 1,4 dichlorobenzene, dichloromethane, toluene, vinyl chloride and monochlorobenzene once every five years. Sampling for VOCs should be discontinued at all other wells. The established groundwater trigger mechanism for VOC analysis should be discontinued.
6. Cambium recommends that an additional surface water station be established in the area southeast of the waste mound (near the property boundary) to monitor downstream conditions. Station S2 should continue to be monitored. The usefulness of sampling S2 should be reviewed regularly. Station S1 will act as the background surface water quality monitoring location. Surface water sampling should continue to occur twice a year.
7. The surface water samples should be analyzed for those parameters outlined in Column 4, Schedule 5 of the Landfill Standards (in addition to arsenic, barium, boron, potassium, manganese, magnesium, sodium, potassium, DOC, and hardness).



8. Cambium recommends that the reporting frequency be reduced from once annually to once every two years.
9. Groundwater is interpreted to discharge to surface during some times of the year (i.e., wet periods). However, sustained, reliable surface water sampling stations have not, and likely cannot be established in the future due to drainage conditions at the Site. Surface water results should be reviewed as a general reference of Site conditions, but not for determination of Site compliance. Cambium recommends that Site compliance continue to be assessed using Ministry Guideline B-7.

The groundwater, surface water, and landfill gas monitoring and reporting will continue to be completed as detailed in Table 1 until such time as approval has been granted from the District Manager and ultimately the Director as detailed in PC of A Condition 62.



## 5.0 Site Operations

This section summarizes operations as reported by the Township for 2021. Furthermore, this section discusses the following requirements of PC of A Condition 62.

- a monthly summary of the type and quantity of all incoming and outgoing wastes, and the destination of all outgoing waste (Section 5.6.1, Table 12)
- a discussion of any operational or environmental problems encountered at the Site and corrective action taken (Section 5.3)
- any changes to the Emergency Response Plan or Design and Operations Report that have been approved by the Director since the last Annual Report (Section 5.7)
- Recommendations respecting any proposed changes in the operation of the Site (Section 5.8)

### 5.1 Site Access and Security

The Site is not visible from County Road 6, and Fourth Line Road as it is well screened by surrounding trees, thick vegetation, and natural topography. A lockable gate at the entrance controls access. Signs were posted at the Site entrance which detailed the hours of operation, acceptable and prohibited materials, and tipping fees.

The Site services the residents of the Township of Douro-Dummer, though signage at the gate directs contractors to use the Bensfort Road Waste Facility in Peterborough or the nearby Stoney Lake transfer station managed by Waste Connections. Ratepayers are required to show a pass to access the Site. A site attendant is present during the hours of operation. The hours of operation in 2021 were:



**Summer – May 1 to October 31**

Monday, Wednesday, Friday, Saturday: ..... 10:00 AM to 2:00 PM

Sunday: ..... 10:00 AM to 6:00 PM

**Winter – November 1 to April 30**

Saturday, Sunday, and Wednesday: ..... 10:00 AM to 2:00 PM

**5.2 Training**

Staff from the Township and Township appointed contractors operate the Site. As required by PC of A Condition 30, all employees working at the Site are properly trained for the tasks that they are expected to perform and are provided with continued on-the-job training.

- Controlling admission of authorized vehicles with acceptable wastes
- The terms and conditions of the PC of A and any relevant waste management legislation and regulation (e.g., EPA, and O. Reg. 347)
- Ensuring proper daily litter control
- Controlling collection and haulage of materials by a licensed hauler
- Maintaining a daily record of all operations, which are available for inspection by the Ministry
- Emergency response procedures (e.g., spills, and first aid)
- Equipment and Site inspection procedures
- Record keeping of quantities of waste being delivered to the Site and records of all incidents of illegal dumping, complaints, and unauthorized waste disposal.

Written records of the training completed are kept on-file as required by PC of A Condition 31. The Township reported that no training was completed in 2021.

**5.3 Site Inspections**

This section discusses observations during site inspections conducted by Cambium and summarizes information provided by the Township in 2021.



In 2021, the Township completed regular routine site inspections to meet PC of A Condition

32. Site inspections included observations of the following:

- Waste material staging areas including: the condition of disposal bins, waste oil tank, and divertible material, and if any waste quantity exceeded the maximum allowable capacity described in PC of A Condition 20, 21, 22, and 24.
- On-site equipment, buildings, and barriers
- General housekeeping (e.g., first aid, security, personal protective equipment, etc.)

A written record of the areas inspected are maintained at the Site as required by PC of A Condition 32. The records include: the names of the trained personnel conducting the inspection, the date and time, areas inspected, any maintenance completed, and recommendations for remedial action.

### **5.3.1 Litter Control**

As noted by Cambium staff, the Site was in good condition. Minimal evidence of blown litter was observed during site visits in 2021.

The intent of good housekeeping practices is to protect on-site worker health and safety, and the surrounding environment from nuisance effects. Nuisance effects are minimized by adopting good housekeeping measures as part of the Site operations. Regular housekeeping is essential to control such nuisances as:

- Blowing and loose litter
- Odour
- Rodents and insects
- Scavenging birds

### **5.3.2 Roads**

The access road has sufficient width at the entrance and within the Site to allow unimpeded winter travel and access for emergency and snow removal equipment. The site access roads



were observed to be well maintained and graded and were reported to be regularly cleared of snow with a sand mixture applied as needed by the Township during the winter months.

### **5.3.3 Final Cover Integrity**

The waste mound was adequately covered and there was minimal evidence of erosion observed from the areas accessed during visits in 2021. Furthermore, the waste mound was well vegetated, which is an effective erosion control measure. No seeps were noted during any site visits conducted in 2021.

## **5.4 Complaints and Incidents**

The Township reported that there were no complaints or incidents regarding the Site during the monitoring period.

## **5.5 Monitoring Well Security**

As part of the 2021 groundwater monitoring program, all monitoring wells listed in Table 1 were inspected and complied with R.R.O. 1990 Regulation 903 - Wells. Refer to Appendix E for photographs of the monitoring wells.

It is noted that monitoring well MW13 is not surveyed. It is recommended that these nested wells be surveyed as part of the 2022 work program to accurately calculate the water level elevation data for the location.

## **5.6 Materials Summary**

The following waste types are collected at the Site; refer to Figure 3 for the collection locations of each material.

- Domestic solid, non-hazardous waste
- Blue box recycling
- Organic waste
- Scrap metal and white goods



- Freon Appliances
- Mattresses and box-springs
- Brush
- Wood waste
- Waste Electrical and Electronic Equipment (WEEE)
- Propane tanks
- Used oil

The Township did not accept mattresses and box-springs at the Site in 2021 due to the COVID-19 pandemic.

### 5.6.1 Site Usage

Site usage, as documented by the Township, is summarized in Embedded Table 9. Waste collected is transferred to the Peterborough Waste Management Facility (Bensfort Road Landfill). Refer to appended Table 12 for a monthly summary of materials accepted and transferred at the Site.

**Embedded Table 9 Summary of Site Usage**

	2021
Household Garbage (tonnes)	200.51

In addition to the above, the Township reported that the Site accepted the following tonnages in 2021:

- Clean wood: 27.61 tonnes
- C&D materials: 27.74 tonnes



## 5.6.2 Material Diversion

Embedded Table 10 provides a summary of the materials diverted from the Site in 2021, as provided by the Township and the County of Peterborough. Blue box recyclables are hauled to the Peterborough County Material Recycling Facility – Pido Road.

**Embedded Table 10 Summary of Diverted Materials**

<b>Material</b>	<b>tonnes</b>	<b>tonnes</b>
Containers	21.52	
Fibres	29.58	
Blue Box Subtotal		51.10
MHSW (July 24 and September 11)		5.45
Scrap Metal and White Goods		17.32
WEEE		8.90
Organics		24.12
<b>TOTAL</b>		<b>106.89</b>
<b>Other</b>		
Tires		412 units
Freon Appliances <sup>1</sup>		67 units

Notes:

1. Includes white goods quantities.

In 2021, the annual Environmental Day hosted by the County was cancelled due to the COVID-19 pandemic. Typically, this annual event would allow residents to dispose of the following items: polystyrene, media and car seats, hard cover books, paper shredding, carpet recycling, and durable plastics.

Embedded Table 11 summarizes additional waste the County manages and reports as diverted from within the Township in 2021.



**Embedded Table 11 Summary of Divertible Materials - Private and Curbside**

Curbside Recyclables Pick-up (entire Township)	498.18 tonnes
Depot – Leaf and Yard Waste (Warsaw)	73.23 tonnes
Curbside Leaf and Yard	15.53 tonnes
Campground Recyclables	3.68 tonnes

Notes:

Curbside and Campground recyclable materials are hauled directly to 390 Pido Road  
Curbside Leaf and Yard and Organics materials are hauled to County's Harper Road  
Composting Facility

Leaf and Yard Waste Collected at the Warsaw Public Works Yard from Spring to Autumn

**5.7 Site Documentation Reviews and Updates**

The following documents are maintained by the Township and updated as required. There were no changes to these documents in 2021.

- **Hall's Glen Landfill Site Transfer Station: Design, Operation, Maintenance, and Closure Report (TSH, 2002)**

**5.8 Operations, Equipment, and Procedures**

The Township has made conscientious efforts to mitigate risk to the surrounding environment and promote a safe location for the disposal of waste for the site attendants and residents. As such, Cambium has no recommendation regarding the operation of the Site.

**5.9 Compliance with Ministry Approval**

The Hall's Glen transfer station was operated in compliance with all PC of A conditions in 2021. Furthermore, the Township operated the Site in compliance with all required inspection and reporting requirements contained in the PC of A.



## 6.0 Conclusions and Recommendations

Based on the 2021 monitoring program, Cambium makes the following conclusions regarding the Hall's Glen waste disposal site:

- The water level measurements indicated that the predominant direction of groundwater flow in all three aquifers is to the southeast.
- Although leachate impacts were evident in the down-gradient monitors, the plume decreased in concentration (strength) at greater distances from the waste footprint. Upwards hydraulic gradients in the areas east of the waste mound restrict the downwards migration of leachate into deeper aquifer systems.
- Non-site related sources were, at least in part, contributing to the elevated iron and phosphorus concentrations in the down-gradient monitors, such as saturated organic soils and decaying organic vegetation.
- Groundwater samples from MW08, MW09, MW10, MW11, MW12, and R1 were used to complete the RUC assessment. Given the RUC exceedances of various parameters were not wholly attributed to Site impacts, the Site complied with Guideline B-7 (MOEE, 1994a) in 2021.
- Historical results have indicated sporadic detections of monochlorobenzene at MW05-1. In November of 2021 monochlorobenzene was detected at MW05-1 and MW05-2 at concentrations marginally greater than laboratory detection limits (and significantly less than ODWQS criteria). The concentration of all other volatile organic compounds were reported below detectable limits in 2021 at all other wells.
- All elevated LIP parameters have decreased (except alkalinity) by the location S1 and it is interpreted that adverse impacts to surface water from the Site have attenuated by the down-gradient Site boundary. S2 is most likely impacted by groundwater discharging into the nearby wetlands; however, due to the persistent dry nature of this location, samples were not able to be collected in 2021.



- About 200 tonnes of waste accepted at the Site in 2021 and transferred to the Peterborough Waste Management Facility.
- About 60.00 tonnes of blue box recycling and WEEE were diverted from the Site. Furthermore, 5.45 tonnes of MHSW, 17.32 tonnes of scrap metal, and 24.12 tonnes of organics were collected at the Site.
- The Township managed the Site in compliance with the PC of A.

Based on the results of the 2021 monitoring program, Cambium recommends the following:

1. Groundwater and landfill gas monitoring frequencies be reduced to once annually (to be completed in the spring).
2. Wells MW03-1, MW03-2, MW04-1, MW04-2, MW07-1 and MW07-2 are located immediately down-gradient the waste mound to the southeast. These wells generally report elevated concentrations of LIPs, but at lower concentrations than the leachate characterization wells (which is expected). These wells do not provide additional information that aids in determining Site compliance. Cambium recommends that monitoring of these wells is discontinued. All other monitoring wells and residential wells should remain in the sampling program (as listed below):

- MW01-1    • MW01-2    • MW02-1    • MW02-2    • MW05-1    • MW05-2
- MW06-1    • MW06-2    • MW08-1    • MW08-2    • MW09-1    • MW09-2
- MW10-1    • MW10-2    • MW11-1    • MW11-2    • MW12-1    • MW12-2
- MW12-3    • R1            • R2            • R3            • R4

3. Samples collected from monitoring wells and residential wells should be analyzed for those parameters outlined in Column 2, Schedule 5 of the Landfill Standards (in addition to arsenic, manganese, phosphorus, potassium, and hardness).
4. Water levels should be measured from all monitoring wells once per year (spring)



5. Wells MW05-1 and MW05-2 should be analyzed for benzene, 1,4 dichlorobenzene, dichloromethane, toluene, vinyl chloride and monochlorobenzene once every five years. Sampling for VOCs should be discontinued at all other wells. The established groundwater trigger mechanism for VOC analysis should be discontinued.
6. Cambium recommends that an additional surface water station be established in the area southeast of the waste mound (near the property boundary) to monitor downstream conditions. Station S2 should continue to be monitored. The usefulness of sampling S2 should be reviewed regularly. Station S1 will act as the background surface water quality monitoring location. Surface water sampling should continue to occur twice a year.
7. The surface water samples should be analyzed for those parameters outlined in Column 4, Schedule 5 of the Landfill Standards (in addition to arsenic, barium, boron, potassium, manganese, magnesium, sodium, potassium, DOC, and hardness).
8. Cambium recommends that the reporting frequency be reduced from once annually to once every two years.
9. Groundwater is interpreted to discharge to surface during some times of the year (i.e., wet periods). However, sustained, reliable surface water sampling stations have not, and likely cannot be established in the future due to drainage conditions at the Site. Surface water results should be reviewed as a general reference of Site conditions, but not for determination of Site compliance. Cambium recommends that Site compliance continue to be assessed using Ministry Guideline B-7.



## References

- CCME. (2007). *Canadian Water Quality Guidelines for the Protection of Aquatic Life*. Canadian Council of Ministers of the Environment.
- CCME. (2011). *Canadian Water Quality Guidelines for the Protection of Aquatic Life*. Winnipeg: Canadian Council of Ministers of the Environment.
- GHD. (2021). *2020 Groundwater Monitoring Report*. GHD Ltd.
- Government of Canada. (2015). *Canadian Climate Normals or Averages 1981-2010*. Retrieved 2018, from National Climate Data and Information Archive:  
[http://climate.weather.gc.ca/climate\\_normals/results\\_1981\\_2010\\_e.html?stnID=4287&autofwd=1](http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?stnID=4287&autofwd=1)
- Government of Canada. (2021). *Historical Data*. Retrieved January 2021, from Past weather and climate: [http://climate.weather.gc.ca/historical\\_data/search\\_historic\\_data\\_e.html](http://climate.weather.gc.ca/historical_data/search_historic_data_e.html)
- MECP. (2021). *Map: Well Records*. Retrieved from Ministry of the Environment, Conservation and Parks: <https://www.ontario.ca/environment-and-energy/map-well-records>
- MOE. (2006). *Technical Support Document for Ontario Drinking Water Quality Standards, Objectives and Guidelines*. Ministry of the Environment.
- MOE. (2010). *Monitoring and Reporting for Waste Disposal Sites, Groundwater and Surface Water, Technical Guidance Document*. Ministry of the Environment.
- MOEE. (1993). *Guidance Manual for Landfill Sites Receiving Municipal Waste*. Ministry of the Environment and Energy.
- MOEE. (1994a). *Guideline B-7: Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities*. Ministry of the Environment and Energy.
- MOEE. (1994a). *Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities*. Ministry of the Environment and Energy.
- MOEE. (1994b). *Water Management: Policies, Guidelines, Provincial Water Quality Objectives*. Ministry of the Environment and Energy.



- MOEE. (1994b). *Water Management: Policies, Guidelines, Provincial Water Quality Objectives of the Ministry of the Environment and Energy*. Ministry of the Environment and Energy.
- MOEE. (1996). *Guidance on Sampling and Analytical Methods for Use at Contaminated Site in Ontario*. Ministry of the Environment and Energy.
- MOEE. (1998). *A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfill Sites*. Ministry of the Environment and Energy.
- TSH. (2002). *Halls Glen Landfill Site Transfer Station: Design, Operation, Maintenance, and Closure Report*. Totten Sims Hubicki.
- TSH. (2002a). *Closure Report*. Totten Sims Hubicki Associates.
- TSH. (2002b). *Design, Operations, Maintenance and Closure Report*. Totten Sims Hubicki Associates.
- Werner Sölken. (2021, December 30). *What is %LEL / %UEL / PID*. Retrieved from GOALZERO: [https://www.wermac.org/safety/safety\\_what\\_is\\_lel\\_and\\_uel.html](https://www.wermac.org/safety/safety_what_is_lel_and_uel.html)



## Glossary of Terms

### **Active Face/Area**

The portion of the landfill facility where waste is currently being deposited, spread and/or, compacted prior to the placement of cover material.

### **Adverse Environmental Impact**

Any direct or indirect undesirable effect on the environment resulting from an emission or discharge that is caused or likely to be caused by human activity.

### **Annual Report**

Report documenting the results of water quality, environmental quality, and operations monitoring for the year, or for a period as prescribed in the Certificate of Approval.

### **Approved Design and Operations Plan**

The design of a landfill site and its facilities which have been submitted along with the application documents for which formal Ministry approval has been issued through the Certificate of Approval.

### **Approved Site or Facility**

A landfill site/facility for which there is an existing and current Certificate of Approval.

### **Aquifer**

A geologic unit (soil or rock) that contains sufficient saturated permeable material to yield measurable quantities of water to wells and springs.

### **Attenuation**

Natural process through which the concentrations of landfill generated contaminants are reduced to safe levels.

### **Borehole**

A hole drilled for soil sampling purposes.

### **Buffer Area**

An area of land situated within the peripheral area surrounding an active filling area, but limited in extent to the property boundary, assigned to provide space for remedial measures, contaminant control measures, and for the reduction or elimination of adverse environmental impact caused by migrating contaminants.

### **Certificate of Approval**

The license or permit issued by the Ministry for the operation of a landfill site. Issued to the owner of the site with conditions of compliance stated therein.

### **Contaminant**

A compound, element, or physical parameter, usually resulting from human activity, or found at elevated concentrations that have or may have a harmful effect on public health or the environment.

### **Contaminant Migration Path**

Route by which a contaminant will move from the site into adjacent properties or the natural environment. Usually a route that offers the least resistance to movement.

### **Contamination Attenuation Zone**

The zone beneath the surface, located beyond the landfill site boundary, where contaminants will be naturally attenuated to predetermined levels. Also, see Reasonable Use Policy.

### **Contingency Plan**

A documented plan detailing a co-ordinated course of action to be followed to control and remediate occurrences such as a fire, explosion, or release of contaminants in an uncontrolled manner that could threaten the environment and public health.

### **Cover Material**

Material approved by the Ministry that is used to cover compacted solid waste. Usually, a soil with suitable characteristics for specific end-use.

### **Site Development Plan and Operations Report**

Development and Operations Plan or Report is a document detailing the planned sequence of activities through the landfill site's active life, the control systems, site facilities and monitoring systems that are necessary. This document is required for obtaining a Certificate of Approval.

### **Design Capacity**

The maximum amount of waste that is planned to be disposed of at a landfill site.

### **Detection Limit**

Concentration under which a parameter cannot be quantitatively measured.

**EAA or EA Act**

Environmental Assessment Act, Revised Statutes of Ontario, 1990. One of the primary acts of legislation intended to protect, conserve, and wisely manage Ontario's environment through regulating planning and development.

**Environmental Compliance Approval**

The license or permit issued by the Ministry for the operation of a landfill site. Issued to the owner of the site with conditions of compliance stated therein.

**EPA**

Environmental Protection Act, Revised Status of Ontario, 1990. EPA is another of the primary pieces of Provincial legislation governing the protection of the natural environment of the Province.

**Evapotranspiration**

The evaporation of all water from soil, snow, ice, vegetation and other surfaces, including the water absorbed by plants, that is released to the atmosphere as vapour.

**Fill Area**

The area of a landfill site designed and designated for the disposal of waste.

**Final Cover**

Soil material or soil in combination with synthetic membranes, overlain by vegetation in a planned landscape, placed over a waste cell that has reached the end of its active life.

**Groundwater**

Subsurface water that occurs beneath the water table in soils and rocks that are fully saturated.

**Hydraulic Conductivity**

The rate of flow of water through a cross-section under a specific hydraulic gradient. It is a property of the geologic formation and the fluid, in hydrogeologic applications where the fluid is water (Units of m/day or cm/s).

**Hydraulic Gradient**

The head drop per unit distance in the direction of flow, the driving force for groundwater flow.

**Hydrogeology**

The study of subsurface waters and related geologic aspects of surface waters.

**Impermeable Fill**

Soil material that is placed as filling material that is sufficiently cohesive and fine grained to impede and restrict the flow of water through it.

**In situ Testing**

Testing done on-site, in the field, of material or naturally occurring substances in their original state.

**Landfill Gas**

Combustible gas (primarily methane and carbon dioxide) generated by the decomposition of organic waste materials.

**Landfill Site**

A parcel of land where solid waste is disposed of in or on land for the purposes of waste management.

**Leachate**

Water or other liquid that has been contaminated by dissolved or suspended particles due to contact with solid waste.

**Leachate Breakout**

Location where leachate comes to the ground surfaces; a seep or spring.

**Limit of Filling**

The outermost limit at which waste has been disposed of, or approved or proposed for disposal at a landfill.

**Ministry**

Ontario Ministry of the Environment, Conservation and Parks.

**Monitoring**

Regular or spontaneous procedures used to methodically inspect and collect data on the performance of a landfill site relating to environmental quality (i.e., air, leachate, gas, ground or surface water, unsaturated soils, etc.).

**Monitoring Well**

The constructed unit of casing (riser and screen) installed in a borehole.

**Multi-Level Monitoring Well**

More than one monitoring well installed at a given test well location.

**Native Soil**

Soil material occurring naturally in the ground at a location.



**Natural Attenuation**

Where contaminants are reduced to acceptable concentration levels by natural mechanisms (dilution, absorption onto the soil matrix, etc.), biological action, and chemical interaction.

**Occupational Health and Safety Act**

The primary act of legislation enacted by Ontario Ministry of Labour to regulate and control the safety in the workplace; also Occupational Health and Safety Act, Revised Statutes of Ontario, 1990.

**Odour Control**

Minimizing or eliminating the nuisance and undesirable impact of objectionable or unpleasant odours arising from waste disposal operations.

**Open Burning**

Burning any matter whereby the resultant combustion products are emitted directly to the atmosphere without passing through an adequate stack, duct, or chimney.

**Operations Plan**

A document detailing the waste disposal operations in a planned, and if necessary, a staged manner, that ensure compliance with regulatory provisions concerning the operations of a landfill site.

**Operator (Site Operator)/Attendant**

The individual or organization who, through ownership or under contract, manages and operates a landfill site for the purpose of waste disposal.

**Owner**

A person, persons, organization, or municipal authority who own a landfill facility or part of a landfill facility, and in whose name the Certificate of Approval for the site is issued.

**Percolation**

The movement of infiltrating water through soil.

**Permeability**

Often used interchangeable with hydraulic conductivity, but not strictly correct. Permeability is a property of the porous media only. Dependent upon media properties that affect flow, diameter, sphericity, roundness, and packing of the grains.

**Piezometer**

A well that intersects a confined aquifer.

**Provisional Certificate of Approval (Provisional C of A)**

Same as Certificate of Approval.

**Reasonable Use Policy**

A policy developed by the Ministry to stipulate limits to the level of groundwater quality impairment that may be permitted to occur at site property boundaries, to allow the reasonable use of adjacent properties or land without adversely affecting public health and the environment.

**Recharge Zone**

An area where precipitation or surface run-off infiltrates into the ground and then, through natural percolation enters an aquifer.

**Recycling**

Sorting, collecting or processing waste materials that can be used as a substitute for the raw materials in a process or activity for the production of (the same or other) goods. For example, the "Blue Box" system, in-plant scrap handling, or raw material recovery systems. Recycling is also the marketing of products made from recycled or recycled materials.

**Reduction (of waste or component of 3Rs program)**

Those actions, practices, or processes that result in the production or generation of less waste.

**Remedial Action**

Corrective action taken to clean-up or remedy a spill, an uncontrolled discharge of a contaminant, or a breach in a facility or its operations, in order to minimize the consequent threat to public health and the environment.

**Representative Sample**

A small portion of soil, water, etc. which can be subjected to testing and analysis, that is expected to yield results that will reliably represent the identical characteristics of the source of the material or of a larger body of material.

**Reuse (component of 3Rs program)**

The use of an item again in its original form, for a similar purpose as originally intended, or to fulfil a different function.

**Run-off**

The part of precipitation (rainwater, snowmelt) that flows overland and does not infiltrate the surface material (soil or rock).

**Saturated Zone**

The zone of a subsurface soil where all voids are filled with water.

**Sedimentation**

The deposition of fine grained soil in an undesirable location, caused by the scouring, erosion and transportation of earth materials by surface run-off.

**Sensitive Land Use**

A land use where humans or the natural environment may experience an adverse environmental impact.

**Settlement**

The subsidence of the top surface and underlying waste of a landfill or waste cell as a result of densification under its own weight.

**Site Capacity**

The maximum amount of waste that is planned to be disposed (design capacity) or that has been disposed of at a landfill site.

**Site Closure**

The planned and approved cessation or termination of landfilling activities at a landfill site upon reaching its site capacity.

**Site Life**

The period from its inception through active period of waste disposal, to the time when a landfill site reaches its' site capacity, when it ceases to receive any further waste, including and up to closure.

**Solid Waste**

Any waste matter that cannot be characterized by its physical properties as a liquid waste product.

**Solid Waste Disposal Site or Facility**

A site or facility such as a landfill site where solid waste is disposed of.

**Source Separation**

The separation of various wastes at their point of generation for the purposes of recycling or further processing.

**Standpipe**

A monitoring well that intersects the water table aquifer.

**Storm water**

Run-off that occurs as a direct result of a storm event or thaw.

**Storm water Detention**

Control of storm water by the construction of impoundments of structures for the purpose of regulating storm water flows during high intensity rainfall events that would otherwise transport excessive amounts of sediment, cause soil erosion or cause flooding.

**Stratigraphy**

The geologic sub-structuring, usually layered with different distribution, deposition and age.

**Surface Run-off (Drainage)**

See Run-off.

**Surface Water**

Water that occurs at the earth's surface (ponds, streams, rivers, lakes, oceans).

**Sub-Soil**

Soil horizons below the topsoil.

**Test hole**

A hole drilled for soil sampling purposes.

**Topsoil**

The uppermost layer of the soil containing appreciable organic materials in mineral soils. Adequate fertility to support plant growth.

**Unsaturated Zone**

The zone (also vadose zone) in a porous sub-soil, where the voids are not completely water-filled, but contain some air-filled voids. Limited above by the land surface and below by the water table.

**Vector**

A disease carrier and transmitter; usually an insect or rodent.

**VOC**

Volatile organic compounds are those compounds that will readily volatilize (convert from liquid to gas phase) at conditions normally found in the environment.

**Waste**

Ashes, garbage, refuse, domestic waste, industrial waste, or municipal refuse and other used products as are designated or interpreted by the provisions of the Environmental Protection Act.



**Waste Disposal Site (Facility)**

Any land or land covered by water upon, into, in or through which, or building or structure in which, waste is deposited or processed and any machinery or equipment or operation required for the treatment or disposal of waste.

**Waste Management System**

All facilities, equipment and operations for the complete management of waste, including the collection, handling, transportation, storage, processing and disposal thereof, and may include one or more waste disposal sites.

**Water Table**

The water level attained in a monitoring well, which screens the surficial unconfined aquifer.

**Water Balance**

Amounts of water to various components in a system so that water entering the system equals the amount of water contained within and discharged out of a system.

**Water Level**

The level of water in a well.

**Well Casing**

The pipe that is used to construct a well.

**Well Screen**

A filtering device used to keep sediment from entering a well.

**Wetlands**

Areas where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrolytic vegetation, and which have soils indicative of wet conditions.



## Abbreviations

RFP	Request For Proposal	BTU	British Thermal Unit
ha	hectare	µg	microgram
Ministry	Ontario Ministry of the Environment, Conservation and Parks	°C	temperature in degrees Celsius
tonne	metric ton	g	gram
MNRF	Ontario Ministry of Natural Resources and Forestry	N/A	not available
t	metric tonne	kg	kilogram
ECA	Environmental Compliance Approval	%	percent
µS	microSiemens	L	Litre
EPA	Environmental Protection Act	cfm	cubic feet per minute
ODWQS	Ontario Drinking Water Quality Standards	mg/L	milligrams per litre
EAA	Environmental Assessment Act	ppmdv	part per million by dry volume
PC of A	Provisional Certificate of Approval	mm	millimetre
MW	monitoring well	ppmv	part per million by volume
PWQO	Provincial Water Quality Objectives	m	metre
masl	metres above sea level	ppm	part per million
TOC	Total Organic Carbon	km	kilometre
pg	picogram	min	minimum
VOC	Volatile Organic Compound	m <sup>3</sup>	cubic metre
ng	nanogram	max	maximum
		m <sup>2</sup>	square metre



## Standard Limitations

### Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

### Reliance on Materials and Information

The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

Facts, conditions, information and circumstances may vary with time and locations and Cambium's work is based on a review of such matters as they existed at the particular time and location indicated in its reports. No assurance is made by Cambium that the facts, conditions, information, circumstances or any underlying assumptions made by Cambium in connection with the work performed will not change after the work is completed and a report is submitted. If any such changes occur or additional information is obtained, Cambium should be advised and requested to consider if the changes or additional information affect its findings or results.

When preparing reports, Cambium considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Cambium is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

### Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

### Reliance

Cambium's services, work and reports may be relied on by the client and its corporate directors and officers, employees, and professional advisors. Cambium is not responsible for the use of its work or reports by any other party, or for the reliance on, or for any decision which is made by any party using the services or work performed by or a report prepared by Cambium without Cambium's express written consent. Any party that relies on services or work performed by Cambium or a report prepared by Cambium without Cambium's express written consent, does so at its own risk. No report of Cambium may be disclosed or referred to in any public document without Cambium's express prior written consent. Cambium specifically disclaims any liability or responsibility to any such party for any loss, damage, expense, fine, penalty or other such thing which may arise or result from the use of any information, recommendation or other matter arising from the services, work or reports provided by Cambium.

### Limitation of Liability

Potential liability to the client arising out of the report is limited to the amount of Cambium's professional liability insurance coverage. Cambium shall only be liable for direct damages to the extent caused by Cambium's negligence and/or breach of contract. Cambium shall not be liable for consequential damages.

### Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.



---

## Appended Figures

---

Fully accessible appended figures are available upon request.

**LEGEND**

-  Highway
-  Major Road
-  Railroad
-  Watercourse
-  Water Area
-  Provincial Park
-  Wooded Area
-  Built Up Area
-  Lower Tier Municipality

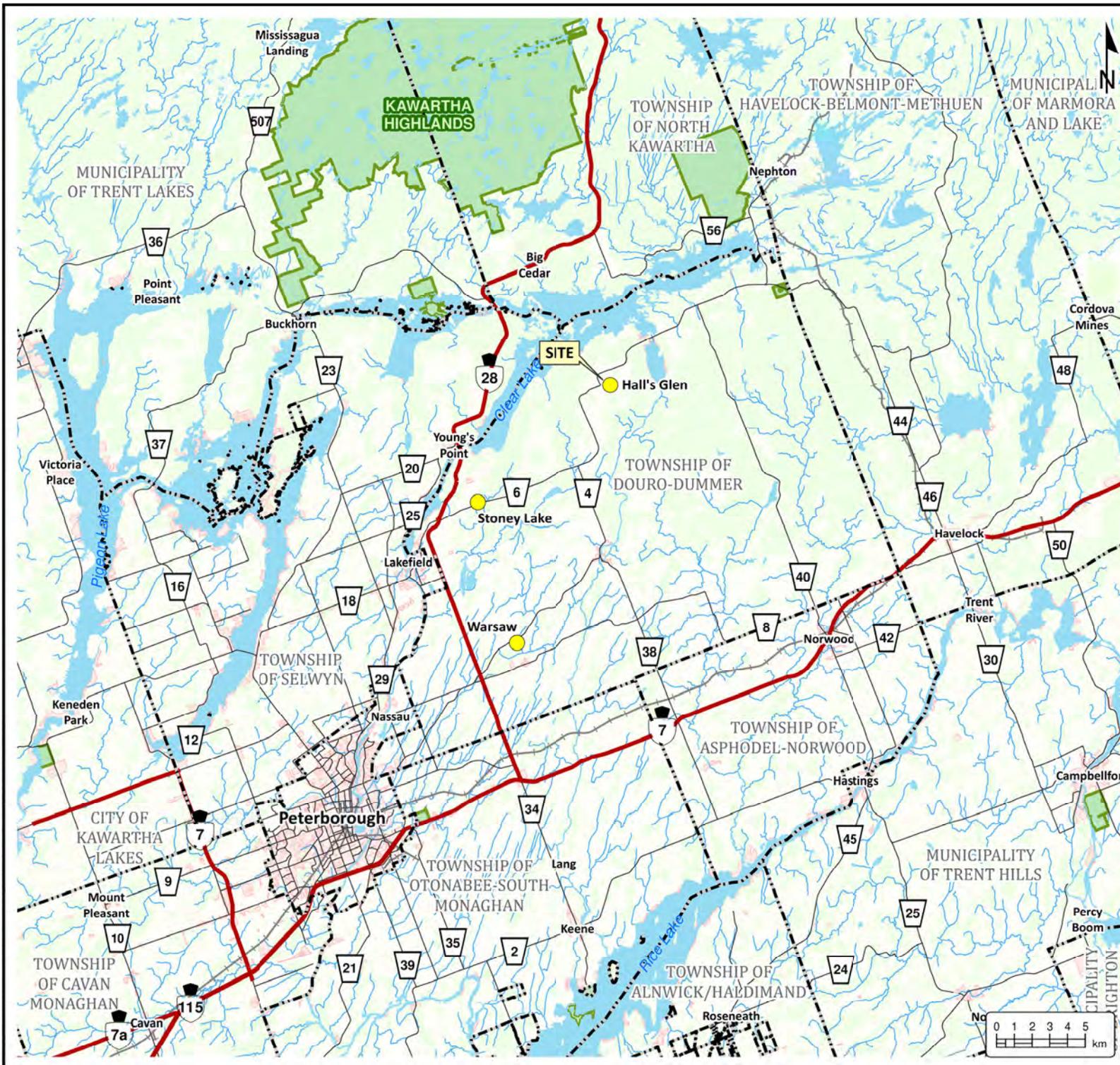
Notes:  
 - Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).  
 - Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.  
 - Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.



194 Sophia Street  
 Peterborough, Ontario, K9H 1E5  
 Tel: (705) 742.7900 Fax: (705) 742.7907  
 www.cambium-inc.com

**REGIONAL LOCATION PLAN**

Project No.:	12987-002	Date:	March 2022
Scale:	1:300,000	Rev.:	
Created by:	TLC	Projection:	NAD 1983 UTM Zone 17N
Checked by:	CM	Figure:	<b>1</b>



O:\GIS\MapDocs\12987-002\TDD - Hall's Glen\2022-01-05 FIG 1 - Regional Location Plan.mxd

**LEGEND**

-  Surface Water Location
-  Residential Well
-  Monitoring Well
-  Major Road
-  Minor Road
-  Contour 5m Interval (Major)
-  Contour 5m Interval (Minor)
-  Lot / Concession
-  Unevaluated Wetlands
-  Water Area
-  Wooded Area
-  Landfill Footprint
-  Site (approximately 48.5 ha.)

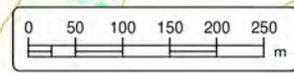
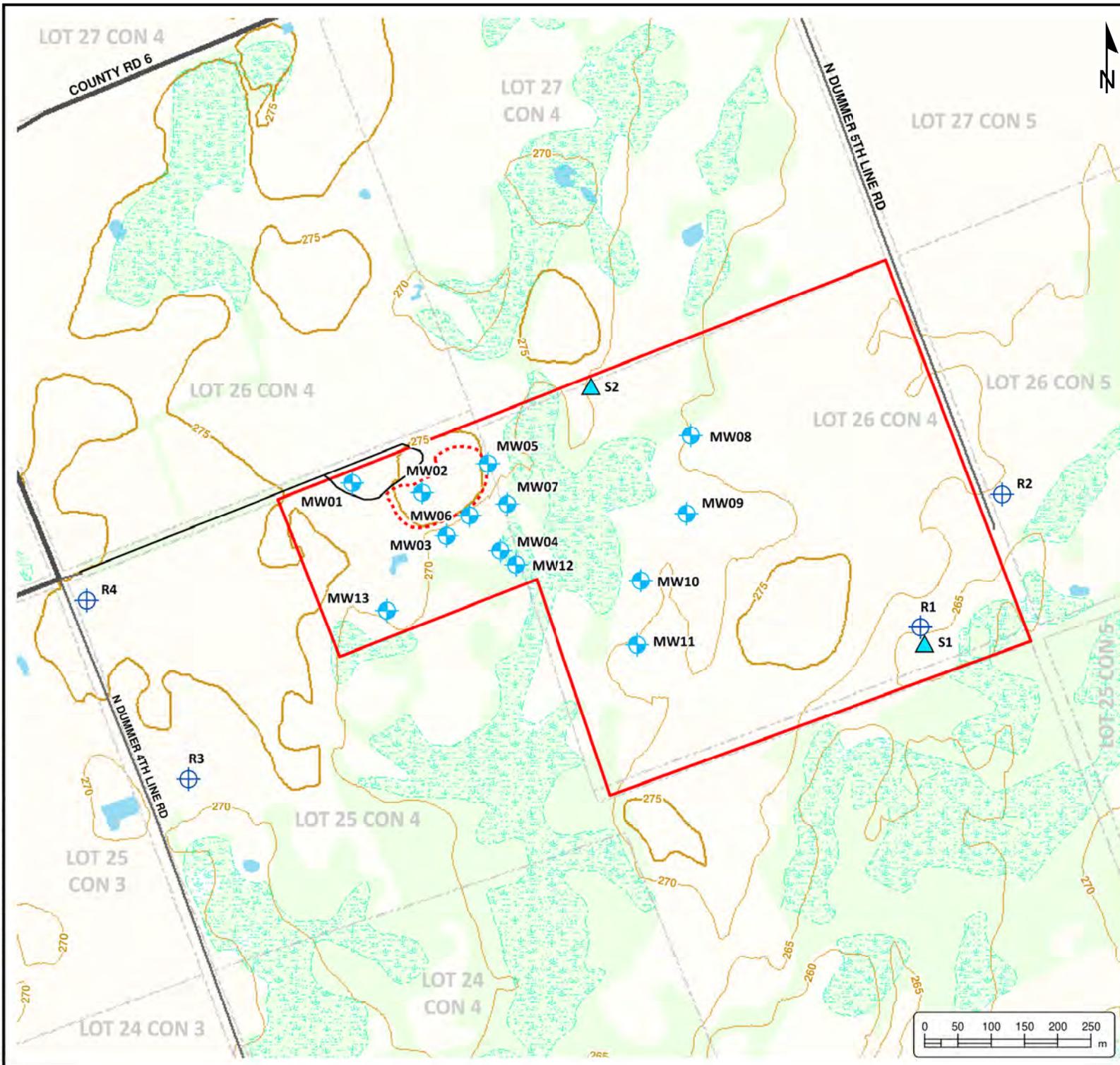
**Notes:**  
 - Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).  
 - Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.  
 - Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.



194 Sophia Street  
 Peterborough, Ontario, K9H 1E5  
 Tel: (705) 742.7900 Fax: (705) 742.7907  
 www.cambium-inc.com

**SAMPLE LOCATION PLAN**

Project No.:	12987-002	Date:	March 2022
Scale:	1:8,000	Rev.:	
Created by:	TLC	Projection:	NAD 1983 UTM Zone 17N
Checked by:	CM	Figure:	<b>2</b>





**LEGEND**

- Site (approximate)
- - - - - Approximate Landfill Footprint (1.0 ha)
- Topographic Contour
- ~ Approximate Treeline

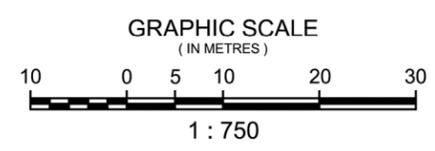


Notes:  
 1. Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.

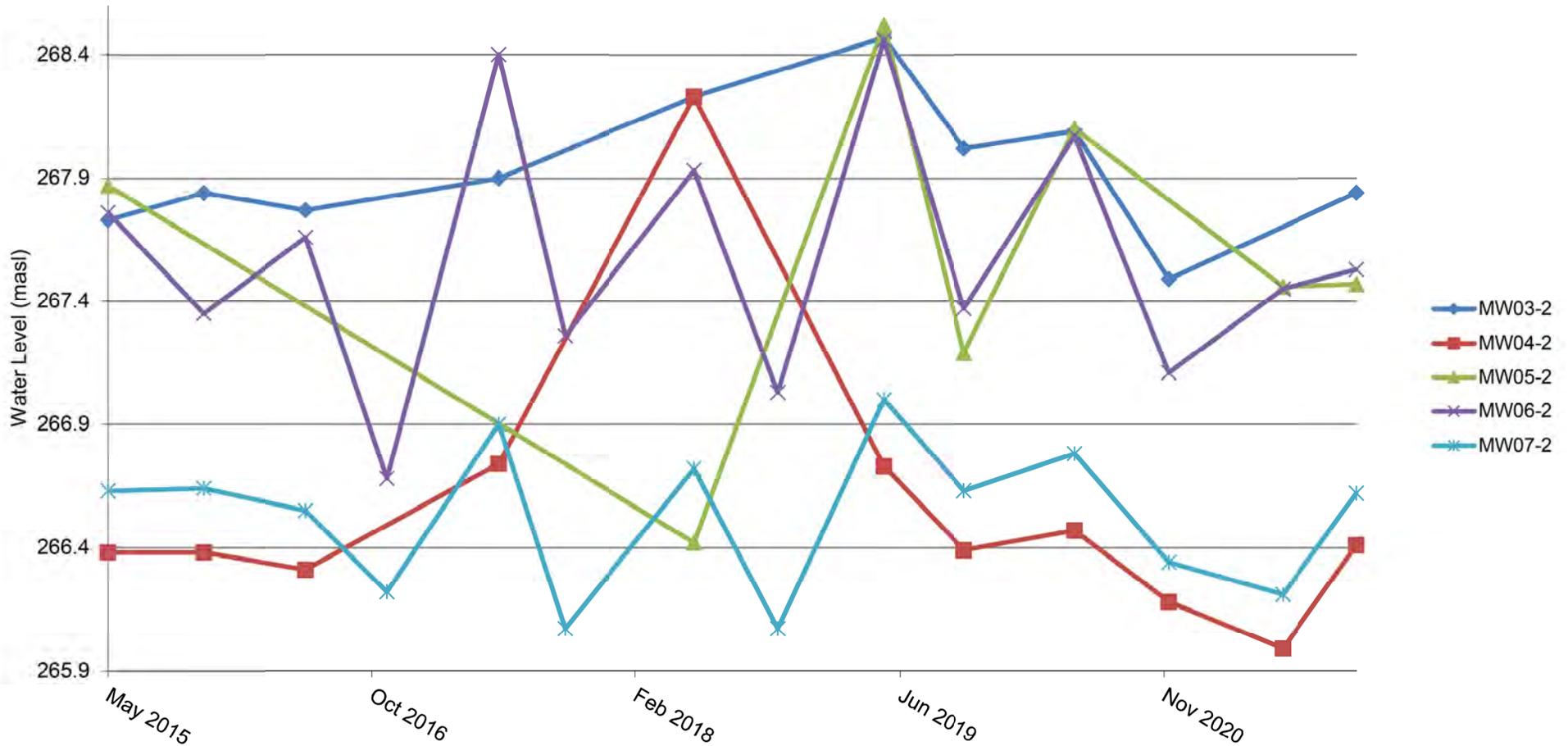
194 Sophia Street  
 Peterborough, Ontario, K9H 1E5  
 Tel: 705-742-7900 Fax: 705-742-7907  
 www.cambium-inc.com

**EXISTING CONDITIONS**

Project No.: 12987-002	Date: March 2022
Horizontal Scale: 1:750	Rev.: UTM Zone 17N
Projection: UTM Zone 17N	Figure: 3
Drawn By: TLC	Checked By: CM



P:\12000 to 12999\12987-002 TDO - Hall's Glen\Graphics\Drawings\CAD\2022-02-07 Hall's Glen 2021 AMFL.dwg

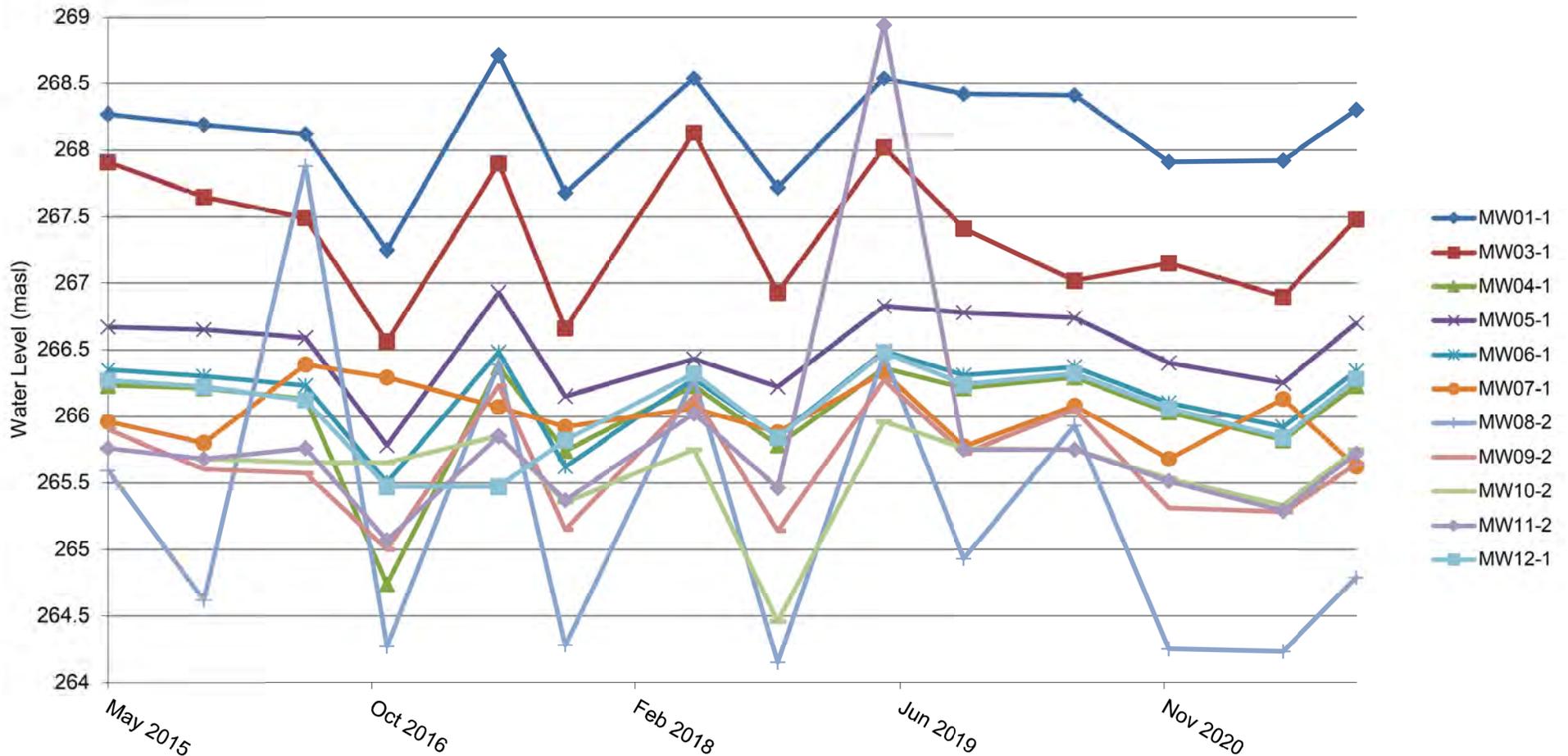


### Groundwater Elevations (Overburden)

Hall's Glen Waste Transfer Station  
 1951 County Road 6, Hall's Glen  
 The Corporation of the Township of Douro-Dummer

Figure:	4
Date:	20-Apr-22
Project Manager:	Cameron MacDougall
Project No.:	12987-002



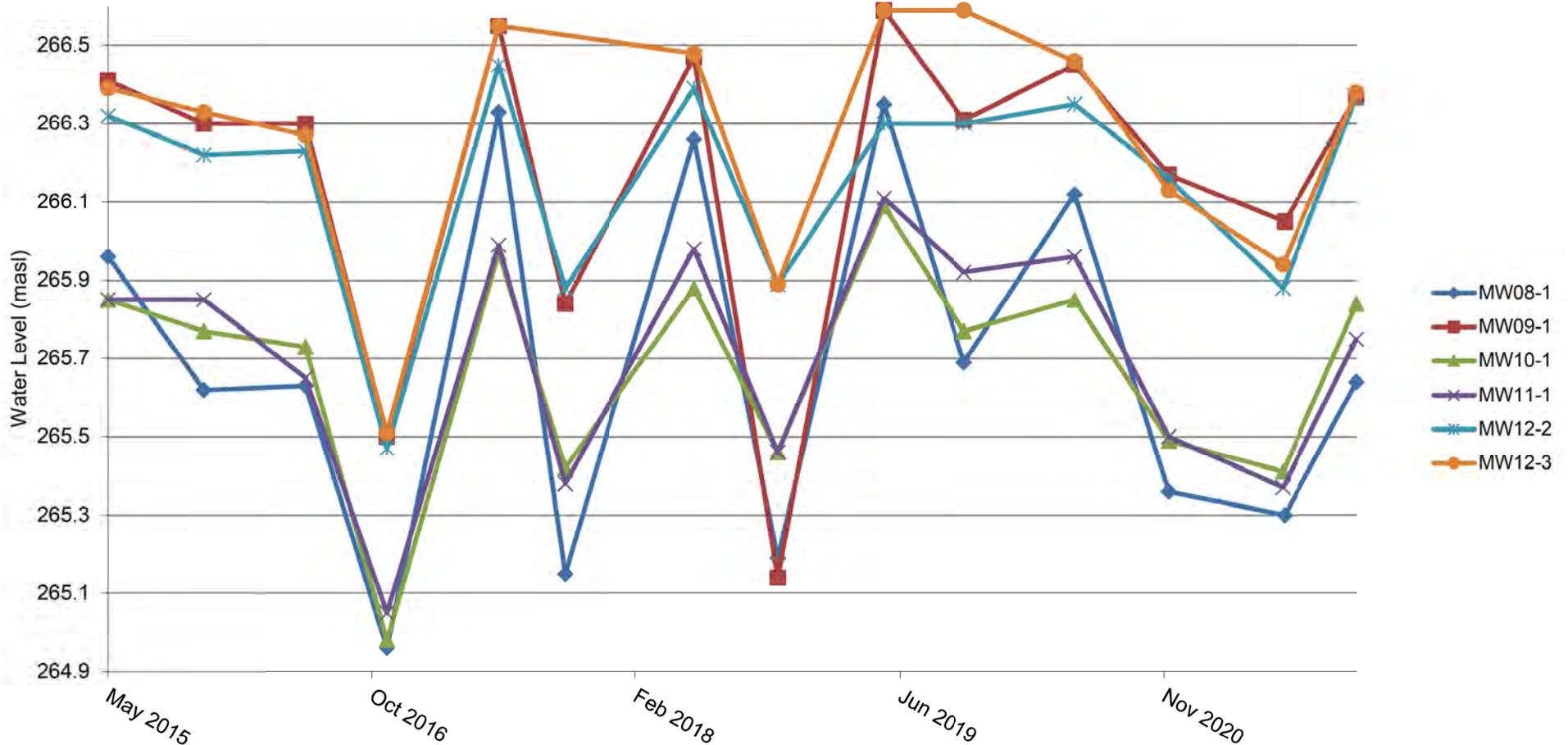


### Groundwater Elevations (Shallow Bedrock)

Hall's Glen Waste Transfer Station  
 1951 County Road 6, Hall's Glen  
 The Corporation of the Township of Douro-Dummer

Figure:	5
Date:	20-Apr-22
Project Manager:	Cameron MacDougall
Project No.:	12987-002





### Groundwater Elevations (Deep Bedrock)

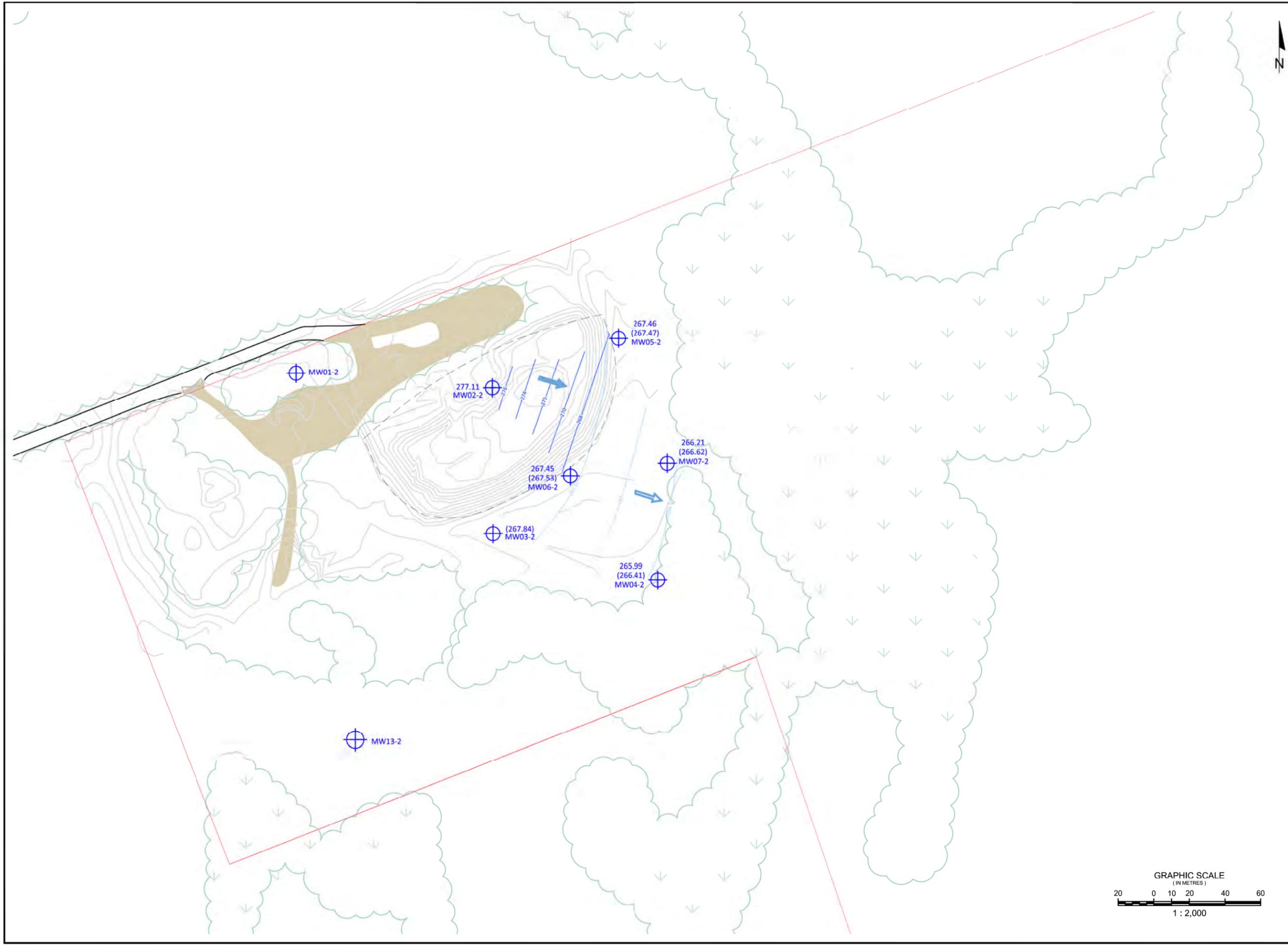
Hall's Glen Waste Transfer Station  
 1951 County Road 6, Hall's Glen  
 The Corporation of the Township of Douro-Dummer

Figure:	<b>6</b>
Date:	20-Apr-22
Project Manager:	Cameron MacDougall
Project No.:	12987-002



LEGEND

-  Overburden Monitoring Well
-  266.25 Groundwater Elevation June 24 and 28, 2021
-  (266.70) Groundwater Elevation November 11, 2021
-  Groundwater Contour June 24 and 28, 2021
-  Groundwater Contour November 11, 2021
-  Topographic Contour
-  Site (approximate)
-  Approximate Landfill Footprint (1.3 ha)
-  Approximate Treeline
-  Wetland Area
-  Groundwater Flow Direction June 24 and 28, 2021
-  Groundwater Flow Direction November 11, 2021



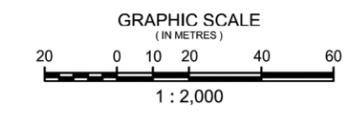
Notes:  
 1. Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.



194 Sophia Street  
 Peterborough, Ontario, K9H 1E5  
 Tel: 705-742-7900 Fax: 705-742-7907  
 www.cambium-inc.com

OVERBURDEN GROUNDWATER CONFIGURATION

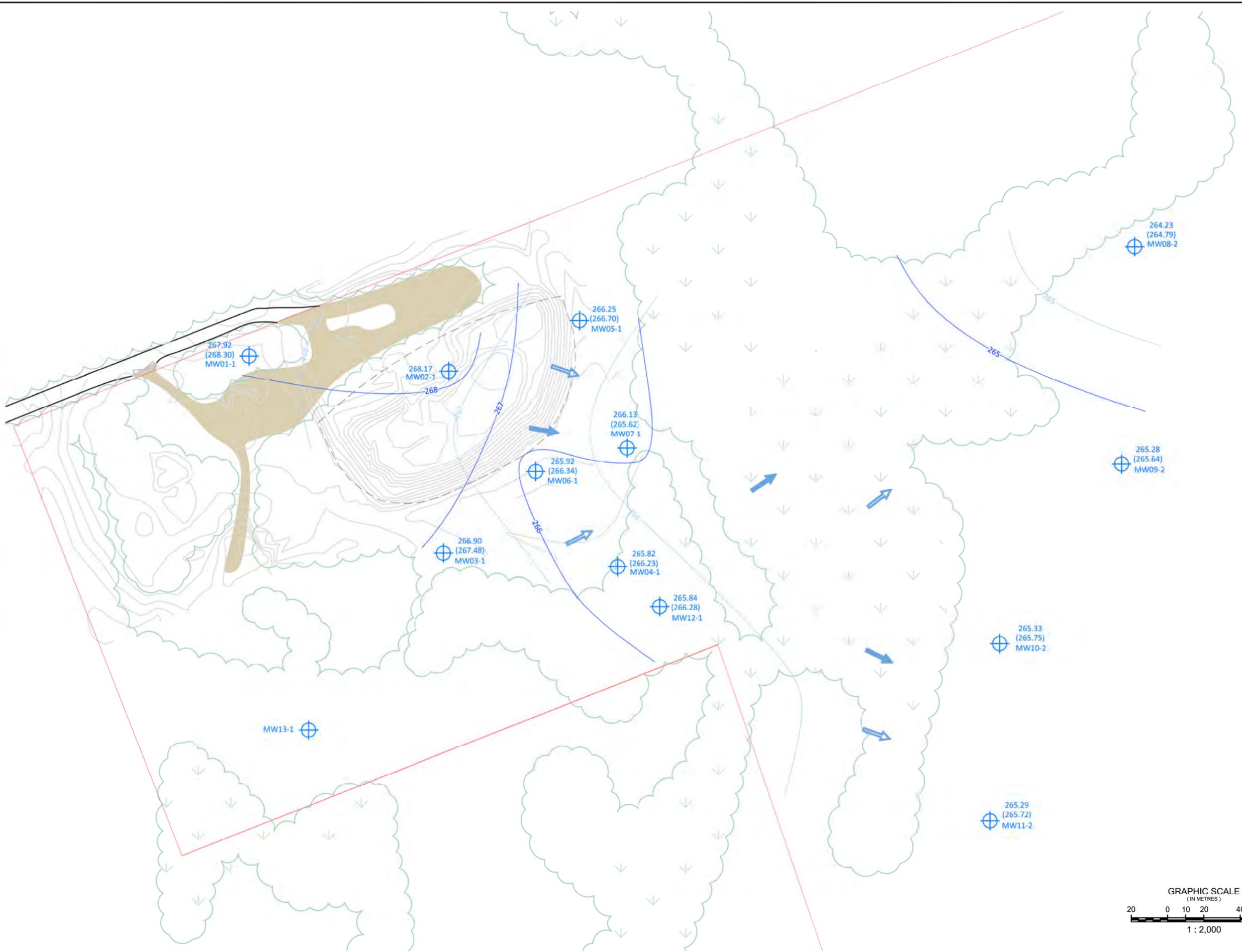
Project No.:	12987-002	Date:	March 2022
Horizontal Scale:	1:2,000	Rev.:	
Projection:	UTM Zone 17N	Checked By:	CM
Drawn By:	TLC	Figure:	7





LEGEND

-  Shallow Bedrock Monitoring Well
-  266.25 Groundwater Elevation June 24 and 28, 2021
-  (266.70) Groundwater Elevation November 11, 2021
-  Groundwater Contour June 24 and 28, 2021
-  Groundwater Contour November 11, 2021
-  Topographic Contour
-  Site (approximate)
-  Approximate Landfill Footprint (1.3 ha)
-  Approximate Treeline
-  Wetland Area
-  Groundwater Flow Direction June 24 and 28, 2021
-  Groundwater Flow Direction November 11, 2021

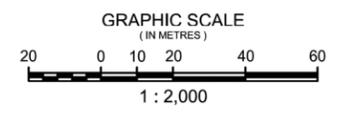


Notes:  
 1. Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.

 194 Sophia Street  
 Peterborough, Ontario, K9H 1E5  
 Tel: 705-742-7900 Fax: 705-742-7907  
 www.cambium-inc.com

**SHALLOW BEDROCK  
 GROUNDWATER  
 CONFIGURATION**

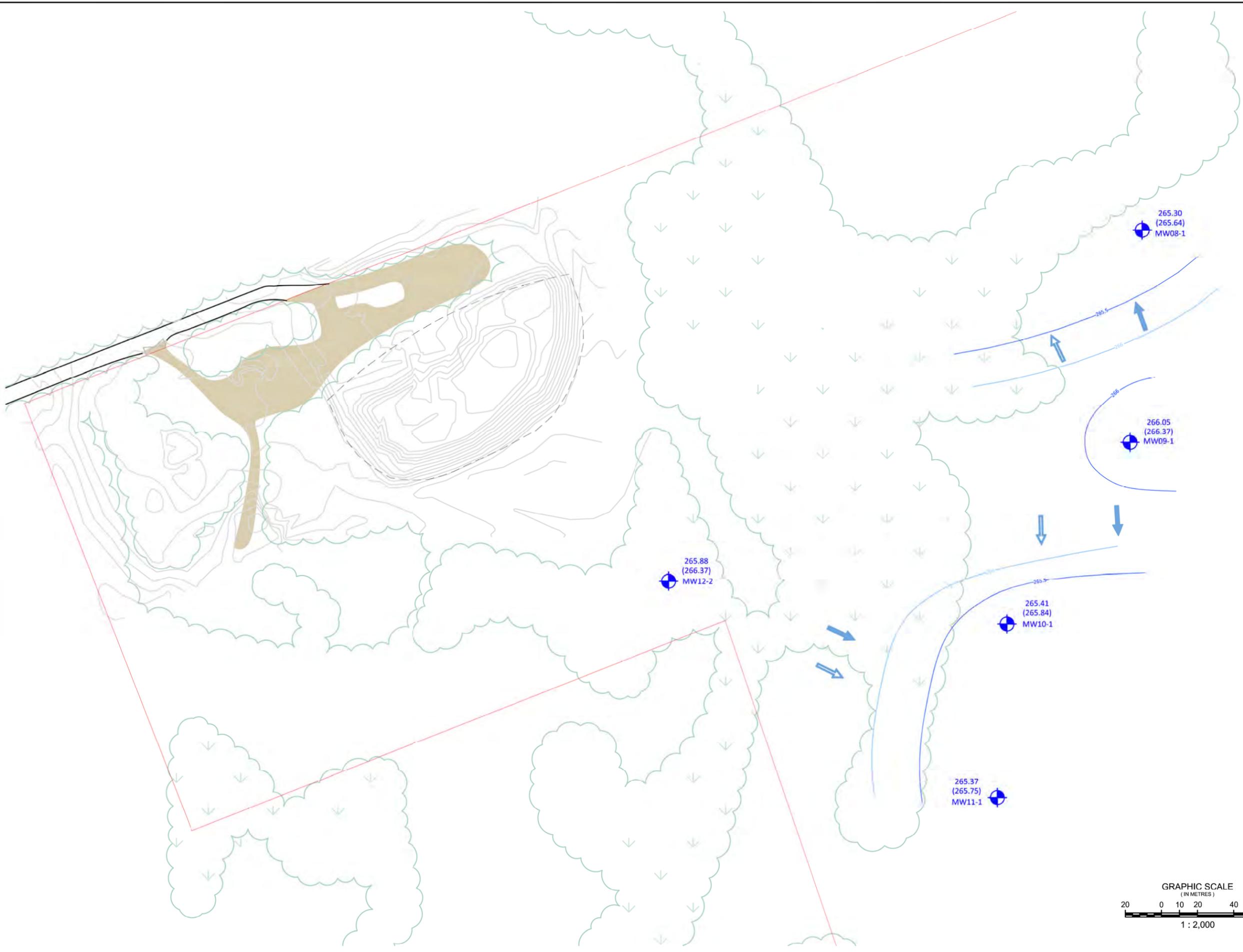
Project No.: 12987-002	Date: March 2022
Horizontal Scale: 1:2,000	Rev.: UTM Zone 17N
Projection: UTM Zone 17N	Figure: 8
Drawn By: TLC	Checked By: CM





LEGEND

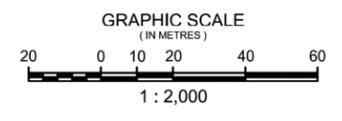
-  Deep Bedrock Monitoring Well
-  Groundwater Elevation June 24 and 28, 2021
-  Groundwater Elevation November 11, 2021
-  Groundwater Contour June 24 and 28, 2021
-  Groundwater Contour November 11, 2021
-  Topographic Contour
-  Site (approximate)
-  Approximate Landfill Footprint (1.3 ha)
-  Approximate Treeline
-  Wetland Area
-  Groundwater Flow Direction June 24 and 28, 2021
-  Groundwater Flow Direction November 11, 2021



Notes:  
 1. Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.

 194 Sophia Street  
 Peterborough, Ontario, K9H 1E5  
 Tel: 705-742-7900 Fax: 705-742-7907  
 www.cambium-inc.com

<b>DEEP BEDROCK GROUNDWATER CONFIGURATION</b>	
Project No.: 12987-002	Date: March 2022
Horizontal Scale: 1:2,000	Projection: UTM Zone 17N
Drawn By: TLC	Checked By: CM
Figure: 9	





---

## Appended Tables

---

Fully accessible appended tables are available upon request.



## Table Notes

RDL - reported detection limit for the current year

RUC - Reasonable Use Criteria

CWQG - Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME, 2011)

ODWQS - Ontario Drinking Water Quality Standards, O.Reg. 169/03

PWQO - Water Management, Policies, Guidelines, Provincial Water Quality Objectives (MOEE, 1994b)

PWQO for beryllium, cadmium, copper, and lead depend on hardness

PWQO for aluminum depends on pH and background concentration

NV - No Value

"-" Parameter not analyzed or measured

Unionized ammonia calculated using total ammonia and field data for pH and conductivity



**Table 1 Environmental Monitoring Program**

Location	Task	Frequency	Analytical Parameters
<b>Groundwater</b>			
MW01-2, MW02-2, MW03-2, MW04-2, MW05-2, MW06-2, MW07-2, MW08-2, MW09-2, MW10-2, MW11-2, MW12-1, MW13-2 R1, R2, R3, R4 2 QA/QC Duplicates	<ul style="list-style-type: none"> <li>• Measure groundwater levels</li> <li>• Groundwater sampling</li> <li>• Field measurements (pH, temperature, ORP, dissolved oxygen, conductivity)</li> </ul>	Twice Annually (Spring & Autumn)	alkalinity, ammonia, arsenic, barium, boron, cadmium, calcium, chloride, chromium, conductivity, copper, iron, lead, magnesium, manganese, mercury, nitrite, nitrate, TKN, pH, total phosphorus, potassium, sodium, TDS, sulphate, zinc, COD, DOC, phenols, hardness  Benzene, i,4- Dichlorobenzene, Dichloromethane, Toluene, Vinyl Chloride
MW01-1, MW02-1, MW03-1, MW04-1, MW05-1, MW06-1, MW07-1, MW08-1, MW09-1, MW10-1, MW11-1, MW12-2, MW12-3, MW13-1 1 QA/QC Duplicate	<ul style="list-style-type: none"> <li>• Measure groundwater levels</li> <li>• Groundwater sampling</li> <li>• Field measurements (pH, temperature, ORP, conductivity)</li> </ul>	Once Annually (Spring)	alkalinity, ammonia, arsenic, barium, boron, cadmium, calcium, chloride, chromium, conductivity, copper, iron, lead, magnesium, manganese, mercury, nitrite, nitrate, TKN, pH, total phosphorus, potassium, sodium, TDS, sulphate, zinc, COD, DOC, phenols, hardness  Benzene, i,4- Dichlorobenzene, Dichloromethane, Toluene, Vinyl Chloride
MW01-1, MW02-1, MW03-1, MW04-1, MW05-1, MW06-1, MW07-1, MW08-1, MW09-1, MW10-1, MW11-1, MW12-2, MW12-3, MW13-1 1 QA/QC Duplicate	<ul style="list-style-type: none"> <li>• Measure groundwater levels</li> <li>• Groundwater sampling</li> <li>• Field measurements (pH, temperature, ORP, conductivity)</li> </ul>	Once Annually (Autumn)	alkalinity, ammonia, chloride, arsenic, barium, boron, cadmium, calcium, chloride, chromium, conductivity, copper, iron, lead, magnesium, manganese, mercury, nitrate, pH, phosphorus, potassium, sodium, TDS, sulphate, COD, DOC, phenols, zinc, hardness
MW03-1, MW03-2, MW04-1, MW04-2, MW05-1, MW05-2, MW06-1, MW06-2, MW07-1, MW07-2, MW11-1, MW11-2 R1, R2, R3, R4 2 QA/QC Duplicates	<ul style="list-style-type: none"> <li>• VOCs</li> </ul>	Twice Annually (Spring & Autumn)	Bromodichloromethane, Bromoform  Dibromochloromethane, Bromomethane, Carbon tetrachloride, Chloroethane, Chloroform, Chloromethane, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,1-Dichloroethane, 1,2-Dichloroethane,



			1,1-Dichloroethylene, 1,2-Dichloropropane, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, Ethylenedibromide, Dichloromethane, Monochlorobenzene, Styrene, 1,1,2,2-Tetrachloroethane, Tetrachloroethene, Trichloroethylene, Vinyl Chloride, Trichlorofluoromethane, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1,1,2-Tetrachloroethane
All Wells	<ul style="list-style-type: none"> <li>Landfill Gas Measurements</li> </ul>	Twice Annually (Spring & Autumn)	CH4 and H2S
<b>Surface Water</b>			
S1, S2 1 QA/QC Duplicate	<ul style="list-style-type: none"> <li>Surface water sampling</li> <li>Flow estimates</li> <li>Field measurements (pH, temperature, conductivity, dissolved oxygen)</li> </ul>	Twice Annually (Spring & Autumn)	alkalinity, ammonia, arsenic, barium, boron, cadmium, chloride, chromium, conductivity, copper, iron, lead, dissolved mercury, nitrite, nitrate, TKN, pH, total phosphorus, TSS, TDS, sulphate, zinc, BOD, COD, phenols, hardness, unionized ammonia (field)

\*Dissolved mercury to be lab filtered with a 0.45 micron filter for all surface water samples.



Table 2 - Groundwater Elevation Data

Monitor	UTM (Zone 17)		Top of Casing Elevation (m)	Ground Elevation (m)	Measured Stick-Up (m)	Well Depth (mTOP)	Well Depth (m)	Screened Unit	Well Diameter (mm)	Water Level Elevation (mASL)		
	mN	mE								22-May-15	19-Nov-15	31-May-16
MW01-1	4933341	728326	271.24	270.42	0.82	7.65	6.83	Limestone/Shale	50.8	268.27	268.19	268.12
MW01-2			271.24	270.42	0.82	2.74	1.92	Clay/Gravel	38.1	dry	dry	dry
MW02-1	4933327	728431	282.49	282.27	0.22	15.33	15.11	Limestone/Shale	50.8	dry	na	dry
MW02-2			282.53	282.32	0.21	5.45	5.24	Sand/Gravel	50.8	dry	dry	dry
MW03-1	4933262	728468	269.23	268.57	0.66	5.51	4.85	Limestone	50.8	267.91	267.65	267.49
MW03-2			269.23	268.74	0.49	1.72	1.23	Clay/Sand/Gravel	38.1	267.73	267.84	267.77
MW04-1	4933239	728549	268.28	267.36	0.92	5.62	4.70	Limestone/Shale	50.8	266.23	266.21	266.13
MW04-2			268.28	267.43	0.85	2.99	2.14	Gravel/Limestone	38.1	266.38	266.38	266.31
MW05-1	4933370	728530	271.35	-	Below Grade	7.68	7.68	Limestone	50.8	266.67	266.65	266.59
MW05-2			271.35	271.13	0.22	4.38	4.16	Clay/Sand/Gravel	38.1	267.87	dry	dry
MW06-1	4933292	728502	271.01	270.40	0.61	7.85	7.24	Limestone/Shale	50.8	266.35	266.30	266.23
MW06-2			271.01	270.41	0.60	5.13	4.53	Sand/Gravel	38.1	267.76	267.35	267.66
MW07-1	4933309	728559	269.03	268.24	0.79	6.98	6.19	Limestone	50.8	265.96	265.80	266.39
MW07-2			269.03	268.29	0.74	3.37	2.63	Limestone	50.8	266.63	266.64	266.55
MW08-1	4933413	728836	270.74	270.05	0.69	11.31	10.62	Limestone	50.8	265.96	265.62	265.63
MW08-2			270.74	270.04	0.70	7.70	7.00	Limestone	50.8	265.59	264.62	267.88
MW09-1	4933295	728829	267.25	266.57	0.68	9.92	9.24	Limestone	50.8	266.41	266.30	266.30
MW09-2			267.25	266.57	0.68	6.16	5.48	Limestone	50.8	265.90	265.60	265.57
MW10-1	4933194	728760	267.97	267.23	0.74	9.89	9.15	Limestone	50.8	265.85	265.77	265.73
MW10-2			267.97	267.24	0.73	6.65	5.92	Limestone	50.8	265.76	265.68	265.65
MW11-1	4933098	728755	268.50	267.80	0.70	9.96	9.26	Limestone	50.8	265.85	265.85	265.65
MW11-2			268.50	267.78	0.72	6.74	6.02	Limestone	50.8	265.76	265.68	265.76
MW12-1	4933218	728573	268.00	267.11	0.89	6.84	5.95	Limestone	50.8	266.27	266.22	266.12
MW12-2			268.00	267.09	0.91	10.21	9.30	Limestone	50.8	266.32	266.22	266.23
MW12-3			268.00	267.10	0.90	13.09	12.19	Limestone	50.8	266.39	266.33	266.27
MW13-1	4933149	728378			0.86	6.04	5.18	Limestone	50.8	-	-	-
MW13-2					0.86	3.76	2.90	Gravel/Limestone	50.8	-	-	-

Notes:

1. All measurements are reported relative to an assumed elevation of the site benchmark.
2. MW13 has not been surveyed and therefore water level elevations could not be determined



Table 2 - Groundwater Elevation Data

Monitor	UTM (Zone 17)		Top of Casing Elevation (m)	Ground Elevation (m)	Measured Stick-Up (m)	Well Depth (mTOP)	Well Depth (m)	Screened Unit	Well Diameter (mm)	Water Level Elevation (mASL)		
	mN	mE								01-Nov-16	31-May-17	04-Oct-17
MW01-1	4933341	728326	271.24	270.42	0.82	7.65	6.83	Limestone/Shale	50.8	267.25	268.71	267.68
MW01-2			271.24	270.42	0.82	2.74	1.92	Clay/Gravel	38.1	dry	dry	dry
MW02-1	4933327	728431	282.49	282.27	0.22	15.33	15.11	Limestone/Shale	50.8	dry	dry	dry
MW02-2			282.53	282.32	0.21	5.45	5.24	Sand/Gravel	50.8	dry	dry	dry
MW03-1	4933262	728468	269.23	268.57	0.66	5.51	4.85	Limestone	50.8	266.56	267.90	266.66
MW03-2			269.23	268.74	0.49	1.72	1.23	Clay/Sand/Gravel	38.1	dry	267.90	dry
MW04-1	4933239	728549	268.28	267.36	0.92	5.62	4.70	Limestone/Shale	50.8	264.74	266.37	265.74
MW04-2			268.28	267.43	0.85	2.99	2.14	Gravel/Limestone	38.1	dry	266.74	dry
MW05-1	4933370	728530	271.35	-	Below Grade	7.68	7.68	Limestone	50.8	265.78	266.93	266.15
MW05-2			271.35	271.13	0.22	4.38	4.16	Clay/Sand/Gravel	38.1	dry	dry	dry
MW06-1	4933292	728502	271.01	270.40	0.61	7.85	7.24	Limestone/Shale	50.8	265.50	266.48	265.62
MW06-2			271.01	270.41	0.60	5.13	4.53	Sand/Gravel	38.1	266.68	268.40	267.26
MW07-1	4933309	728559	269.03	268.24	0.79	6.98	6.19	Limestone	50.8	266.29	266.07	265.92
MW07-2			269.03	268.29	0.74	3.37	2.63	Limestone	50.8	266.22	266.90	266.07
MW08-1	4933413	728836	270.74	270.05	0.69	11.31	10.62	Limestone	50.8	264.96	266.33	265.15
MW08-2			270.74	270.04	0.70	7.70	7.00	Limestone	50.8	264.27	266.39	264.28
MW09-1	4933295	728829	267.25	266.57	0.68	9.92	9.24	Limestone	50.8	265.50	266.55	265.84
MW09-2			267.25	266.57	0.68	6.16	5.48	Limestone	50.8	265.00	266.23	265.15
MW10-1	4933194	728760	267.97	267.23	0.74	9.89	9.15	Limestone	50.8	264.98	265.97	265.42
MW10-2			267.97	267.24	0.73	6.65	5.92	Limestone	50.8	265.65	265.85	265.35
MW11-1	4933098	728755	268.50	267.80	0.70	9.96	9.26	Limestone	50.8	265.05	265.99	265.38
MW11-2			268.50	267.78	0.72	6.74	6.02	Limestone	50.8	265.07	265.85	265.37
MW12-1	4933218	728573	268.00	267.11	0.89	6.84	5.95	Limestone	50.8	265.47	265.47	265.82
MW12-2			268.00	267.09	0.91	10.21	9.30	Limestone	50.8	265.47	266.45	265.88
MW12-3			268.00	267.10	0.90	13.09	12.19	Limestone	50.8	265.51	266.55	na
MW13-1	4933149	728378			0.86	6.04	5.18	Limestone	50.8	-	-	-
MW13-2					0.86	3.76	2.90	Gravel/Limestone	50.8	-	-	-

Notes:

1. All measurements are reported relative to an assumed elevation of the site benchmark.
2. MW13 has not been surveyed and therefore water level elevations could not be determined



Table 2 - Groundwater Elevation Data

Monitor	UTM (Zone 17)		Top of Casing Elevation (m)	Ground Elevation (m)	Measured Stick-Up (m)	Well Depth (mTOP)	Well Depth (m)	Screened Unit	Well Diameter (mm)	Water Level Elevation (mASL)		
	mN	mE								June 6/7, 2018	November 11/12, 2018	30-May-19
MW01-1	4933341	728326	271.24	270.42	0.82	7.65	6.83	Limestone/Shale	50.8	268.54	267.72	268.54
MW01-2			271.24	270.42	0.82	2.74	1.92	Clay/Gravel	38.1	dry	dry	dry
MW02-1	4933327	728431	282.49	282.27	0.22	15.33	15.11	Limestone/Shale	50.8	dry	dry	dry
MW02-2			282.53	282.32	0.21	5.45	5.24	Sand/Gravel	50.8	dry	dry	dry
MW03-1	4933262	728468	269.23	268.57	0.66	5.51	4.85	Limestone	50.8	268.13	266.93	268.02
MW03-2			269.23	268.74	0.49	1.72	1.23	Clay/Sand/Gravel	38.1	268.23	dry	268.47
MW04-1	4933239	728549	268.28	267.36	0.92	5.62	4.70	Limestone/Shale	50.8	266.23	265.78	266.36
MW04-2			268.28	267.43	0.85	2.99	2.14	Gravel/Limestone	38.1	268.23	dry	266.73
MW05-1	4933370	728530	271.35	-	Below Grade	7.68	7.68	Limestone	50.8	266.43	266.22	266.83
MW05-2			271.35	271.13	0.22	4.38	4.16	Clay/Sand/Gravel	38.1	266.42	dry	268.52
MW06-1	4933292	728502	271.01	270.40	0.61	7.85	7.24	Limestone/Shale	50.8	266.28	265.85	266.49
MW06-2			271.01	270.41	0.60	5.13	4.53	Sand/Gravel	38.1	267.93	267.03	268.46
MW07-1	4933309	728559	269.03	268.24	0.79	6.98	6.19	Limestone	50.8	266.06	265.88	266.33
MW07-2			269.03	268.29	0.74	3.37	2.63	Limestone	50.8	266.72	266.07	267.00
MW08-1	4933413	728836	270.74	270.05	0.69	11.31	10.62	Limestone	50.8	266.26	265.19	266.35
MW08-2			270.74	270.04	0.70	7.70	7.00	Limestone	50.8	266.28	264.15	266.46
MW09-1	4933295	728829	267.25	266.57	0.68	9.92	9.24	Limestone	50.8	266.47	265.14	266.59
MW09-2			267.25	266.57	0.68	6.16	5.48	Limestone	50.8	266.15	265.14	266.27
MW10-1	4933194	728760	267.97	267.23	0.74	9.89	9.15	Limestone	50.8	265.88	265.46	266.09
MW10-2			267.97	267.24	0.73	6.65	5.92	Limestone	50.8	265.75	264.46	265.96
MW11-1	4933098	728755	268.50	267.80	0.70	9.96	9.26	Limestone	50.8	265.98	265.46	266.11
MW11-2			268.50	267.78	0.72	6.74	6.02	Limestone	50.8	266.02	265.46	268.94
MW12-1	4933218	728573	268.00	267.11	0.89	6.84	5.95	Limestone	50.8	266.32	265.84	266.48
MW12-2			268.00	267.09	0.91	10.21	9.30	Limestone	50.8	266.39	265.89	266.30
MW12-3			268.00	267.10	0.90	13.09	12.19	Limestone	50.8	266.48	265.89	266.59
MW13-1	4933149	728378			0.86	6.04	5.18	Limestone	50.8	-	-	-
MW13-2					0.86	3.76	2.90	Gravel/Limestone	50.8	-	-	-

Notes:

1. All measurements are reported relative to an assumed elevation of the site benchmark.
2. MW13 has not been surveyed and therefore water level elevations could not be determined



Table 2 - Groundwater Elevation Data

Monitor	UTM (Zone 17)		Top of Casing Elevation (m)	Ground Elevation (m)	Measured Stick-Up (m)	Well Depth (mTOP)	Well Depth (m)	Screened Unit	Well Diameter (mm)	Water Level Elevation (mASL)		
	mN	mE								29-Oct-19	26-May-20	20-Nov-20
MW01-1	4933341	728326	271.24	270.42	0.82	7.65	6.83	Limestone/Shale	50.8	268.42	268.41	267.91
MW01-2			271.24	270.42	0.82	2.74	1.92	Clay/Gravel	38.1	dry	-	-
MW02-1	4933327	728431	282.49	282.27	0.22	15.33	15.11	Limestone/Shale	50.8	dry	-	-
MW02-2			282.53	282.32	0.21	5.45	5.24	Sand/Gravel	50.8	dry	-	-
MW03-1	4933262	728468	269.23	268.57	0.66	5.51	4.85	Limestone	50.8	267.41	267.02	267.15
MW03-2			269.23	268.74	0.49	1.72	1.23	Clay/Sand/Gravel	38.1	268.02	268.09	267.49
MW04-1	4933239	728549	268.28	267.36	0.92	5.62	4.70	Limestone/Shale	50.8	266.21	266.29	266.03
MW04-2			268.28	267.43	0.85	2.99	2.14	Gravel/Limestone	38.1	266.39	266.47	266.18
MW05-1	4933370	728530	271.35	-	Below Grade	7.68	7.68	Limestone	50.8	266.78	266.74	266.40
MW05-2			271.35	271.13	0.22	4.38	4.16	Clay/Sand/Gravel	38.1	267.19	268.10	-
MW06-1	4933292	728502	271.01	270.40	0.61	7.85	7.24	Limestone/Shale	50.8	266.31	266.37	266.10
MW06-2			271.01	270.41	0.60	5.13	4.53	Sand/Gravel	38.1	267.37	268.07	267.11
MW07-1	4933309	728559	269.03	268.24	0.79	6.98	6.19	Limestone	50.8	265.77	266.08	265.68
MW07-2			269.03	268.29	0.74	3.37	2.63	Limestone	50.8	266.63	266.78	266.34
MW08-1	4933413	728836	270.74	270.05	0.69	11.31	10.62	Limestone	50.8	265.69	266.12	265.36
MW08-2			270.74	270.04	0.70	7.70	7.00	Limestone	50.8	264.93	265.93	264.25
MW09-1	4933295	728829	267.25	266.57	0.68	9.92	9.24	Limestone	50.8	266.31	266.45	266.17
MW09-2			267.25	266.57	0.68	6.16	5.48	Limestone	50.8	265.72	266.05	265.31
MW10-1	4933194	728760	267.97	267.23	0.74	9.89	9.15	Limestone	50.8	265.77	265.85	265.49
MW10-2			267.97	267.24	0.73	6.65	5.92	Limestone	50.8	265.76	265.75	265.53
MW11-1	4933098	728755	268.50	267.80	0.70	9.96	9.26	Limestone	50.8	265.92	265.96	265.50
MW11-2			268.50	267.78	0.72	6.74	6.02	Limestone	50.8	265.75	265.75	265.51
MW12-1	4933218	728573	268.00	267.11	0.89	6.84	5.95	Limestone	50.8	266.24	266.32	266.06
MW12-2			268.00	267.09	0.91	10.21	9.30	Limestone	50.8	266.30	266.35	266.16
MW12-3			268.00	267.10	0.90	13.09	12.19	Limestone	50.8	266.59	266.46	266.13
MW13-1	4933149	728378			0.86	6.04	5.18	Limestone	50.8	-	-	-
MW13-2					0.86	3.76	2.90	Gravel/Limestone	50.8	-	-	-

Notes:

1. All measurements are reported relative to an assumed elevation of the site benchmark.
2. MW13 has not been surveyed and therefore water level elevations could not be determined



Table 2 - Groundwater Elevation Data

Monitor	UTM (Zone 17)		Top of Casing Elevation (m)	Ground Elevation (m)	Measured Stick-Up (m)	Well Depth (mTOP)	Well Depth (m)	Screened Unit	Well Diameter (mm)	Water Level Elevation (mASL)	
	mN	mE								6/24 and 28/2021	11-Nov-21
MW01-1	4933341	728326	271.24	270.42	0.82	7.65	6.83	Limestone/Shale	50.8	267.92	268.30
MW01-2			271.24	270.42	0.82	2.74	1.92	Clay/Gravel	38.1	-	-
MW02-1	4933327	728431	282.49	282.27	0.22	15.33	15.11	Limestone/Shale	50.8	268.17	-
MW02-2			282.53	282.32	0.21	5.45	5.24	Sand/Gravel	50.8	-	-
MW03-1	4933262	728468	269.23	268.57	0.66	5.51	4.85	Limestone	50.8	266.90	267.48
MW03-2			269.23	268.74	0.49	1.72	1.23	Clay/Sand/Gravel	38.1	-	267.84
MW04-1	4933239	728549	268.28	267.36	0.92	5.62	4.70	Limestone/Shale	50.8	265.82	266.23
MW04-2			268.28	267.43	0.85	2.99	2.14	Gravel/Limestone	38.1	265.99	266.41
MW05-1	4933370	728530	271.35	-	Below Grade	7.68	7.68	Limestone	50.8	266.25	266.70
MW05-2			271.35	271.13	0.22	4.38	4.16	Clay/Sand/Gravel	38.1	267.46	267.47
MW06-1	4933292	728502	271.01	270.40	0.61	7.85	7.24	Limestone/Shale	50.8	265.92	266.34
MW06-2			271.01	270.41	0.60	5.13	4.53	Sand/Gravel	38.1	267.45	267.53
MW07-1	4933309	728559	269.03	268.24	0.79	6.98	6.19	Limestone	50.8	266.13	265.62
MW07-2			269.03	268.29	0.74	3.37	2.63	Limestone	50.8	266.21	266.62
MW08-1	4933413	728836	270.74	270.05	0.69	11.31	10.62	Limestone	50.8	265.30	265.64
MW08-2			270.74	270.04	0.70	7.70	7.00	Limestone	50.8	264.23	264.79
MW09-1	4933295	728829	267.25	266.57	0.68	9.92	9.24	Limestone	50.8	266.05	266.37
MW09-2			267.25	266.57	0.68	6.16	5.48	Limestone	50.8	265.28	265.64
MW10-1	4933194	728760	267.97	267.23	0.74	9.89	9.15	Limestone	50.8	265.41	265.84
MW10-2			267.97	267.24	0.73	6.65	5.92	Limestone	50.8	265.33	265.75
MW11-1	4933098	728755	268.50	267.80	0.70	9.96	9.26	Limestone	50.8	265.37	265.75
MW11-2			268.50	267.78	0.72	6.74	6.02	Limestone	50.8	265.29	265.72
MW12-1	4933218	728573	268.00	267.11	0.89	6.84	5.95	Limestone	50.8	265.84	266.28
MW12-2			268.00	267.09	0.91	10.21	9.30	Limestone	50.8	265.88	266.37
MW12-3			268.00	267.10	0.90	13.09	12.19	Limestone	50.8	265.94	266.38
MW13-1	4933149	728378			0.86	6.04	5.18	Limestone	50.8	-	-
MW13-2					0.86	3.76	2.90	Gravel/Limestone	50.8	-	-

Notes:

1. All measurements are reported relative to an assumed elevation of the site benchmark.
2. MW13 has not been surveyed and therefore water level elevations could not be determined



**Table 3 - Vertical Hydraulic Gradients**

Monitor	Geologic Unit in Which Screen is Completed	Difference in Elevation of Bottom of Screen	Vertical Gradient (+ downward gradient, - upward gradient)			
			26-May-20	20-Nov-20	6/24 and 28/2021	11-Nov-21
MW01-1	Limestone/Shale	-4.91	-	-	-	-
MW01-2	Clay/Gravel					
MW02-1	Limestone/Shale	-9.92	-	-	-	-
MW02-2	Sand/Gravel					
MW03-1	Limestone	-3.79	0.28	0.09	-	0.09
MW03-2	Clay/Sand/Gravel					
MW04-1	Limestone/Shale	-2.63	0.07	0.06	0.06	0.07
MW04-2	Gravel/Limestone					
MW05-1	Limestone	-3.30	0.41	-	0.37	0.23
MW05-2	Clay/Sand/Gravel					
MW06-1	Limestone/Shale	-2.72	0.62	0.37	0.56	0.44
MW06-2	Sand/Gravel					
MW07-1	Limestone	-3.61	0.19	0.18	0.02	0.28
MW07-2	Clay/Gravel					
MW08-1	Limestone	-3.61	-0.05	-0.31	-0.30	-0.24
MW08-2	Gravel/Sand					
MW09-1	Limestone	-3.76	-0.11	-0.23	-0.20	-0.19
MW09-2	Gravel					
MW10-1	Limestone	-3.24	-0.03	0.01	-0.02	-0.03
MW10-2	Gravel					
MW11-1	Limestone	-3.22	-0.07	0.00	-0.02	-0.01
MW11-2	Gravel					
MW12-1	Gravel	-3.37	-0.01	-0.03	-0.01	-0.03
MW12-2	Limestone					
MW12-1	Gravel	-6.25	-0.02	-0.01	-0.02	-0.02
MW12-3	Limestone					
MW12-2	Limestone	-2.88	0.04	-0.01	-0.02	0.00
MW12-3	Limestone					
MW13-1	Gravel	-	-	-	-	-
MW13-2	Limestone	-	-	-	-	-

Note:

1. All measurements are in meters unless otherwise stated.
2. Positive value indicates a downward vertical gradient and a negative value indicates an upward vertical gradient.



Table 4 - Groundwater Quality - Overburden

Unit	RDL	Hall's Glen OB RUC	ODWQS	Location Date	MW03-2							
					2011-11-01	2012-05-24	2013-06-12	2013-11-05	2014-06-25	2014-11-11	2015-05-22	
<b>Metals</b>												
Arsenic (Filtered)	µg/L	0.1	6.4	25	-	-	-	-	-	1.3	0.7	
Barium (Filtered)	µg/L	0.01	353	1000	598	576	455	480	375	596	494	
Boron (Filtered)	µg/L	0.2	2523	5000	315	343	326	324	355	397	420	
Calcium (Filtered)	µg/L	10			241,000	193,000	177,000	183,000	122,000	235,000	192,000	
Cadmium (Filtered)	µg/L	0.003		5	-	-	-	-	-	0.003	0.009	
Chloride (Filtered)	µg/L	200	153350	250000	35,000	17,000	12,000	18,000	28,000	28,000	26,000	
Chromium (III+VI) (Filtered)	µg/L	0.03		50	-	-	-	-	-	0.22	0.18	
Copper (Filtered)	µg/L	0.02		1000	-	-	-	-	-	1.28	1.7	
Iron (Filtered)	µg/L	2	160	300	25,500	22,300	19,300	7270	7850	14,600	9160	
Lead (Filtered)	µg/L	0.01		10	-	-	-	-	-	0.04	0.01	
Manganese (Filtered)	µg/L	0.01	25.93	50	-	-	-	-	-	6210	4860	
Magnesium (Filtered)	µg/L	1			31,000	26,700	22,200	26,800	18,300	26,600	23,200	
Mercury (Filtered)	µg/L	0.01		1	-	-	-	-	-	-	-	
Phosphorus (Filtered)	µg/L	3			-	-	-	-	-	-	<30	
Potassium (Filtered)	µg/L	2			-	-	-	-	-	24,800	20,000	
Sodium (Filtered)	µg/L	10	118100	200000	43,200	34,600	45,400	88,100	126,000	29,500	65,800	
Zinc (Filtered)	µg/L	2		5000	-	-	-	-	-	2	3	
<b>Inorganics</b>												
Alkalinity (as CaCO3)	mg/L	2	395	500	685	650	615	772	689	717	655	
Hardness (as CaCO3) (Filtered)	mg/L	1	425	500	-	-	-	-	-	-	-	
Solids - Total Dissolved (TDS)	mg/L	3	459	500	849	760	786	920	830	851	809	
Oxygen Demand - Chemical (COD)	mg/L	5			70	48	44	22	28	27	33	
Solids - Total Suspended (TSS)	mg/L	2			47	-	-	-	-	-	26	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	4.05	5	4.4	11.3	4	10	11.5	8.9	-	
Oxygen Demand - Biological (BOD)	mg/L	2			<2	-	-	-	-	-	<4	
Phenols (4AAP)	mg/L	0.001			-	-	-	-	-	-	0.002	
Sulphate	mg/L	0.2	259	500	17	24	59	23	95	50	80	
Ammonia	mg/L	0.01			1	2.3	0.8	0.6	2.5	2.5	3.2	
Nitrate (as N)	mg/L	0.05	3.34	10	<0.05	0.59	<0.06	0.19	<0.06	0.32	0.09	
Nitrite (as N)	mg/L	0.03		1	<0.06	-	-	-	-	-	<0.03	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			-	-	-	-	-	-	3.4	
Conductivity (lab)	µS/cm	1			1350	1220	1230	1470	1360	1360	1280	
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5	7.82	7.51	7.59	7.85	7.47	7.99	7.89	
<b>Field</b>												
DO (Field)	mg/L				-	-	-	-	-	-	-	
Redox Potential (Field)	mV				-	-	-	-	-	-	-	
Temp (Field)	°C				-	-	-	-	-	-	-	
Conductivity (field)	µS/cm				-	-	-	-	-	-	-	
pH (Field)	-			6.5-8.5	-	-	-	-	-	-	-	



Table 4 - Groundwater Quality - Overburden

Unit	RDL	Hall's Glen OB RUC	ODWQS	Location	MW03-2								
				Date	2015-11-19	2016-05-30	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-11-11	
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	6.4	25	1	0.4	0.2	0.3	0.3	0.3	0.3	0.3	
Barium (Filtered)	µg/L	0.01	353	1000	475	402	175	237	237	157	240	320	
Boron (Filtered)	µg/L	0.2	2523	5000	305	303	563	827	827	466	408	550	
Calcium (Filtered)	µg/L	10			229,000	191,000	246,000	325,000	325,000	222,000	296,000	296,000	
Cadmium (Filtered)	µg/L	0.003		5	0.013	0.004	0.018	0.03	0.03	0.039	0.078	0.057	
Chloride (Filtered)	µg/L	200	153350	250000	28,000	12,000	37,000	100,000	100,000	54,000	59,000	67,700	
Chromium (III+VI) (Filtered)	µg/L	0.03		50	0.22	0.54	0.19	0.3	0.3	0.32	0.58	<1	
Copper (Filtered)	µg/L	0.02		1000	0.74	1.75	1.1	3.1	3.1	2	6.1	2	
Iron (Filtered)	µg/L	2	160	300	4410	4820	132	20	20	28	1390	147	
Lead (Filtered)	µg/L	0.01		10	0.16	0.07	0.02 - 7	0.03	0.03	0.01	1.27	0.06	
Manganese (Filtered)	µg/L	0.01	25.93	50	4530	3180	3240	52	52	822	1010	1400	
Magnesium (Filtered)	µg/L	1			22,300	21,600	22,000	24,400	24,400	27,200	24,100	28,500	
Mercury (Filtered)	µg/L	0.01		1	<0.01	0.01	<10	<10	<10	20	<10	<0.02	
Phosphorus (Filtered)	µg/L	3			<30	8	0.02	-	110	270	560	90	
Potassium (Filtered)	µg/L	2			20,100	19,100	16,900	21,100	21,100	22,900	26,600	25,100	
Sodium (Filtered)	µg/L	10	118100	200000	26,600	57,700	38,300	43,300	43,300	107,000	45,700	59,200	
Zinc (Filtered)	µg/L	2		5000	3	4	3	4	4	<2	5	<5	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	395	500	380	286	538	559	559	674	841	745	
Hardness (as CaCO3) (Filtered)	mg/L	1	425	500	-	-	-	-	-	-	-	857	
Solids - Total Dissolved (TDS)	mg/L	3	459	500	671	389	677	1120	1120	814	900	907	
Oxygen Demand - Chemical (COD)	mg/L	5			35	26	11	20	20	26	<8	40	
Solids - Total Suspended (TSS)	mg/L	2			29	10	713	183	183	379	1200	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	4.05	5	-	-	-	-	-	-	-	10.1	
Oxygen Demand - Biological (BOD)	mg/L	2			<4	<4	<4	<4	<4	14	5	-	
Phenols (4AAP)	mg/L	0.001			<0.002	0.004	<0.001	0.002	0.002	<0.001	<0.001	<0.002	
Sulphate	mg/L	0.2	259	500	84	35	70	210	210	89	62	51	
Ammonia	mg/L	0.01			0.6	1.9	0.7	0.1	0.1	0.6	1.5	0.62	
Nitrate (as N)	mg/L	0.05	3.34	10	1.23	0.12	1.01	5.39	5.39	1.76	5.18	0.42	
Nitrite (as N)	mg/L	0.03		1	<0.03	<0.03	0.33	0.03	0.03	0.05	0.49	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			0.6	2.3	0.6	<0.5	<0.5	1.3	2.2	1.7	
Conductivity (lab)	µS/cm	1			1120	710	1110	1630	1630	1360	1360	1660	
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5	7.46	7.86	7.42	7.58	7.58	7.36	7.63	7.53	
<b>Field</b>													
DO (Field)	mg/L				-	-	3.7	-	-	-	7.2	4.28	
Redox Potential (Field)	mV				-	-	86	-	-	-	29	85	
Temp (Field)	°C				-	-	11.3	-	-	13.6	10	9.7	
Conductivity (field)	µS/cm				-	-	490	-	-	-	973	671	
pH (Field)	-			6.5-8.5	-	-	7	-	-	6.9	7.1	6.78	





Table 4 - Groundwater Quality - Overburden

Unit	RDL	Hall's Glen OB RUC	ODWQS	Location	MW04-2	MW04-2	MW04-2	MW04-2	MW04-2	MW04-2	MW04-2	MW04-2	
				Date	2017-10-04	2019-05-30	2019-10-29	2019-11-11	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	6.4	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.1	<0.1	
Barium (Filtered)	µg/L	0.01	353	1000	177	87.7	156	156	90	128	136	160	
Boron (Filtered)	µg/L	0.2	2523	5000	45	34	36	36	22	34	33	41	
Calcium (Filtered)	µg/L	10			128,000	92,900	120,000	120,000	90,800	115,000	122,000	121,000	
Cadmium (Filtered)	µg/L	0.003		5	0.007	<0.003 - 0.003	0.004	0.004	<0.003	0.004	<0.015	<0.015	
Chloride (Filtered)	µg/L	200	153350	250000	70,000	2000	34,000	34,000	5000	53,000	26,200	31,400	
Chromium (III+VI) (Filtered)	µg/L	0.03		50	0.24	0.13	0.18	0.18	0.2	0.25	<1	<1	
Copper (Filtered)	µg/L	0.02		1000	0.96	0.2	1.4	1.4	0.7	0.8	4	1.7	
Iron (Filtered)	µg/L	2	160	300	<7	<7	<7	<7	<7	11	135	<5	
Lead (Filtered)	µg/L	0.01		10	<0.01	<0.01	0.02	0.02	0.01	0.04	0.28	0.04	
Manganese (Filtered)	µg/L	0.01	25.93	50	1.13	0.41	0.99	0.99	0.73	2.54	20	2	
Magnesium (Filtered)	µg/L	1			4240	2200	3750	3750	2640	3240	4040	3960	
Mercury (Filtered)	µg/L	0.01		1	<10	<10	<10	<10	20	<10	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	3			<30	<0.01	-	390	550	520	420	1270	
Potassium (Filtered)	µg/L	2			2170	729	1560	1560	911	1280	1600	2000	
Sodium (Filtered)	µg/L	10	118100	200000	26,000	5320	24,400	24,400	7430	16,100	16,300	26,000	
Zinc (Filtered)	µg/L	2		5000	<2	<2	2	2	<2	<2	<5	<5	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	395	500	302	218	287	287	382	490	263	270	
Hardness (as CaCO3) (Filtered)	mg/L	1	425	500	-	-	-	-	-	-	322	319	
Solids - Total Dissolved (TDS)	mg/L	3	459	500	463	186	374	374	251	406	308	334	
Oxygen Demand - Chemical (COD)	mg/L	5			<8	<8	<8	<8	10	<8	42	13	
Solids - Total Suspended (TSS)	mg/L	2			5	653	1130	1130	3020	1420	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	4.05	5	-	-	-	-	-	-	3.4	1.7	
Oxygen Demand - Biological (BOD)	mg/L	2			10	<4	<4	<4	4	<4	-	-	
Phenols (4AAP)	mg/L	0.001			<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.002	<0.002	
Sulphate	mg/L	0.2	259	500	13	<2	6	6	4	13	13	10	
Ammonia	mg/L	0.01			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.02	0.03	
Nitrate (as N)	mg/L	0.05	3.34	10	0.68	<0.06	0.45	0.45	<0.06	1.49	0.55	0.49	
Nitrite (as N)	mg/L	0.03		1	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.3	0.5	
Conductivity (lab)	µS/cm	1			769	320	705	705	415	680	594	644	
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5	7.94	7.77	7.93	7.93	7.79	7.76	7.8	7.75	
<b>Field</b>													
DO (Field)	mg/L				-	8.6	10.5	-	-	8.5	9.71	7.53	
Redox Potential (Field)	mV				-	-23	134	-	-	32	145	28	
Temp (Field)	°C				-	10.3	10.3	-	13	10.6	9	9.5	
Conductivity (field)	µS/cm				-	295	565	-	-	458	569	277	
pH (Field)	-			6.5-8.5	-	7.8	8.1	-	7.6	7.6	7.53	7.1	



Table 4 - Groundwater Quality - Overburden

	Unit	RDL	Hall's Glen OB RUC	ODWQS	Location	MW05-2	MW05-2	MW05-2	MW05-2
					Date	2019-05-30	2020-05-26	2021-06-24	2021-11-11
<b>Metals</b>									
Arsenic (Filtered)	µg/L	0.1	6.4	25		0.7	1.4	3.1	4.2
Barium (Filtered)	µg/L	0.01	353	1000		667	700	910	936
Boron (Filtered)	µg/L	0.2	2523	5000		401	427	662	477
Calcium (Filtered)	µg/L	10				281,000	264,000	269,000	245,000
Cadmium (Filtered)	µg/L	0.003		5		0.012	0.017	<0.029	<0.015
Chloride (Filtered)	µg/L	200	153350	250000		93,000	110,000	172,000	149,000
Chromium (III+VI) (Filtered)	µg/L	0.03		50		0.72	0.79	1	1
Copper (Filtered)	µg/L	0.02		1000		1.6	1	2.3	2
Iron (Filtered)	µg/L	2	160	300		13,300	26,100	34,400	42,100
Lead (Filtered)	µg/L	0.01		10		<3 - 0.14	0.11	2.49	0.2
Manganese (Filtered)	µg/L	0.01	25.93	50		6610	8520	6230	4300
Magnesium (Filtered)	µg/L	1				27,800	29,000	33,400	26,800
Mercury (Filtered)	µg/L	0.01		1		<10	20	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3				0.14	320	410	760
Potassium (Filtered)	µg/L	2				24,400	27,200	41,800	40,700
Sodium (Filtered)	µg/L	10	118100	200000		63,600	77,100	117,000	83,800
Zinc (Filtered)	µg/L	2		5000		4	6	6	7
<b>Inorganics</b>									
Alkalinity (as CaCO3)	mg/L	2	395	500		806	780	826	700
Hardness (as CaCO3) (Filtered)	mg/L	1	425	500		-	-	810	723
Solids - Total Dissolved (TDS)	mg/L	3	459	500		934	900	1080	983
Oxygen Demand - Chemical (COD)	mg/L	5				47	62	113	160
Solids - Total Suspended (TSS)	mg/L	2				124	800	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	4.05	5		-	-	14.1	10.5
Oxygen Demand - Biological (BOD)	mg/L	2				6	66	-	-
Phenols (4AAP)	mg/L	0.001				0.005	0.005	<0.002	<0.002
Sulphate	mg/L	0.2	259	500		9	9	7	9
Ammonia	mg/L	0.01				11	13.6	26.4	23.2
Nitrate (as N)	mg/L	0.05	3.34	10		0.23	0.07	0.2	0.1
Nitrite (as N)	mg/L	0.03		1		<0.03	<0.03	<0.05	<0.05
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1				11.8	13.5	30.3	30.4
Conductivity (lab)	µS/cm	1				1600	1560	1960	1790
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5		6.86	7.18	7.67	7.56
<b>Field</b>									
DO (Field)	mg/L					9.6	-	6.67	6.47
Redox Potential (Field)	mV					101	-	140	121
Temp (Field)	°C					12.1	13.1	9.3	8.5
Conductivity (field)	µS/cm					1236	-	1962	786
pH (Field)	-			6.5-8.5		7	6.7	7.15	6.63





Table 4 - Groundwater Quality - Overburden

		Hall's Glen OB RUC	ODWQS	Location	MW06-2	MW06-2								
Unit	RDL			Date	2016-11-01	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>														
Arsenic (Filtered)	µg/L	0.1	6.4	25	1.4	1.4	1.6	1.2	1.2	0.6	1	2.4	1.7	
Barium (Filtered)	µg/L	0.01	353	1000	499	529	685	467	467	544	401	699	540	
Boron (Filtered)	µg/L	0.2	2523	5000	876	688	831	753	753	739	557	1080	833	
Calcium (Filtered)	µg/L	10			271,000	344,000	372,000	322,000	322,000	342,000	305,000	310,000	268,000	
Cadmium (Filtered)	µg/L	0.003		5	0.011	0.005	0.012	0.016	0.016	0.014	0.014	<0.029	<0.015	
Chloride (Filtered)	µg/L	200	153350	250000	140,000	130,000	80,000	110,000	110,000	92,000	140,000	167,000	98,800	
Chromium (III+VI) (Filtered)	µg/L	0.03		50	1.4	1.81	1.18	0.8	0.8	1.13	1.04	2	8	
Copper (Filtered)	µg/L	0.02		1000	1.81	4.18	5.4	8.7	8.7	5.1	14.5	7.4	1.6	
Iron (Filtered)	µg/L	2	160	300	4360	8920	15,600	3860	3860	7210	4590	21,700	9810	
Lead (Filtered)	µg/L	0.01		10	0.03	0.02	0.2 - 13	0.01	<0.01	0.02	0.09	0.46	0.04	
Manganese (Filtered)	µg/L	0.01	25.93	50	7320	10,500	8400	5340	5340	8490	6340	8580	7250	
Magnesium (Filtered)	µg/L	1			43,000	43,400	48,000	30,800	30,800	42,400	33,100	47,100	35,700	
Mercury (Filtered)	µg/L	0.01		1	0.01	<10	<10	20	20	40	<10	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	3			23	<30	0.2	-	60	80	40	40	30	
Potassium (Filtered)	µg/L	2			48,400	36,000	40,300	33,900	33,900	38,400	33,400	51,400	43,700	
Sodium (Filtered)	µg/L	10	118100	200000	135,000	107,000	109,000	101,000	101,000	90,800	91,000	158,000	101,000	
Zinc (Filtered)	µg/L	2		5000	6	<2	5	<2	<2	3	3	6	<5	
<b>Inorganics</b>														
Alkalinity (as CaCO3)	mg/L	2	395	500	1050	1048	792	951	951	1090	973	1120	878	
Hardness (as CaCO3) (Filtered)	mg/L	1	425	500	-	-	-	-	-	-	-	969	817	
Solids - Total Dissolved (TDS)	mg/L	3	459	500	1300	1710	1010	1240	1240	1370	1200	1350	1100	
Oxygen Demand - Chemical (COD)	mg/L	5			82	99	70	68	68	102	98	119	73	
Solids - Total Suspended (TSS)	mg/L	2			11	29	228	110	110	115	92	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	4.05	5	-	-	-	-	-	-	-	22.3	17.7	
Oxygen Demand - Biological (BOD)	mg/L	2			<4	<4	<4	21	21	6	<4	-	-	
Phenols (4AAP)	mg/L	0.001			0.002	0.005	0.006	0.006	0.006	0.005	<0.001	<0.002	<0.002	
Sulphate	mg/L	0.2	259	500	55	210	170	61	61	150	64	83	65	
Ammonia	mg/L	0.01			25.4	18.7	22.1	23.3	23.3	31.8	27	43	28.4	
Nitrate (as N)	mg/L	0.05	3.34	10	<0.06	0.08	<0.06	3.72	3.72	<0.06	0.14	0.06	<0.05	
Nitrite (as N)	mg/L	0.03		1	<0.03	<0.03	<0.03	0.04	0.04	<0.03	<0.03	<0.05	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			26.2	22.6	22.5	25.4	25.4	32.8	28.7	48	30.8	
Conductivity (lab)	µS/cm	1			2170	2490	1640	2010	2010	2190	1940	2440	1990	
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5	7.31	7.25	6.98	7.6	7.6	7.25	7.67	7.54	7.64	
<b>Field</b>														
DO (Field)	mg/L				-	-	3.3	11.8	-	-	7.4	8.96	8.02	
Redox Potential (Field)	mV				-	-	-88	55	-	-	-72	162	102	
Temp (Field)	°C				-	-	11.7	10.9	-	12.9	10.6	10	9.7	
Conductivity (field)	µS/cm				-	-	1953	832	-	-	973	2433	788	
pH (Field)	-			6.5-8.5	-	-	6.9	6.7	-	6.6	7	7.29	6.83	





Table 4 - Groundwater Quality - Overburden

Unit	RDL	Hall's Glen OB RUC	ODWQS	Location	MW07-2	MW07-2	MW07-2	MW07-2	MW07-2	MW07-2	MW07-2	MW07-2	
				Date	2017-10-04	2019-05-30	2019-10-29	2019-11-11	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	6.4	25	<0.2	<0.2	0.4	0.4	<0.2	<0.2	0.2	0.2	
Barium (Filtered)	µg/L	0.01	353	1000	375	87.6	211	211	83.8	183	416	364	
Boron (Filtered)	µg/L	0.2	2523	5000	260	55	138	138	46	62	324	294	
Calcium (Filtered)	µg/L	10			190,000	72,100	130,000	130,000	74,600	134,000	200,000	177,000	
Cadmium (Filtered)	µg/L	0.003		5	<0.003	<0.003 - 0.003	0.003	0.003	<0.003	<0.003	<0.015	<0.015	
Chloride (Filtered)	µg/L	200	153350	250000	76,000	6000	35,000	35,000	10,000	53,000	104,000	80,300	
Chromium (III+VI) (Filtered)	µg/L	0.03		50	0.78	0.17	0.3	0.3	0.19	0.34	<1	9	
Copper (Filtered)	µg/L	0.02		1000	3.72	0.7	3.1	3.1	0.6	1.5	4.6	3.9	
Iron (Filtered)	µg/L	2	160	300	12	8	<7	<7	<7	16	51	31	
Lead (Filtered)	µg/L	0.01		10	0.01	<3 - 0.02	0.03	0.03	<0.01	0.07	0.25	0.3	
Manganese (Filtered)	µg/L	0.01	25.93	50	1.16	0.92	0.29	0.29	0.3	2.94	22	7	
Magnesium (Filtered)	µg/L	1			16,100	3710	10,100	10,100	3180	7130	21,300	16,900	
Mercury (Filtered)	µg/L	0.01		1	<10	<10	20	20	<10	<10	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	3			180	0.02	-	60	90	60	80	50	
Potassium (Filtered)	µg/L	2			8690	1330	5410	5410	631	2600	10,300	8200	
Sodium (Filtered)	µg/L	10	118100	200000	50,200	17,300	29,800	29,800	12,600	17,000	82,800	69,900	
Zinc (Filtered)	µg/L	2		5000	<2	2	<2	<2	<2	<2	<5	<5	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	395	500	530	191	322	322	212	397	510	474	
Hardness (as CaCO3) (Filtered)	mg/L	1	425	500	-	-	-	-	-	-	588	511	
Solids - Total Dissolved (TDS)	mg/L	3	459	500	791	209	451	451	223	611	659	659	
Oxygen Demand - Chemical (COD)	mg/L	5			23	<8	<8	<8	10	<8	33	33	
Solids - Total Suspended (TSS)	mg/L	2			<2	148	178	178	264	323	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	4.05	5	-	-	-	-	-	-	9.1	6.7	
Oxygen Demand - Biological (BOD)	mg/L	2			7	<4	<4	<4	<4	<4	-	-	
Phenols (4AAP)	mg/L	0.001			0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.002	<0.002	
Sulphate	mg/L	0.2	259	500	47	11	15	15	5	19	37	29	
Ammonia	mg/L	0.01			0.4	<0.1	<0.1	<0.1	<0.1	<0.1	0.39	0.06	
Nitrate (as N)	mg/L	0.05	3.34	10	0.19	0.08	1.36	1.36	<0.06	1.62	0.48	4.96	
Nitrite (as N)	mg/L	0.03		1	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	0.7	
Conductivity (lab)	µS/cm	1			1240	331	691	691	383	840	1220	1220	
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5	7.81	7.84	7.92	7.92	7.95	7.78	7.72	7.8	
<b>Field</b>													
DO (Field)	mg/L				-	9.8	9.8	-	-	10.2	6.88	7.35	
Redox Potential (Field)	mV				-	63	86	-	-	31	132	135	
Temp (Field)	°C				-	11.3	11.1	-	14.4	9.4	11.1	9	
Conductivity (field)	µS/cm				-	370	1662	-	-	579	1048	503	
pH (Field)	-			6.5-8.5	-	7.7	6.7	-	7.1	8	7.51	6.98	





Table 4 - Groundwater Quality - Overburden

Unit	RDL	Hall's Glen OB RUC	ODWQS	Location	R1									
				Date	2017-02-24	2017-05-31	2017-10-04	2019-10-29	2019-10-29	2020-05-26	2020-11-18	2020-11-18	2021-06-28	2021-11-11
<b>Metals</b>														
Arsenic (Filtered)	µg/L	0.1	6.4	25	<0.2	<0.2	<0.2	0.5	0.5	<0.2	<0.2	<0.2	0.3	0.2
Barium (Filtered)	µg/L	0.01	353	1000	81.6	63.6	92.9	262	262	76.8	175	175	165	144
Boron (Filtered)	µg/L	0.2	2523	5000	5	13	38	100	100	13	33	33	20	12
Calcium (Filtered)	µg/L	10			110,000	85,300	107,000	111,000	111,000	83,300	131,000	131,000	123,000	112,000
Cadmium (Filtered)	µg/L	0.003		5	0.01	0.01	0.026	0.131	0.131	0.015	0.005	0.005	0.054	0.02
Chloride (Filtered)	µg/L	200	153350	250000	120,000	50,000	46,000	55,000	55,000	58,000	92,000	92,000	51,700	70,900
Chromium (III+VI) (Filtered)	µg/L	0.03		50	0.54	0.73	0.69	1.59	1.59	0.17	0.89	0.89	1	<1
Copper (Filtered)	µg/L	0.02		1000	0.66	0.84	0.87	4.4	4.4	0.9	1.1	1.1	2.5	0.8
Iron (Filtered)	µg/L	2	160	300	43	<7	102	664	664	<7	22	22	577	150
Lead (Filtered)	µg/L	0.01		10	0.08	0.03	1.81	1.34	1.34	0.02	0.03	0.03	0.83	0.26
Manganese (Filtered)	µg/L	0.01	25.93	50	2.37	0.3	27.1	3270	3270	0.33	3.43	3.43	940	726
Magnesium (Filtered)	µg/L	1			3550	2600	3920	7540	7540	2980	-	4910	4640	3750
Mercury (Filtered)	µg/L	0.01		1	<0.01	<10	-	-	-	<10	-	-	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3			<30 - 20	<30	-	-	74	<30	-	-	960	2070
Potassium (Filtered)	µg/L	2			756	897	1460	4300	4300	870	1920	1920	1500	1000
Sodium (Filtered)	µg/L	10	118100	200000	63,000	35,900	30,400	31,000	31,000	36,000	45,900	45,900	36,500	45,200
Zinc (Filtered)	µg/L	2		5000	3	5	12	10	10	4	3	3	<5	<5
<b>Inorganics</b>														
Alkalinity (as CaCO3)	mg/L	2	395	500	212	207	299	273	273	1710	298	298	254	259
Hardness (as CaCO3) (Filtered)	mg/L	1	425	500	-	-	-	-	-	-	-	-	327	295
Solids - Total Dissolved (TDS)	mg/L	3	459	500	463	326	403	423	423	337	460	460	353	382
Oxygen Demand - Chemical (COD)	mg/L	5			<8	<8	10	<8	<8	<8	<8	<8	450	82
Solids - Total Suspended (TSS)	mg/L	2			<2	-	-	-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	4.05	5	-	2	4	1	1	3	1	1	3.7	2.8
Oxygen Demand - Biological (BOD)	mg/L	2			<4	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.001			<0.001	<0.002	-	-	-	<0.002	-	-	<0.002	<0.002
Sulphate	mg/L	0.2	259	500	14	5	5	18	18	4	15	15	10	10
Ammonia	mg/L	0.01			<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	0.08	<0.01
Nitrate (as N)	mg/L	0.05	3.34	10	0.26	0.29	-	1.43	1.43	0.09	1.78	1.78	1.58	0.39
Nitrite (as N)	mg/L	0.03		1	<0.03	<0.03	0.68	-	-	<0.03	-	-	<0.05	<0.05
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			<0.5	<0.5	-	-	-	<0.5	-	-	1.1	2.4
Conductivity (lab)	µS/cm	1			817	546	680	721	721	611	864	864	679	732
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5	7.9	7.88	7.61	7.93	7.93	8.03	8.13	8.14	7.74	8.03
<b>Field</b>														
DO (Field)	mg/L				-	-	-	-	-	-	-	-	4.89	4.1
Redox Potential (Field)	mV				-	-	-	-	-	-	-	-	125	8
Temp (Field)	°C				-	-	-	-	-	-	-	-	10.4	9.4
Conductivity (field)	µS/cm				-	-	-	-	-	-	-	-	678	319
pH (Field)	-			6.5-8.5	-	-	-	-	-	-	-	-	7.18	7.06



**Table 5 - Groundwater Quality - Shallow Bedrock**

	Unit	RDL	Hall's Glen BR RUC	ODWQS	Location Date	MW01-1 2011-11-01	MW01-1 2012-05-24	MW01-1 2012-10-24	MW01-1 2013-06-12	MW01-1 2013-11-05	MW01-1 2014-06-25	MW01-1 2014-11-14
<b>Metals</b>												
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>		-	-	-	-	-	-	1
Barium (Filtered)	µg/L	0.01	<b>390</b>	<b>1000</b>		307	287	304	254	250	283	251
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>		85.5	92.9	101	80.7	80.1	90.3	109
Calcium (Filtered)	µg/L	10				170,000	154,000	147,000	137,000	139,000	150,000	146,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>		-	-	-	-	-	-	0.007
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>		170,000	150,000	150,000	170,000	180,000	180,000	160,000
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>		-	-	-	-	-	-	4.44
Copper (Filtered)	µg/L	0.02		<b>1000</b>		-	-	-	-	-	-	3.12
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>		6	7	<3	4	<3	2	<2
Lead (Filtered)	µg/L	0.01		<b>10</b>		-	-	-	-	-	-	0.03
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>		-	-	-	-	-	-	0.21
Magnesium (Filtered)	µg/L	1				13,800	15,000	13,600	13,200	13,000	14,000	14,000
Mercury (Filtered)	µg/L	0.01		<b>1</b>		-	-	-	-	-	-	-
Phosphorus (Filtered)	µg/L	3				-	-	-	-	-	-	-
Potassium (Filtered)	µg/L	2				-	-	-	-	-	-	6200
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>		79,500	84,000	74,900	80,500	73,600	59,800	79,500
Zinc (Filtered)	µg/L	2		<b>5000</b>		-	-	-	-	-	-	3
<b>Inorganics</b>												
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>		298	338	318	283	318	309	338
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>		-	-	-	-	-	-	-
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>		<b>737</b>	<b>710</b>	<b>771</b>	<b>680</b>	<b>757</b>	<b>700</b>	<b>723</b>
Oxygen Demand - Chemical (COD)	mg/L	5				<8	<8	10	9	<8	<8	90
Solids - Total Suspended (TSS)	mg/L	2				<2	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>		2.2	2.6	2.2	2	<b>5.7</b>	<b>4.2</b>	1.3
Oxygen Demand - Biological (BOD)	mg/L	2				<2	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.001				-	-	-	-	-	-	-
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>		77	78	80	74	73	69	73
Ammonia	mg/L	0.01				<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>		<b>4.34</b>	<b>4.13</b>	4.03	3.66	3.62	3.15	3.1
Nitrite (as N)	mg/L	0.03		<b>1</b>		<0.06	-	-	-	-	-	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1				-	-	-	-	-	-	-
Conductivity (lab)	µS/cm	1				1160	1250	1250	1180	1250	1170	1190
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>		8.03	7.91	7.8	7.87	8.12	7.96	7.99
<b>Field</b>												
DO (Field)	mg/L					-	-	-	-	-	-	-
Redox Potential (Field)	mV					-	-	-	-	-	-	-
Temp (Field)	°C					-	-	-	-	-	-	-
Conductivity (field)	µS/cm					-	-	-	-	-	-	-
pH (Field)	-			<b>6.5-8.5</b>		-	-	-	-	-	-	-



Table 5 - Groundwater Quality - Shallow Bedrock

	Unit	RDL	Hall's Glen BR RUC	ODWQS	Location Date	MW01-1 2015-05-22	MW01-1 2015-11-19	MW01-1 2016-05-30	MW01-1 2016-11-01	MW01-1 2017-05-31	MW01-1 2017-10-04	MW01-1 2019-05-30
<b>Metals</b>												
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>		281	259	273	271	269	248	282
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>		113	82.4	139	149	134	114	93
Calcium (Filtered)	µg/L	10				156,000	152,000	183,000	159,000	169,000	158,000	175,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>		0.017	0.004	<0.003	0.005	0.003	<0.003	<0.003
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>		150,000	140,000	160,000	160,000	170,000	170,000	180,000
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>		0.12	0.07	0.38	0.63	0.63	0.6	0.17
Copper (Filtered)	µg/L	0.02		<b>1000</b>		2.79	1.76	1.31	1.83	1.26	1.26	0.9
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>		<2	<7	<7	<7	14	<7	<7
Lead (Filtered)	µg/L	0.01		<b>10</b>		0.05	0.03	0.04	0.16	0.03	<0.01	0.01
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>		0.29	0.56	0.03	12.9	0.15	6.28	0.03
Magnesium (Filtered)	µg/L	1				16,000	12,300	14,800	14,500	15,600	14,600	15,000
Mercury (Filtered)	µg/L	0.01		<b>1</b>		<0.01	<0.01	<0.01	<0.01	<10	-	<10
Phosphorus (Filtered)	µg/L	3				140	-	<30	-	<30	-	40
Potassium (Filtered)	µg/L	2				5230	4600	5300	5780	5150	4920	5560
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>		79,600	69,300	83,600	79,100	72,800	68,900	73,000
Zinc (Filtered)	µg/L	2		<b>5000</b>		5	3	<2	4	5	8	<2
<b>Inorganics</b>												
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>		346	336	338	322	317	302	272
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>		-	-	-	-	-	-	-
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>		<b>831</b>	<b>711</b>	<b>686</b>	<b>737</b>	<b>771</b>	<b>834</b>	<b>711</b>
Oxygen Demand - Chemical (COD)	mg/L	5				11	<8	12	<8	<8	<8	<8
Solids - Total Suspended (TSS)	mg/L	2				-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>		2.6	2.2	2.3	2	2	2	-
Oxygen Demand - Biological (BOD)	mg/L	2				-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.001				0.005	-	0.004	-	<0.002	-	0.006
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>		83	73	81	81	81	81	79
Ammonia	mg/L	0.01				<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>		3.22	3.05	3.02	3.37	2.24	-	2.29
Nitrite (as N)	mg/L	0.03		<b>1</b>		<0.03	-	<0.03	-	<0.03	<b>2.63</b>	<0.03
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1				<0.5	-	<0.5	-	<0.5	-	<0.5
Conductivity (lab)	µS/cm	1				1250	1200	1270	1300	1180	1220	1150
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>		7.98	7.69	8.15	7.9	7.91	7.69	7.53
<b>Field</b>												
DO (Field)	mg/L					-	-	-	-	-	-	6.4
Redox Potential (Field)	mV					-	-	-	-	-	-	164
Temp (Field)	°C					-	-	-	-	-	-	8.9
Conductivity (field)	µS/cm					-	-	-	-	-	-	767
pH (Field)	-					-	-	-	-	-	-	7.7



Table 5 - Groundwater Quality - Shallow Bedrock

Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW01-1	MW01-1	MW01-1	MW01-1	MW01-1	MW01-1	MW03-1	
				Date	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11	2011-11-01	
<b>Metals</b>												
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	0.17	<0.2	<0.2	<0.1	0.1	-	
Barium (Filtered)	µg/L	0.01	<b>390</b>	<b>1000</b>	278	1.4	243	227	233	245	208	
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	105	<7	98	102	73	93	118	
Calcium (Filtered)	µg/L	10			178,000	5450	178,000	177,000	165,000	156,000	186,000	
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	0.003	<b>14,200</b>	0.009	0.003	<0.015	<0.015	-	
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	170,000	<0.2	190,000	180,000	175,000	153,000	97,000	
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.17	1.85	0.19	0.87	4	1	-	
Copper (Filtered)	µg/L	0.02		<b>1000</b>	1.4	<b>69,400</b>	1.9	1.6	1.3	1.2	-	
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	<7	0.14	<7	<7	<5	<5	10	
Lead (Filtered)	µg/L	0.01		<b>10</b>	0.14	-	0.02	0.01	0.13	0.09	-	
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	1.85	-	0.02	1.09	<1	<1	-	
Magnesium (Filtered)	µg/L	1			14,200	-	17,500	15,200	13,700	14,900	8420	
Mercury (Filtered)	µg/L	0.01		<b>1</b>	-	0.003	<b>10</b>	-	<0.02	<0.02	-	
Phosphorus (Filtered)	µg/L	3			-	<100	13	-	60	880	-	
Potassium (Filtered)	µg/L	2			5450	<2	5000	5170	4500	5600	-	
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	69,400	-	87,800	75,500	83,300	83,800	54,000	
Zinc (Filtered)	µg/L	2		<b>5000</b>	<2	-	2	3	<5	<5	-	
<b>Inorganics</b>												
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	261	261	297	304	313	292	<b>414</b>	
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	<b>469</b>	<b>451</b>	-	
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	<b>666</b>	<b>666</b>	<b>746</b>	<b>737</b>	<b>680</b>	<b>627</b>	<b>680</b>	
Oxygen Demand - Chemical (COD)	mg/L	5			<8	<8	<8	<8	<5	16	23	
Solids - Total Suspended (TSS)	mg/L	2			-	-	-	-	-	-	<2	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	<1	<b>178</b>	2	2	2.2	1.1	<b>4.6</b>	
Oxygen Demand - Biological (BOD)	mg/L	2			-	-	-	-	-	-	<2	
Phenols (4AAP)	mg/L	0.001			-	2.4	<0.002	-	<0.002	<0.002	-	
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	74	<1	90	87	79	63	34	
Ammonia	mg/L	0.01			<0.1	170	<0.1	<0.1	0.04	0.06	1.7	
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	2.4	0.105	2.92	2.84	2.54	1.85	0.61	
Nitrite (as N)	mg/L	0.03		<b>1</b>	-	0.278	<0.03	-	<0.05	-	<0.06	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			-	74	<0.5	-	0.3	-	-	
Conductivity (lab)	µS/cm	1			1150	1150	1210	1250	1260	1170	1110	
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.98	7.98	7.79	7.81	7.73	7.85	8	
<b>Field</b>												
DO (Field)	mg/L				6.6	-	-	9.6	5.17	9.03	-	
Redox Potential (Field)	mV				75	-	-	2	151	173	-	
Temp (Field)	°C				10.8	-	16.3	10.7	10.9	10.7	-	
Conductivity (field)	µS/cm				9	-	-	885	1216	435	-	
pH (Field)	-			<b>6.5-8.5</b>	6.5	-	7.5	7.5	7.04	7.18	-	





**Table 5 - Groundwater Quality - Shallow Bedrock**

		Hall's Glen BR RUC	ODWQS	Location	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1
Unit		RDL		Date	2016-11-01	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>														
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	<0.2	<0.2	<0.2	0.19	<0.2	<0.2	<0.1	<0.1	
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>	203	82.9	83.6	118	1.6	120	105	112	186	
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	87	33	25	50	<7	107	40	29	54	
Calcium (Filtered)	µg/L	10			205,000	92,600	106,000	137,000	3590	120,000	118,000	132,000	169,000	
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	0.025	0.006	<0.003	0.012	<b>3350</b>	0.016	0.007	<0.015	<0.015	
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	110,000	32,000	24,000	56,000	<0.2	57,000	43,000	73,800	104,000	
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.54	0.83	0.18	0.19	6.2	0.24	0.75	<1	<1	
Copper (Filtered)	µg/L	0.02		<b>1000</b>	0.98	1.1	0.4	1.6	<b>43,000</b>	0.5	1.2	1.2	0.7	
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	10	12	<7	<7	0.05	8	<7	16	<5	
Lead (Filtered)	µg/L	0.01		<b>10</b>	0.12	0.01	0.01	0.05	<500	0.01	0.01	0.07	<0.04	
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	<b>32.8</b>	6.11	0.24	6.2	<500	21.9	3.96	1	4	
Magnesium (Filtered)	µg/L	1			5780	3280	2960	3350	<500	5100	4130	4190	5140	
Mercury (Filtered)	µg/L	0.01		<b>1</b>	<0.01	-	<10	-	0.012	<b>20</b>	-	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	3			-	-	<30	-	<100	3	-	20	30	
Potassium (Filtered)	µg/L	2			4780	4170	2860	3590	4	5120	4750	3300	5100	
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	57,300	16,500	21,100	43,000	<500	30,400	30,200	25,200	59,500	
Zinc (Filtered)	µg/L	2		<b>5000</b>	5	4	7	4	<200	2	<2	<5	<5	
<b>Inorganics</b>														
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	<b>406</b>	278	248	330	330	364	343	266	347	
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	-	347	443	
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	<b>849</b>	394	294	<b>534</b>	<b>534</b>	480	451	378	<b>558</b>	
Oxygen Demand - Chemical (COD)	mg/L	5			8	<8	<8	<8	<8	14	<8	<5	11	
Solids - Total Suspended (TSS)	mg/L	2			-	-	-	-	-	-	-	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	<b>5</b>	2	-	2	<b>137</b>	<b>6</b>	2	2.9	2.5	
Oxygen Demand - Biological (BOD)	mg/L	2			-	-	-	-	-	-	-	-	-	
Phenols (4AAP)	mg/L	0.001			-	-	<0.001	-	2.51	<0.002	-	<0.002	<0.002	
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	39	9	9	20	2	24	14	11	27	
Ammonia	mg/L	0.01			<0.1	0.3	<0.1	<0.1	56	3.1	<0.1	<0.01	0.01	
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	2.97	-	1.41	2.51	0.05	1.22	1.26	1.48	1.64	
Nitrite (as N)	mg/L	0.03		<b>1</b>	-	<b>1.74</b>	<0.03	-	0.118	0.07	-	<0.05	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			-	-	<0.5	-	20	3.3	-	0.2	0.4	
Conductivity (lab)	µS/cm	1			1300	666	526	920	920	876	772	726	1040	
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.59	7.51	7.34	7.9	7.9	7.5	7.39	7.74	7.68	
<b>Field</b>														
DO (Field)	mg/L				-	-	3.7	9.5	-	-	4.8	9.56	5.73	
Redox Potential (Field)	mV				-	-	29	49	-	-	28	132	69	
Temp (Field)	°C				-	-	11.7	10.9	-	13.1	10.5	10	10.1	
Conductivity (field)	µS/cm				-	-	729	621	-	-	514	653	378	
pH (Field)	-			<b>6.5-8.5</b>	-	-	7.4	6.7	-	7	7.6	7.84	6.99	





**Table 5 - Groundwater Quality - Shallow Bedrock**

	Unit	RDL	Hall's Glen BR RUC	ODWQS	Location Date	MW04-1 2016-05-30	MW04-1 2016-11-01	MW04-1 2017-10-04	MW04-1 2019-05-30	MW04-1 2019-10-29	MW04-1 2019-11-11	MW04-1 2020-05-26	MW04-1 2020-11-18	MW04-1 2021-06-24	MW04-1 2021-11-11
<b>Metals</b>															
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>		<0.2	0.8	<0.2	<0.2	0.2	0.2	<0.2	<0.2	<0.1	<0.1
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>		117	114	131	115	193	193	125	143	124	174
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>		103	563	63	69	79	79	81	49	66	81
Calcium (Filtered)	µg/L	10				123,000	28,600	131,000	118,000	214,000	214,000	124,000	157,000	125,000	166,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>		0.021	0.012	0.017	0.006	0.045	0.045	0.017	0.006	0.015	<0.015
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>		39,000	42,000	75,000	51,000	90,000	90,000	47,000	57,000	54,000	96,200
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>		0.32	0.54	0.7	0.13	0.13	0.13	0.18	0.96	<1	5
Copper (Filtered)	µg/L	0.02		<b>1000</b>		1.14	0.45	0.65	0.5	0.9	0.9	0.8	1	1.3	0.5
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>		<7	<7	21	12	125	125	50	21	34	<5
Lead (Filtered)	µg/L	0.01		<b>10</b>		0.03	0.05	0.1	0.01	0.02	0.02	0.03	0.02	0.14	<0.04
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>		<b>249</b>	<b>3.25</b>	<b>175</b>	<b>168</b>	<b>69.4</b>	<b>69.4</b>	<b>212</b>	<b>50.9</b>	<b>147</b>	<b>106</b>
Magnesium (Filtered)	µg/L	1				5250	6610	5280	4940	7480	7480	6270	5310	5530	6510
Mercury (Filtered)	µg/L	0.01		<b>1</b>		0.04	<0.01	-	<10	-	-	<b>10</b>	-	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3				<30	-	-	<30	-	-	4	-	20	4780
Potassium (Filtered)	µg/L	2				4950	2230	5090	5640	5670	5670	4740	4750	4800	5800
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>		31,100	<b>146,000</b>	32,100	37,000	49,200	49,200	35,100	36,000	31,400	52,800
Zinc (Filtered)	µg/L	2		<b>5000</b>		2	4	2	3	<2	<2	<2	<2	<5	<5
<b>Inorganics</b>															
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>		302	325	325	291	378	378	329	<b>390</b>	296	351
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>		-	-	-	-	-	-	-	-	335	441
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>		417	463	500	434	<b>597</b>	<b>597</b>	389	469	392	<b>541</b>
Oxygen Demand - Chemical (COD)	mg/L	5				10	<8	8	<8	<8	<8	8	<8	<5	157
Solids - Total Suspended (TSS)	mg/L	2				-	-	-	-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>		2.2	<1	2	-	3	3	2	2	<b>4</b>	2.8
Oxygen Demand - Biological (BOD)	mg/L	2				-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.001				0.004	-	-	0.002	-	-	<0.002	-	<0.002	<0.002
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>		15	31	14	22	42	42	15	12	15	26
Ammonia	mg/L	0.01				0.5	<0.1	0.6	1.2	0.4	0.4	1	0.4	0.8	0.92
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>		1.38	0.12	-	1.19	2.14	2.14	1.1	2.65	1.56	0.64
Nitrite (as N)	mg/L	0.03		<b>1</b>		<0.03	-	<b>1.17</b>	<0.03	-	-	<0.03	-	<0.05	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1				0.7	-	-	1.1	-	-	1.2	-	1	-
Conductivity (lab)	µS/cm	1				729	798	841	713	1050	1050	725	862	750	1010
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>		7.94	8.2	7.44	8.08	7.57	7.57	7.52	7.26	7.63	7.58
<b>Field</b>															
DO (Field)	mg/L					-	-	-	4.1	7.5	-	-	5.2	4.06	4
Redox Potential (Field)	mV					-	-	-	-9	138	-	-	-7	140	45
Temp (Field)	°C					-	-	-	8.5	10	-	12.9	9.2	8	9
Conductivity (field)	µS/cm					-	-	-	477	723	-	-	547	735	431
pH (Field)	-					-	-	-	7.6	7.9	-	7.2	7.5	7.87	6.8





Table 5 - Groundwater Quality - Shallow Bedrock

		Hall's Glen BR RUC	ODWQS	Location	MW05-1	MW05-1	MW05-1	MW05-1	MW05-1	MW05-1	MW05-1	MW05-1	MW05-1
				Date	2016-11-01	2017-10-04	2019-05-30	2019-10-29	2019-11-11	2020-05-26	2020-11-18	2021-06-24	2021-11-11
Unit	RDL												
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	3.1	3.2	1.1	3.5	3.5	0.4	2.1	3	2.3
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>	<b>541</b>	<b>469</b>	<b>434</b>	<b>664</b>	<b>664</b>	<b>504</b>	<b>512</b>	<b>911</b>	<b>612</b>
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	430	303	213	340	340	276	304	502	359
Calcium (Filtered)	µg/L	10			223,000	243,000	203,000	249,000	249,000	230,000	225,000	255,000	215,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	<0.003	<0.003	<0.003	0.003	<0.003	0.007	0.009	<0.015	<0.015
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	150,000	87,000	29,000	120,000	120,000	83,000	110,000	147,000	80,700
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	1.06	1.05	0.33	0.9	0.9	0.54	1.11	1	<1
Copper (Filtered)	µg/L	0.02		<b>1000</b>	0.52	0.23	0.3	1.1	1.1	1.8	0.6	0.2	1
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	<b>23,100</b>	<b>21,400</b>	<b>11,100</b>	<b>32,600</b>	<b>32,600</b>	<b>3740</b>	<b>25,000</b>	<b>44,500</b>	<b>32,000</b>
Lead (Filtered)	µg/L	0.01		<b>10</b>	0.03	<0.01	0.02	0.05	0.05	0.01	0.03	0.11	0.13
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	<b>1960</b>	<b>1720</b>	<b>1170</b>	<b>2680</b>	<b>2680</b>	<b>2590</b>	<b>2000</b>	<b>3120</b>	<b>2310</b>
Magnesium (Filtered)	µg/L	1			19,000	20,200	15,500	22,900	22,900	22,700	20,000	26,500	20,000
Mercury (Filtered)	µg/L	0.01		<b>1</b>	<0.01	-	<10	-	-	<b>20</b>	-	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3			-	-	40	-	-	3	-	1100	260
Potassium (Filtered)	µg/L	2			24,800	19,800	16,100	32,200	32,200	21,800	25,100	30,000	25,500
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	69,700	58,100	36,500	80,200	80,200	55,100	64,300	85,000	57,900
Zinc (Filtered)	µg/L	2		<b>5000</b>	15	2	2	2	2	<2	2	<5	<5
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	<b>619</b>	<b>738</b>	<b>536</b>	<b>653</b>	<b>653</b>	<b>609</b>	<b>661</b>	<b>757</b>	<b>588</b>
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	-	<b>746</b>	<b>620</b>
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	<b>934</b>	<b>1000</b>	<b>574</b>	<b>874</b>	<b>874</b>	<b>711</b>	<b>823</b>	<b>946</b>	<b>761</b>
Oxygen Demand - Chemical (COD)	mg/L	5			40	36	17	47	47	39	49	134	80
Solids - Total Suspended (TSS)	mg/L	2			-	-	-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	<b>14</b>	<b>19</b>	-	<b>14</b>	<b>14</b>	<b>14</b>	<b>12</b>	<b>13.4</b>	<b>10.6</b>
Oxygen Demand - Biological (BOD)	mg/L	2			-	-	-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.001			-	-	0.002	-	-	0.005	-	<0.002	<0.002
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	10	21	12	7	7	13	10	8	10
Ammonia	mg/L	0.01			14.3	9.7	5.8	14.5	14.5	6.9	11.3	16.4	13.6
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	0.62	-	0.71	0.24	0.24	0.24	0.53	0.09	0.12
Nitrite (as N)	mg/L	0.03		<b>1</b>	-	0.24	<0.03	-	-	<0.03	-	<0.05	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			-	-	6.2	-	-	6.4	-	21.5	-
Conductivity (lab)	µS/cm	1			1570	1660	980	1510	1510	1200	1470	1730	1400
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.22	7.25	7.44	7.21	7.21	7.48	7.31	7.35	7.38
<b>Field</b>													
DO (Field)	mg/L				-	-	7.2	9	-	-	5.2	1.58	4.76
Redox Potential (Field)	mV				-	-	-72	44	-	-	-66	96	123
Temp (Field)	°C				-	-	10.2	11.3	-	12.8	9.1	9	8.6
Conductivity (field)	µS/cm				-	-	958	1124	-	-	973	1747	600
pH (Field)	-			<b>6.5-8.5</b>	-	-	7.1	6.1	-	6.9	7.4	7.08	6.55





Table 5 - Groundwater Quality - Shallow Bedrock

Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW06-1	MW06-1								
				Date	2016-11-01	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>														
Arsenic (Filtered)	µg/L	0.1	6.4	25	0.6	0.4	0.2	0.4	0.29	0.3	0.4	0.3	0.3	0.2
Barium (Filtered)	µg/L	0.01	350	1000	331	268	402	337	1.4	330	278	233	262	262
Boron (Filtered)	µg/L	0.2	2529	5000	263	198	246	227	1340	207	176	87	79	79
Calcium (Filtered)	µg/L	10			191,000	151,000	198,000	217,000	16,400	172,000	172,000	151,000	189,000	189,000
Cadmium (Filtered)	µg/L	0.003		5	<0.003	0.003	<0.003	0.005	11,000	0.006	<0.003	<0.015	<0.015	<0.015
Chloride (Filtered)	µg/L	200	195000	250000	120,000	94,000	130,000	120,000	0.4	92,000	120,000	124,000	167,000	167,000
Chromium (III+VI) (Filtered)	µg/L	0.03		50	0.66	0.83	0.31	0.29	1460	0.26	0.8	<1	<1	<1
Copper (Filtered)	µg/L	0.02		1000	0.37	0.17	0.3	1.4	60,900	0.3	1.8	1.4	0.4	0.4
Iron (Filtered)	µg/L	2	154	300	2320	1320	684	1340	0.26	410	1630	717	1100	1100
Lead (Filtered)	µg/L	0.01		10	0.14	0.18	0.2	0.26	<500	0.13	0.15	0.15	0.08	0.08
Manganese (Filtered)	µg/L	0.01	25.08	50	1270	1150	1530	1460	<500	1720	1380	698	721	721
Magnesium (Filtered)	µg/L	1			12,100	10,100	13,800	11,000	<500	13,900	11,500	8040	8340	8340
Mercury (Filtered)	µg/L	0.01		1	<0.01	-	<10	-	0.005	20	-	<0.02	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3			-	-	140	-	9000	5	-	280	400	400
Potassium (Filtered)	µg/L	2			15,000	12,000	18,300	16,400	4	16,800	14,800	8600	8300	8300
Sodium (Filtered)	µg/L	10	136400	200000	68,300	62,200	71,400	60,900	<500	75,100	63,500	64,200	74,300	74,300
Zinc (Filtered)	µg/L	2		5000	2	5	3	4	<200	<2	3	<5	<5	<5
<b>Inorganics</b>														
Alkalinity (as CaCO3)	mg/L	2	388	500	485	490	468	429	429	470	454	342	347	347
Hardness (as CaCO3) (Filtered)	mg/L	1	445	500	-	-	-	-	-	-	-	411	508	508
Solids - Total Dissolved (TDS)	mg/L	3	647	500	754	654	749	671	671	617	749	544	694	694
Oxygen Demand - Chemical (COD)	mg/L	5			17	17	25	11	11	16	19	31	51	51
Solids - Total Suspended (TSS)	mg/L	2			-	-	-	-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	3.5	5	8	6	-	6	217	7	5	4.1	1.6	1.6
Oxygen Demand - Biological (BOD)	mg/L	2			-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.001			-	-	0.006	-	0.5	<0.002	-	<0.002	<0.002	<0.002
Sulphate	mg/L	0.2	270	500	49	37	44	43	6	37	33	29	47	47
Ammonia	mg/L	0.01			4.4	4.5	6.6	9	120	7.3	6.7	2.84	3.19	3.19
Nitrate (as N)	mg/L	0.05	4.22	10	0.26	-	0.65	0.5	0.227	<0.06	0.12	1.5	1.55	1.55
Nitrite (as N)	mg/L	0.03		1	-	0.11	0.28	-	0.337	<0.03	-	<0.05	-	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			-	-	6.6	-	43	6.8	-	4.7	-	-
Conductivity (lab)	µS/cm	1			1350	1180	1260	1210	1210	1130	1300	1020	1280	1280
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5	7.63	7.45	7.21	7.94	7.94	7.6	7.49	7.59	7.62	7.62
<b>Field</b>														
DO (Field)	mg/L				-	-	4.2	10.1	-	-	5.3	4.72	3.61	3.61
Redox Potential (Field)	mV				-	-	-60	-	-	-	-20	143	83	83
Temp (Field)	°C				-	-	11.2	10.8	-	13.8	9.8	10.2	9.4	9.4
Conductivity (field)	µS/cm				-	-	918	919	-	-	1407	1023	553	553
pH (Field)	-			6.5-8.5	-	-	7.2	6.9	-	7	7.5	6.97	6.78	6.78





**Table 5 - Groundwater Quality - Shallow Bedrock**

	Unit	RDL	Hall's Glen BR RUC	ODWQS	Location Date	MW07-1 2016-05-30	MW07-1 2016-11-01	MW07-1 2017-10-04	MW07-1 2019-05-30	MW07-1 2019-10-29	MW07-1 2019-11-11	MW07-1 2020-05-26	MW07-1 2020-11-18	MW07-1 2021-06-24	MW07-1 2021-11-11
<b>Metals</b>															
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>		0.7	<0.2	0.8	0.5	0.8	0.8	0.6	0.7	0.5	1.1
Barium (Filtered)	µg/L	0.01	<b>390</b>	<b>1000</b>		111	148	119	136	128	128	133	130	162	24
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>		600	79	483	516	445	445	482	432	533	571
Calcium (Filtered)	µg/L	10				31,700	153,000	32,000	34,000	40,100	40,100	32,300	35,400	36,900	34,500
Cadmium (Filtered)	µg/L	0.003		<b>5</b>		0.006	<0.003	0.016	0.003	0.016	0.016	0.004	0.011	<0.015	0.053
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>		42,000	100,000	46,000	47,000	45,000	45,000	51,000	48,000	53,600	53,100
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>		0.4	0.61	0.68	0.13	0.17	0.17	0.12	0.81	<1	4
Copper (Filtered)	µg/L	0.02		<b>1000</b>		0.26	0.81	0.45	<0.2	0.5	0.5	0.5	0.9	1.5	4.5
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>		24	12	108	7	9	9	<7	<7	88	<5
Lead (Filtered)	µg/L	0.01		<b>10</b>		<0.01	0.04	0.28	0.03	0.03	0.03	0.02	0.06	0.26	<b>14.9</b>
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>		0.22	8.7	24.9	0.76	8.31	8.31	0.21	2.71	6	1
Magnesium (Filtered)	µg/L	1				7440	5520	7020	7590	7520	7520	8370	7820	8900	9390
Mercury (Filtered)	µg/L	0.01		<b>1</b>		<0.01	<0.01	-	<10	-	-	<b>10</b>	-	<0.02	0.04
Phosphorus (Filtered)	µg/L	3				<30	-	-	40	-	-	<3	-	1910	1050
Potassium (Filtered)	µg/L	2				2310	3910	2240	2250	2550	2550	2160	2290	2300	2900
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>		<b>159,000</b>	<b>47,800</b>	<b>141,000</b>	<b>151,000</b>	<b>152,000</b>	<b>152,000</b>	<b>163,000</b>	<b>143,000</b>	<b>157,000</b>	<b>163,000</b>
Zinc (Filtered)	µg/L	2		<b>5000</b>		<2	3	6	2	<2	<2	3	7	<5	<5
<b>Inorganics</b>															
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>		330	322	337	370	328	328	359	367	336	316
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>		-	-	-	-	-	-	-	-	129	125
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>		457	<b>569</b>	489	474	469	469	489	466	421	433
Oxygen Demand - Chemical (COD)	mg/L	5				<8	<8	<8	65	<8	<8	<8	<8	125	76
Solids - Total Suspended (TSS)	mg/L	2				-	-	-	-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>		1.5	3	2	-	2	2	1	1	<b>4.5</b>	2.4
Oxygen Demand - Biological (BOD)	mg/L	2				-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.001				0.004	-	-	0.002	-	-	0.003	-	<0.002	<0.002
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>		30	17	31	34	33	33	32	29	31	30
Ammonia	mg/L	0.01				<0.1	<0.1	0.1	<0.1	0.1	0.1	<0.1	<0.1	0.04	0.06
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>		<0.06	1.67	-	0.13	0.25	0.25	0.17	0.23	0.19	0.19
Nitrite (as N)	mg/L	0.03		<b>1</b>		<0.03	-	0.07	<0.03	-	-	<0.03	-	<0.05	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1				<0.5	-	-	<0.5	-	-	<0.5	-	1.3	-
Conductivity (lab)	µS/cm	1				791	979	816	808	844	844	790	808	802	822
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>		8.28	7.75	8.27	7.92	8.12	8.12	8.08	8.08	8.16	8.16
<b>Field</b>															
DO (Field)	mg/L					-	-	-	6	10.6	-	-	5.4	9.94	6.7
Redox Potential (Field)	mV					-	-	-	56	51	-	-	22	138	121
Temp (Field)	°C					-	-	-	10.1	10.3	-	12.8	9.4	11.1	9.3
Conductivity (field)	µS/cm					-	-	-	590	597	-	-	524	800	354
pH (Field)	-					-	-	-	8	7.3	-	7.4	8.1	<b>8.71</b>	7.73





Table 5 - Groundwater Quality - Shallow Bedrock

Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW08-2	MW08-2	MW08-2	MW08-2	MW08-2	MW08-2	MW08-2	MW08-2	MW08-2	
				Date	2017-05-31	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>														
Arsenic (Filtered)	µg/L	0.1	6.4	25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1
Barium (Filtered)	µg/L	0.01	390	1000	87.5	148	53.1	158	158	81.1	162	135	168	168
Boron (Filtered)	µg/L	0.2	2529	5000	20	31	14	50	50	26	23	15	28	28
Calcium (Filtered)	µg/L	10			81,900	118,000	103,000	127,000	127,000	80,100	145,000	114,000	119,000	119,000
Cadmium (Filtered)	µg/L	0.003		5	<0.003	0.005	<0.003 - 0.003	0.005	0.005	0.025	<0.003	<0.015	<0.015	<0.015
Chloride (Filtered)	µg/L	200	195000	250000	45,000	68,000	3000	69,000	69,000	9000	120,000	65,500	67,500	67,500
Chromium (III+VI) (Filtered)	µg/L	0.03		50	0.61	0.67	0.27	0.25	0.25	0.26	0.31	73	<1	<1
Copper (Filtered)	µg/L	0.02		1000	0.48	0.87	0.3	0.8	0.8	1.4	1.1	0.8	1	1
Iron (Filtered)	µg/L	2	154	300	<7	<7	7	10	10	24	15	19	<5	<5
Lead (Filtered)	µg/L	0.01		10	<0.01	<0.01	<3 - 0.02	0.03	0.03	0.09	0.04	0.13	0.03	0.03
Manganese (Filtered)	µg/L	0.01	25.08	50	1.75	1.89	0.74	4.33	4.33	4.34	0.97	4	2	2
Magnesium (Filtered)	µg/L	1			2620	4140	2820	3820	3820	2680	5280	4060	4140	4140
Mercury (Filtered)	µg/L	0.01		1	<10	<10	<10	<10	<10	10	<10	<0.02	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3			<30	<30	0.02	-	30	<30	<30	100	110	110
Potassium (Filtered)	µg/L	2			817	1370	472	1400	1400	738	1210	1000	1800	1800
Sodium (Filtered)	µg/L	10	136400	200000	30,500	36,500	3740	36,800	36,800	23,500	29,400	38,300	44,000	44,000
Zinc (Filtered)	µg/L	2		5000	<2	<2	2	3	3	9	<2	<5	<5	<5
<b>Inorganics</b>														
Alkalinity (as CaCO3)	mg/L	2	388	500	221	300	235	272	272	235	283	276	275	275
Hardness (as CaCO3) (Filtered)	mg/L	1	445	500	-	-	-	-	-	-	-	302	316	316
Solids - Total Dissolved (TDS)	mg/L	3	647	500	297	443	257	434	434	240	480	364	389	389
Oxygen Demand - Chemical (COD)	mg/L	5			<8	<8	<8	<8	<8	16	<8	7	10	10
Solids - Total Suspended (TSS)	mg/L	2			17	<2	23	37	37	20	22	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	3.5	5	-	-	-	-	-	-	-	3.7	2.7	2.7
Oxygen Demand - Biological (BOD)	mg/L	2			<4	5	<4	<4	<4	<4	<4	-	-	-
Phenols (4AAP)	mg/L	0.001			<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002
Sulphate	mg/L	0.2	270	500	3	10	7	12	12	6	10	9	10	10
Ammonia	mg/L	0.01			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.01	<0.01
Nitrate (as N)	mg/L	0.05	4.22	10	<0.06	0.35	<0.06	0.66	0.66	0.15	0.67	0.74	0.41	0.41
Nitrite (as N)	mg/L	0.03		1	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.4	0.3	0.3
Conductivity (lab)	µS/cm	1			535	781	429	748	748	452	838	700	744	744
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5	7.88	7.63	7.66	8.12	8.12	7.85	7.81	7.94	8.27	8.27
<b>Field</b>														
DO (Field)	mg/L				-	-	3.4	8.8	-	-	11.3	13.26	2.49	2.49
Redox Potential (Field)	mV				-	-	196	79	-	-	135	140	-73	-73
Temp (Field)	°C				-	-	8.5	13.4	-	16.4	6.2	9.3	9.2	9.2
Conductivity (field)	µS/cm				-	-	419	803	-	-	486	652	334	334
pH (Field)	-			6.5-8.5	-	-	7.7	6.1	-	8.1	8.6	8.78	7.27	7.27





Table 5 - Groundwater Quality - Shallow Bedrock

Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW09-2	MW09-2	MW09-2	MW09-2	MW09-2	MW09-2	MW09-2	MW09-2	
				Date	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-28	2021-11-11	
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	0.3	0.3	<0.2	<0.2	0.4	<0.2	0.2	0.1	
Barium (Filtered)	µg/L	0.01	<b>390</b>	<b>1000</b>	258	158	184	184	285	176	210	203	
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	84	26	65	65	143	39	40	45	
Calcium (Filtered)	µg/L	10			107,000	105,000	121,000	121,000	80,800	126,000	124,000	119,000	
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	<0.003	<0.003 - 0.003	0.003	<0.003	0.007	0.01	<0.015	<0.015	
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	70,000	66,000	73,000	73,000	50,000	77,000	88,500	70,500	
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.71	0.15	0.16	0.16	0.23	0.28	<1	<1	
Copper (Filtered)	µg/L	0.02		<b>1000</b>	0.4	0.8	1.4	1.4	<0.2	4.2	0.6	0.4	
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	<b>205</b>	<b>293</b>	38	38	<b>302</b>	15	87	43	
Lead (Filtered)	µg/L	0.01		<b>10</b>	<0.01	<3 - 0.02	0.02	0.02	0.01	0.04	0.03	<0.02	
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	15.9	<b>29.1</b>	4.64	4.64	<b>33.2</b>	3.31	3	3	
Magnesium (Filtered)	µg/L	1			5780	3890	3820	3820	8760	4270	4640	4550	
Mercury (Filtered)	µg/L	0.01		<b>1</b>	<10	<10	<10	<10	<10	<10	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	3			<30	0.02	-	<30	<30	<30	40	20	
Potassium (Filtered)	µg/L	2			2600	2160	2570	2570	2740	2650	2300	2700	
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	45,700	42,900	46,500	46,500	44,400	44,600	55,600	48,200	
Zinc (Filtered)	µg/L	2		<b>5000</b>	<2	3	3	3	2	<2	<5	<5	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	274	241	260	260	233	295	271	280	
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	329	315	
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	420	214	414	414	311	437	432	409	
Oxygen Demand - Chemical (COD)	mg/L	5			10	<8	<8	<8	<8	<8	<5	11	
Solids - Total Suspended (TSS)	mg/L	2			<2	66	2	2	6	2	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	-	-	-	-	-	-	3.3	2.4	
Oxygen Demand - Biological (BOD)	mg/L	2			<4	<4	<4	<4	<4	<4	-	-	
Phenols (4AAP)	mg/L	0.001			<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	14	16	11	11	10	10	13	13	
Ammonia	mg/L	0.01			0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.03	0.03	
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	0.37	<0.06	0.93	0.93	<0.06	1.17	1.21	0.73	
Nitrite (as N)	mg/L	0.03		<b>1</b>	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	0.2	0.2	
Conductivity (lab)	µS/cm	1			719	653	737	737	591	791	821	780	
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.57	8	8.11	8.11	7.9	7.91	7.69	7.66	
<b>Field</b>													
DO (Field)	mg/L				-	3.6	4.1	-	-	5	2.63	2.91	
Redox Potential (Field)	mV				-	-125	-86	-	-	60	160	30	
Temp (Field)	°C				-	10.3	14.1	-	1.7	7.4	10.7	9.8	
Conductivity (field)	µS/cm				-	404	655	-	-	471	792	332	
pH (Field)	-			<b>6.5-8.5</b>	-	7.7	7.4	-	7.6	8	7.08	7.01	





Table 5 - Groundwater Quality - Shallow Bedrock

		Hall's Glen BR RUC	ODWQS	Location	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2
Unit	RDL			Date	2017-05-31	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	<0.2	<0.2 - 0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.1
Barium (Filtered)	µg/L	0.01	<b>390</b>	<b>1000</b>	<b>459</b>	<b>506</b>	<b>626</b>	<b>580</b>	<b>580</b>	<b>491</b>	<b>416</b>	<b>510</b>	<b>574</b>
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	123	131	118	145	145	106	96	109	125
Calcium (Filtered)	µg/L	10			91,200	104,000	117,000	129,000	129,000	98,500	99,900	118,000	119,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	<0.003	0.004	<0.003 - 0.003	0.003	<0.003	<0.003	<0.003	<0.015	<0.015
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	48,000	51,000	48,000	48,000	48,000	54,000	53,000	59,600	58,700
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.68	0.59	0.14	0.12	0.12	0.16	0.22	<1	<1
Copper (Filtered)	µg/L	0.02		<b>1000</b>	0.27	0.15	0.3	<0.2	<0.2	0.4	0.8	1.2	0.6
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	<b>3340</b>	<b>3370</b>	<b>6910</b>	<b>4030</b>	<b>4030</b>	<b>886</b>	<b>3290</b>	<5	<b>5280</b>
Lead (Filtered)	µg/L	0.01		<b>10</b>	<0.01	<0.01	0.12 - 20	0.01	<0.01	<0.01	0.04	0.46	<0.02
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	<b>97.3</b>	<b>60.1</b>	<b>171</b>	<b>54.4</b>	<b>54.4</b>	<b>95.1</b>	<b>58</b>	<b>38</b>	<b>42</b>
Magnesium (Filtered)	µg/L	1			11,300	11,000	11,200	10,900	10,900	12,700	10,400	11,400	11,300
Mercury (Filtered)	µg/L	0.01		<b>1</b>	<10	<10	<10	<10	<10	<b>10</b>	<10	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3			<30	30	0.12	-	60	40	80	110	90
Potassium (Filtered)	µg/L	2			2580	2600	2420	2690	2690	2460	2600	2000	2500
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	8990	6070	7470	5540	5540	9830	6930	6100	6500
Zinc (Filtered)	µg/L	2		<b>5000</b>	<2	<2	5	<2	<2	2	<2	<5	<5
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	171	233	243	245	245	243	258	260	250
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	-	342	343
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	269	406	334	354	354	389	351	343	351
Oxygen Demand - Chemical (COD)	mg/L	5			<8	<8	<8	<8	<8	8	<8	53	9
Solids - Total Suspended (TSS)	mg/L	2			118	10	50	55	55	42	56	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	-	-	-	-	-	-	-	2.8	2.6
Oxygen Demand - Biological (BOD)	mg/L	2			<4	4	<4	<4	<4	4	<4	-	-
Phenols (4AAP)	mg/L	0.001			0.004	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	0.013
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	12	9	8	7	7	10	6	10	9
Ammonia	mg/L	0.01			0.5	1	0.8	1.1	1.1	0.9	1	0.93	1.04
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	0.08	<0.06	0.08	0.08	0.08	<0.06	<0.06	0.07	<0.05
Nitrite (as N)	mg/L	0.03		<b>1</b>	0.03	<0.03	0.07	0.04	0.04	<0.03	<0.03	<0.05	<0.05
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			0.8	1.1	0.7	1.1	1.1	0.8	1	1	1.1
Conductivity (lab)	µS/cm	1			483	631	599	621	621	618	623	660	675
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.92	7.67	7.54	8.03	8.03	7.83	7.79	7.83	7.68
<b>Field</b>													
DO (Field)	mg/L				-	-	3.6	4	-	-	4.2	2.87	2.81
Redox Potential (Field)	mV				-	-	-109	-115	-	-	-148	-15	19
Temp (Field)	°C				-	-	10.6	13.8	-	15.1	6.7	9	10.3
Conductivity (field)	µS/cm				-	-	442	518	-	-	364	665	297
pH (Field)	-			<b>6.5-8.5</b>	-	-	7.6	7.6	-	7.7	7.9	8.45	7.38





Table 5 - Groundwater Quality - Shallow Bedrock

		Hall's Glen BR RUC	ODWQS	Location	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2
				Date	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11
Unit	RDL											
<b>Metals</b>												
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	<0.2	0.7	0.7	<0.2	<0.2	<0.1	<0.1
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>	<b>449</b>	381	40.8	40.8	<b>504</b>	358	<b>528</b>	<b>528</b>
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	123	85	176	176	150	164	127	143
Calcium (Filtered)	µg/L	10			93,800	96,600	147,000	147,000	102,000	93,400	117,000	113,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	<0.003	<0.003 - 0.003	0.005	0.005	0.005	<0.003	<0.015	<0.015
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	36,000	14,000	33,000	33,000	21,000	43,000	52,000	41,000
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.53	0.59	0.2	0.2	0.18	0.21	<1	<1
Copper (Filtered)	µg/L	0.02		<b>1000</b>	0.19	<0.2	1.1	1.1	0.5	0.4	0.8	0.3
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	<b>2130</b>	<b>1550</b>	124	124	<b>2130</b>	<b>1060</b>	<b>3030</b>	<b>2750</b>
Lead (Filtered)	µg/L	0.01		<b>10</b>	0.01	<b>0.01 - 12</b>	0.02	0.02	0.03	0.04	0.06	<0.02
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	<b>29.6</b>	24.5	14.7	14.7	<b>31.4</b>	19.8	<b>35</b>	<b>33</b>
Magnesium (Filtered)	µg/L	1			8590	7400	22,100	221,000	12,700	12,300	11,300	11,100
Mercury (Filtered)	µg/L	0.01		<b>1</b>	<10	<10	<10	<10	<b>30</b>	<10	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3			40	<0.01	-	40	<30	30	80	80
Potassium (Filtered)	µg/L	2			2280	1990	7590	7590	2860	3720	2300	2800
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	5300	6300	76,700	76,700	8390	6200	7300	6700
Zinc (Filtered)	µg/L	2		<b>5000</b>	3	4	4	4	8	<2	<5	<5
<b>Inorganics</b>												
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	255	224	242	242	227	242	271	250
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	339	329
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	391	274	320	320	274	343	342	329
Oxygen Demand - Chemical (COD)	mg/L	5			8	<8	<8	<8	13	<8	<5	8
Solids - Total Suspended (TSS)	mg/L	2			3	5	6	6	8	17	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	-	-	-	-	-	-	<b>4.4</b>	2.2
Oxygen Demand - Biological (BOD)	mg/L	2			<4	<4	<4	<4	7	<4	-	-
Phenols (4AAP)	mg/L	0.001			<0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.002	<0.002
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	7	6	10	10	17	9	11	10
Ammonia	mg/L	0.01			0.9	0.5	0.9	0.9	0.7	0.9	0.95	0.96
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	<0.06	<0.06	0.18	0.18	0.13	<0.06	0.07	<0.05
Nitrite (as N)	mg/L	0.03		<b>1</b>	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			0.9	<0.5	1	1	0.6	0.8	1	1.1
Conductivity (lab)	µS/cm	1			603	465	584	584	520	547	659	633
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.63	8.09	8.1	8.1	7.76	7.77	7.81	7.8
<b>Field</b>												
DO (Field)	mg/L				-	4	5.7	-	-	6.4	1.55	7.98
Redox Potential (Field)	mV				-	-93	-122	-	-	-60	136	15
Temp (Field)	°C				-	9.1	12.5	-	15.1	4.9	7.7	9
Conductivity (field)	µS/cm				-	345	528	-	-	350	672	286
pH (Field)	-			<b>6.5-8.5</b>	-	7.8	7.7	-	7.6	8.3	7.26	7.37





Table 5 - Groundwater Quality - Shallow Bedrock

Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW12-1	MW12-1	MW12-1	MW12-1	MW12-1	MW12-1	MW12-1	MW12-1	
				Date	2017-10-04	2019-05-30	2019-10-29	2019-11-11	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	<0.2	0.8	0.8	<0.2	<0.2	<0.1	<0.1	
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>	152	<b>713</b>	230	230	<b>621</b>	311	<b>743</b>	<b>994</b>	
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	83	104	99	99	106	110	121	156	
Calcium (Filtered)	µg/L	10			122,000	126,000	117,000	117,000	115,000	113,000	116,000	106,000	
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	<0.003	<0.003 - 0.003	0.003	0.003	<0.003	<0.003	<0.015	<0.015	
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	54,000	51,000	44,000	44,000	55,000	44,000	40,700	39,400	
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.58	0.16	0.13	0.13	0.13	0.28	<1	<1	
Copper (Filtered)	µg/L	0.02		<b>1000</b>	0.16	<0.2	0.5	0.5	0.3	0.4	<0.1	<0.1	
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	18	10	19	19	20	24	<5	<5	
Lead (Filtered)	µg/L	0.01		<b>10</b>	<0.01	<0.01	0.01	0.01	0.01	0.03	0.09	<0.02	
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	15.6	3.52	20.1	20.1	5.18	16.4	3	3	
Magnesium (Filtered)	µg/L	1			6760	11,500	7580	7580	12,900	9820	13,400	14,300	
Mercury (Filtered)	µg/L	0.01		<b>1</b>	<10	<10	<10	<10	<b>30</b>	<10	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	3			<30	<0.01	-	<30	<30	<30	20	10	
Potassium (Filtered)	µg/L	2			2100	3280	2250	2250	3340	2780	3100	3500	
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	12,300	13,700	12,000	12,000	16,900	11,200	11,700	10,600	
Zinc (Filtered)	µg/L	2		<b>5000</b>	<2	3	3	3	2	<2	<5	<5	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	283	284	265	265	278	253	271	241	
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	345	325	
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	460	403	403	403	397	351	338	336	
Oxygen Demand - Chemical (COD)	mg/L	5			<8	<8	<8	<8	<8	<8	7	13	
Solids - Total Suspended (TSS)	mg/L	2			<2	42	38	38	8	8	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	-	-	-	-	-	-	2.2	1.9	
Oxygen Demand - Biological (BOD)	mg/L	2			<4	<4	<4	<4	5	<4	-	-	
Phenols (4AAP)	mg/L	0.001			<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.004	0.006	
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	24	22	28	28	23	25	20	26	
Ammonia	mg/L	0.01			0.1	0.1	<0.1	<0.1	<0.1	0.1	0.14	0.16	
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.08	<0.05	
Nitrite (as N)	mg/L	0.03		<b>1</b>	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2	0.2	
Conductivity (lab)	µS/cm	1			710	675	649	649	684	595	650	647	
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.8	7.42	7.92	7.92	7.71	7.91	7.85	7.91	
<b>Field</b>													
DO (Field)	mg/L				-	3	5.9	-	-	6.5	2.83	3.6	
Redox Potential (Field)	mV				-	-92	-149	-	-	-128	-38	11	
Temp (Field)	°C				-	8.5	9.9	-	14.4	8.6	9.4	9.4	
Conductivity (field)	µS/cm				-	457	477	-	-	388	651	280	
pH (Field)	-			<b>6.5-8.5</b>	-	7.6	7.6	-	7.3	8.1	7.2	7.45	



Table 6 - Groundwater Quality - Deep Bedrock

	Unit	RDL	Hall's Glen BR RUC	ODWQS	Location Date	MW08-1 2012-05-18	MW08-1 2012-10-09	MW08-1 2013-06-10	MW08-1 2013-11-05	MW08-1 2014-06-26	MW08-1 2014-11-06
<b>Metals</b>											
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>		-	-	-	-	-	0.3
Barium (Filtered)	µg/L	0.01	<b>390</b>	<b>1000</b>		118	112	103	110	107	103
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>		92.1	86.6	92.7	80.4	92.6	76
Calcium (Filtered)	µg/L	10				112,000	108,000	94,300	103,000	100,000	106,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>		-	-	-	-	-	0.014
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>		65,000	69,000	74,000	71,000	75,000	75,000
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>		-	-	-	-	-	2.35
Copper (Filtered)	µg/L	0.02		<b>1000</b>		-	-	-	-	-	2.48
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>		41	<b>531</b>	<b>1200</b>	<b>250</b>	<b>3030</b>	<b>184</b>
Lead (Filtered)	µg/L	0.01		<b>10</b>		-	-	-	-	-	0.51
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>		-	-	-	-	-	<b>30.6</b>
Magnesium (Filtered)	µg/L	1				9260	9150	9240	9030	11,300	9620
Mercury (Filtered)	µg/L	0.01		<b>1</b>		-	-	-	-	-	-
Phosphorus (Filtered)	µg/L	10				-	-	-	-	-	-
Potassium (Filtered)	µg/L	2				-	-	-	-	-	3840
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>		43,800	42,600	39,400	42,000	45,100	46,600
Zinc (Filtered)	µg/L	2		<b>5000</b>		-	-	-	-	-	5
<b>Inorganics</b>											
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>		298	290	281	274	309	309
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>		-	-	-	-	-	-
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>		454	471	426	434	440	457
Oxygen Demand - Chemical (COD)	mg/L	5				13	9	<8	<8	<8	<8
Solids - Total Suspended (TSS)	mg/L					-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>		1.8	1.5	2.5	3.1	2.7	2.8
Oxygen Demand - Biological (BOD)	mg/L					-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.002				-	-	-	-	-	-
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>		16	17	16	18	15	16
Ammonia	mg/L	0.01				<0.1	<0.1	<0.1	<0.1	0.1	0.2
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>		0.26	0.08	0.16	0.06	0.09	<0.06
Nitrite (as N)	mg/L	0.03		<b>1</b>		-	-	-	-	-	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1				-	-	-	-	-	-
Conductivity (lab)	µS/cm	1				784	820	784	771	793	791
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>		7.89	8.02	7.96	8.16	7.5	8.09
<b>Field</b>											
DO (Field)	mg/L					-	-	-	-	-	-
Redox Potential (Field)	mV					-	-	-	-	-	-
Temp (Field)	°C					-	-	-	-	-	-
Conductivity (field)	µS/cm					-	-	-	-	-	-
pH (Field)	-			<b>6.5-8.5</b>		-	-	-	-	-	-



Table 6 - Groundwater Quality - Deep Bedrock

Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW08-1	MW08-1	MW08-1	MW08-1	MW08-1	MW08-1
				Date	2015-05-22	2016-05-30	2016-10-31	2017-05-31	2017-10-04	2019-05-30
<b>Metals</b>										
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	3.5	0.9	2.1	0.6	<0.2
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>	101	110	97.8	122	105	106
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	82	128	91	116	105	114
Calcium (Filtered)	µg/L	10			103,000	118,000	110,000	115,000	108,000	125,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	0.005	<0.003	0.004	0.017	<0.003	<0.003
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	71,000	71,000	70,000	78,000	79,000	83,000
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.1	0.37	0.38	0.81	0.66	0.12
Copper (Filtered)	µg/L	0.02		<b>1000</b>	3.49	0.2	0.88	3.92	0.36	0.9
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	28	<b>3890</b>	<b>1040</b>	<b>3820</b>	<b>881</b>	16
Lead (Filtered)	µg/L	0.01		<b>10</b>	0.01	0.02	0.03	2.11	<0.01	0.01
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	9.63	<b>190</b>	<b>97.7</b>	<b>188</b>	<b>156</b>	5.23
Magnesium (Filtered)	µg/L	1			9820	10,500	10,100	11,600	11,200	11,700
Mercury (Filtered)	µg/L	0.01		<b>1</b>	<0.01	<0.01	<0.01	<b>10</b>	-	<10
Phosphorus (Filtered)	µg/L	10			<30	<30	-	<30	-	-
Potassium (Filtered)	µg/L	2			3200	3490	3220	3810	3410	3770
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	44,500	48,400	43,800	45,500	44,200	48,400
Zinc (Filtered)	µg/L	2		<b>5000</b>	2	<2	4	8	2	3
<b>Inorganics</b>										
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	304	314	299	313	294	284
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	440	437	457	454	460	489
Oxygen Demand - Chemical (COD)	mg/L	5			13	9	<8	<8	8	<8
Solids - Total Suspended (TSS)	mg/L				-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	<1	2	<b>4</b>	1	2	-
Oxygen Demand - Biological (BOD)	mg/L				-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.002			<0.002	0.004	-	0.006	-	0.001
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	17	15	13	15	16	18
Ammonia	mg/L	0.01			<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	0.25	0.08	0.13	<0.06	-	<0.06
Nitrite (as N)	mg/L	0.03		<b>1</b>	<0.03	<0.03	-	<0.03	0.11	<0.03
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			<0.5	<0.5	-	0.5	-	<0.5
Conductivity (lab)	µS/cm	1			788	816	824	792	814	795
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.92	8.07	7.99	7.83	7.83	7.53
<b>Field</b>										
DO (Field)	mg/L				-	-	-	-	-	4.8
Redox Potential (Field)	mV				-	-	-	-	-	198
Temp (Field)	°C				-	-	-	-	-	9.2
Conductivity (field)	µS/cm				-	-	-	-	-	570
pH (Field)	-			<b>6.5-8.5</b>	-	-	-	-	-	7.7



Table 6 - Groundwater Quality - Deep Bedrock

	Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW08-1	MW08-1	MW08-1	MW08-1	MW08-1	MW08-1	MW08-1
					Date	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-28	2021-11-11
<b>Metals</b>												
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>		<0.2	<0.2	0.16	<0.2	<0.2	0.4	0.3
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>		106	106	0.9	94.8	97.6	109	119
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>		114	102	18	101	99	79	63
Calcium (Filtered)	µg/L	10				125,000	121,000	3640	105,000	111,000	115,000	118,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>		<0.003	0.009	<b>11,300</b>	<0.003	0.003	<0.015	<0.015
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>		83,000	78,000	<0.2	86,000	85,000	84,100	72,100
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>		0.12	0.16	<b>83.7</b>	0.17	0.77	<1	<1
Copper (Filtered)	µg/L	0.02		<b>1000</b>		0.9	0.9	<b>45,900</b>	0.8	1.2	2.2	0.5
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>		16	18	0.14	17	19	10	<b>885</b>
Lead (Filtered)	µg/L	0.01		<b>10</b>		<0.01	0.14	-	<0.01	<0.01	0.08	0.02
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>		5.23	<b>83.7</b>	-	4.05	<b>56.4</b>	17	<b>260</b>
Magnesium (Filtered)	µg/L	1				11,700	11,300	-	12,000	11,400	10,200	8050
Mercury (Filtered)	µg/L	0.01		<b>1</b>		<10	-	0.009	<b>10</b>	-	<0.02	<0.02
Phosphorus (Filtered)	µg/L	10				<30	-	200	<3	-	50	60
Potassium (Filtered)	µg/L	2				3770	3640	3	3150	3580	3000	2900
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>		48,400	45,900	-	52,100	48,500	53,400	49,700
Zinc (Filtered)	µg/L	2		<b>5000</b>		3	3	-	4	<2	<5	<5
<b>Inorganics</b>												
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>		284	274	274	290	287	273	277
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>		-	-	-	-	-	329	328
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>		489	454	454	451	440	433	408
Oxygen Demand - Chemical (COD)	mg/L	5				<8	<8	<8	<8	<8	<5	16
Solids - Total Suspended (TSS)	mg/L					-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>		-	<1	<b>121</b>	2	1	2.8	2.2
Oxygen Demand - Biological (BOD)	mg/L					-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.002				0.001	-	<0.06	<0.002	-	<0.002	<0.002
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>		18	19	<1	19	18	20	12
Ammonia	mg/L	0.01				<0.1	0.2	78	<0.1	<0.1	0.02	0.01
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>		<0.06	<0.06	0.102	<0.06	<0.06	0.22	0.46
Nitrite (as N)	mg/L	0.03		<b>1</b>		<0.03	-	0.106	<0.03	-	<0.05	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1				<0.5	-	19	<0.5	-	0.2	-
Conductivity (lab)	µS/cm	1				795	801	801	794	791	822	778
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>		7.53	7.94	7.94	7.84	7.73	7.77	7.92
<b>Field</b>												
DO (Field)	mg/L					-	3.7	-	-	7.7	3.15	2.3
Redox Potential (Field)	mV					-	21	-	-	119	221	-72
Temp (Field)	°C					-	12.2	-	15.2	5.8	11.1	9
Conductivity (field)	µS/cm					-	695	-	-	460	792	335
pH (Field)	-					-	<b>6.4</b>	-	7.7	8.4	7.04	7.24





Table 6 - Groundwater Quality - Deep Bedrock

Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW09-1	MW09-1	MW09-1	MW09-1	MW09-1	MW09-1	MW09-1	MW09-1
				Date	2017-10-04	2019-05-30	2019-10-29	2019-11-0E	2020-05-26	2020-11-18	2021-06-28	2021-11-11
<b>Metals</b>												
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	<0.2	<0.2	0.16	<0.2	<0.2	<0.1	<0.1
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>	<b>772</b>	<b>688</b>	<b>570</b>	<0.2	<b>689</b>	<b>612</b>	<b>768</b>	<b>897</b>
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	549	590	491	8	531	468	571	569
Calcium (Filtered)	µg/L	10			56,900	58,700	55,700	5320	53,000	57,500	51,600	53,700
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	<0.003	<0.003	<0.003	<b>18,900</b>	<0.003	<0.003	<0.015	<0.015
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	28,000	16,000	18,000	<0.2	16,000	15,000	15,200	16,200
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.63	0.15	0.16	<b>70</b>	0.17	0.67	7	<1
Copper (Filtered)	µg/L	0.02		<b>1000</b>	<0.02	<0.2	<0.2	<b>42,600</b>	0.4	<0.2	<0.1	<0.1
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	9	<7	8	0.01	15	<7	40	<5
Lead (Filtered)	µg/L	0.01		<b>10</b>	<0.01	<0.01 - 0.01	0.01	-	<0.01	<0.01	0.07	<0.02
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	<b>90.4</b>	<b>82</b>	<b>70</b>	-	<b>69.9</b>	<b>58.3</b>	<b>64</b>	<b>41</b>
Magnesium (Filtered)	µg/L	1			22,000	22,700	18,900	-	24,400	20,800	22,900	22,100
Mercury (Filtered)	µg/L	0.01		<b>1</b>	-	<10	-	<0.003	<10	-	<0.02	<0.02
Phosphorus (Filtered)	µg/L	10			-	<30	-	700	<3	-	60	40
Potassium (Filtered)	µg/L	2			5380	6170	5320	<2	5330	5420	5400	5600
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	50,000	51,700	42,600	-	56,200	47,000	54,400	52,500
Zinc (Filtered)	µg/L	2		<b>5000</b>	<2	<2	<2	-	<2	<2	<5	<5
<b>Inorganics</b>												
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	292	271	241	241	258	335	236	239
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	223	225
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	366	391	323	323	337	320	315	326
Oxygen Demand - Chemical (COD)	mg/L	5			34	34	24	24	37	35	33	35
Solids - Total Suspended (TSS)	mg/L				-	-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	2	-	<1	<b>55.7</b>	1	1	2.6	1.8
Oxygen Demand - Biological (BOD)	mg/L				-	-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.002			-	<0.001	-	<0.06	0.003	-	0.009	0.013
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	53	41	42	<1	63	66	55	46
Ammonia	mg/L	0.01			0.7	0.7	0.7	18	0.6	0.7	0.65	0.64
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	-	<0.06	<0.06	0.491	<0.06	<0.06	<0.05	<0.05
Nitrite (as N)	mg/L	0.03		<b>1</b>	<0.06	<0.03	-	0.57	<0.03	-	<0.05	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			-	0.5	-	42	0.6	-	0.7	-
Conductivity (lab)	µS/cm	1			617	605	561	561	592	598	607	628
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	8.02	7.41	7.23	8.23	7.73	8.24	7.84	7.82
<b>Field</b>												
DO (Field)	mg/L				-	3.7	2.8	-	-	3.7	6.1	3.33
Redox Potential (Field)	mV				-	-195	-220	-	-	-288	119	-96
Temp (Field)	°C				-	10.5	13.2	-	14.8	7.3	10.8	9.4
Conductivity (field)	µS/cm				-	420	533	-	-	361	622	271
pH (Field)	-			<b>6.5-8.5</b>	-	7.9	7.6	-	7.5	7.7	7.83	7.82





Table 6 - Groundwater Quality - Deep Bedrock

	Unit	RDL	Hall's Glen BR RUC	ODWQS	Location Date	MW10-1 2017-10-04	MW10-1 2019-05-30	MW10-1 2019-10-29	MW10-1 2019-11-0E	MW10-1 2020-05-26	MW10-1 2020-11-18	MW10-1 2021-06-24	MW10-1 2021-11-11
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	6.4	25		<0.2	<0.2	<0.2	0.14	<0.2	<0.2	<0.1	<0.1
Barium (Filtered)	µg/L	0.01	350	1000		823	839	803	<0.2	848	662	944	888
Boron (Filtered)	µg/L	0.2	2529	5000		217	260	273	14	221	201	184	193
Calcium (Filtered)	µg/L	10				98,400	103,000	91,900	4590	90,900	96,300	105,000	98,500
Cadmium (Filtered)	µg/L	0.003		5		<0.003	<0.003	<0.003	20,500	<0.003	<0.003	<0.015	<0.015
Chloride (Filtered)	µg/L	200	195000	250000		53,000	51,000	49,000	<0.2	53,000	51,000	54,200	48,400
Chromium (III+VI) (Filtered)	µg/L	0.03		50		0.65	0.13	0.14	136	0.18	0.71	<1	<1
Copper (Filtered)	µg/L	0.02		1000		0.16	<0.2	<0.2	13,000	0.2	0.3	0.1	<0.1
Iron (Filtered)	µg/L	2	154	300		10	85	14	<0.01	48	23	18	17
Lead (Filtered)	µg/L	0.01		10		<0.01	<0.01 - 0.01	0.01	-	<0.01	0.02	0.05	<0.02
Manganese (Filtered)	µg/L	0.01	25.08	50		137	173	136	-	119	124	62	102
Magnesium (Filtered)	µg/L	1				18,300	20,700	20,500	-	21,500	20,100	17,700	17,400
Mercury (Filtered)	µg/L	0.01		1		-	<10	-	<0.003	20	-	<0.02	<0.02
Phosphorus (Filtered)	µg/L	10				-	<30	-	200	3	-	30	<10
Potassium (Filtered)	µg/L	2				4003	4690	4590	<2	3870	4460	3500	3700
Sodium (Filtered)	µg/L	10	136400	200000		11,600	13,200	13,000	-	14,100	12,900	11,200	11,500
Zinc (Filtered)	µg/L	2		5000		<2	4	<2	-	6	3	<5	<5
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	388	500		223	245	232	232	233	241	251	236
Hardness (as CaCO3) (Filtered)	mg/L	1	445	500		-	-	-	-	-	-	335	317
Solids - Total Dissolved (TDS)	mg/L	3	647	500		414	400	334	334	377	351	336	337
Oxygen Demand - Chemical (COD)	mg/L	5				8	<8	<8	<8	<8	<8	<5	10
Solids - Total Suspended (TSS)	mg/L					-	-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	3.5	5		1	-	<1	91.9	1	1	2.8	1.4
Oxygen Demand - Biological (BOD)	mg/L					-	-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.002				-	0.002	-	<0.06	<0.002	-	<0.002	0.002
Sulphate	mg/L	0.2	270	500		31	25	23	<1	25	25	23	20
Ammonia	mg/L	0.01				0.3	0.2	0.2	49	0.2	0.3	0.15	0.18
Nitrate (as N)	mg/L	0.05	4.22	10		-	<0.06	<0.06	0.273	<0.06	<0.06	<0.05	<0.05
Nitrite (as N)	mg/L	0.03		1		<0.06	<0.03	-	0.803	<0.03	-	<0.05	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1				-	<0.5	-	23	<0.5	-	0.1	-
Conductivity (lab)	µS/cm	1				643	616	608	608	623	631	648	649
pH (Lab)	-	0.05	6.5-8.5	6.5-8.5		7.77	7.74	8.16	8.16	7.8	7.91	7.76	7.8
<b>Field</b>													
DO (Field)	mg/L					-	4	3.6	-	-	3.4	2.59	2.07
Redox Potential (Field)	mV					-	-70	-126	-	-	-238	-118	15
Temp (Field)	°C					-	10.2	13.2	-	14.1	6.6	8.9	9.4
Conductivity (field)	µS/cm					-	447	556	-	-	373	648	284
pH (Field)	-					-	7.8	7.5	-	7.7	8.1	8.15	7.32





Table 6 - Groundwater Quality - Deep Bedrock

Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW11-1	MW11-1	MW11-1	MW11-1	MW11-1	MW11-1	MW11-1	MW11-1	
				Date	2017-10-04	2019-05-30	2019-10-29	2019-11-0E	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	<0.2	<0.2	0.18	<0.2	<0.2	<0.1	<0.1	
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>	<b>434</b>	<b>460</b>	<b>446</b>	<0.2	<b>683</b>	<b>1740</b>	<b>570</b>	<b>748</b>	
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	511	362	396	19	331	438	610	442	
Calcium (Filtered)	µg/L	10			99,900	101,000	90,600	4230	90,300	101,000	79,200	91,900	
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	<0.003	<0.003	<0.003	<b>20,700</b>	0.005	<0.003	<0.015	<0.015	
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	33,000	29,000	35,000	<0.2	34,000	28,000	27,900	35,700	
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.77	0.18	0.18	<b>85.3</b>	0.41	0.67	<1	<1	
Copper (Filtered)	µg/L	0.02		<b>1000</b>	0.18	<0.2	<0.2	<b>12,300</b>	0.4	<0.2	<0.1	<0.1	
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	16	42	19	0.08	14	<7	116	48	
Lead (Filtered)	µg/L	0.01		<b>10</b>	<0.01	0.03	0.08	<500	0.02	<0.01	0.07	<0.02	
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	<b>86.4</b>	<b>62.9</b>	<b>85.3</b>	<500	<b>68</b>	<b>64.3</b>	<b>86</b>	<b>55</b>	
Magnesium (Filtered)	µg/L	1			25,800	19,400	20,700	<500	22,800	27,300	34,400	25,600	
Mercury (Filtered)	µg/L	0.01		<b>1</b>	-	<10	-	<0.003	<b>10</b>	-	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	10			-	-	-	900	6	-	180	170	
Potassium (Filtered)	µg/L	2			4800	4260	4230	<2	3880	5000	5400	4500	
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	14,600	12,800	12,300	<500	14,700	15,900	19,800	15,800	
Zinc (Filtered)	µg/L	2		<b>5000</b>	2	3	<2	<200	7	<2	<5	<5	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	263	260	248	248	241	290	271	243	
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	339	335	
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	409	400	334	334	391	346	346	360	
Oxygen Demand - Chemical (COD)	mg/L	5			10	9	11	11	11	10	65	58	
Solids - Total Suspended (TSS)	mg/L				-	-	-	-	-	-	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	2	-	<1	<b>90.6</b>	2	<1	3	2.3	
Oxygen Demand - Biological (BOD)	mg/L				-	-	-	-	-	-	-	-	
Phenols (4AAP)	mg/L	0.002			-	<0.001	-	<0.06	<0.002	-	<0.002	0.008	
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	54	37	29	<1	43	64	62	49	
Ammonia	mg/L	0.01			1	0.7	0.9	35	0.8	0.8	0.88	1.03	
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	-	<0.06	<0.06	0.396	<0.06	<0.06	<0.05	<0.05	
Nitrite (as N)	mg/L	0.03		<b>1</b>	<0.06	<0.03	-	0.446	<0.03	-	<0.05	-	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			-	0.5	-	29	0.9	-	1.6	-	
Conductivity (lab)	µS/cm	1			663	643	598	598	607	657	666	693	
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.84	7.78	8.22	8.22	7.83	8.09	7.91	7.69	
<b>Field</b>													
DO (Field)	mg/L				-	3.8	4.4	-	-	3.6	12.42	9.36	
Redox Potential (Field)	mV				-	-95	-125	-	-	-235	5	15	
Temp (Field)	°C				-	9.5	12.9	-	14.5	6.2	8.3	9	
Conductivity (field)	µS/cm				-	435	589	-	-	386	655	294	
pH (Field)	-			<b>6.5-8.5</b>	-	7.8	7.7	-	7.7	8	<b>8.76</b>	7.8	





Table 6 - Groundwater Quality - Deep Bedrock

		Hall's Glen BR RUC	ODWQS	Location	MW12-2	MW12-2	MW12-2						
Unit	RDL			Date	2016-11-01	2017-10-04	2019-05-30	2019-10-29	2019-11-11	2020-05-26	2020-11-18	2021-06-24	2021-11-11
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.6	4.8
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>	209	183	252	204	204	195	180	195	130
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	514	429	609	548	548	621	566	674	175
Calcium (Filtered)	µg/L	10			91,600	96,100	111,000	115,000	115,000	82,300	86,000	78,000	102,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.015	0.021
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	39,000	41,000	38,000	37,000	37,000	34,000	32,000	32,200	43,200
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.41	0.59	0.35	0.23	0.23	0.2	0.58	<1	<1
Copper (Filtered)	µg/L	0.02		<b>1000</b>	0.75	0.13	<0.2	<0.2	<0.2	0.3	<0.2	<0.1	1.1
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	54	33	143	7	7	38	15	<5	<b>917</b>
Lead (Filtered)	µg/L	0.01		<b>10</b>	0.05	<0.01	0.46	0.1	0.1	0.01	<0.01	1.7	8.15
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	<b>181</b>	<b>164</b>	<b>139</b>	<b>148</b>	<b>148</b>	<b>110</b>	<b>96.81</b>	<b>114</b>	<b>292</b>
Magnesium (Filtered)	µg/L	1			20,900	21,500	24,700	26,800	26,800	31,200	27,000	29,100	18,800
Mercury (Filtered)	µg/L	0.01		<b>1</b>	<0.01	-	<10	-	-	<b>10</b>	-	<0.02	<0.02
Phosphorus (Filtered)	µg/L	10			-	-	30	-	400	3	-	170	1010
Potassium (Filtered)	µg/L	2			3520	3200	3750	4160	4160	3560	3700	3500	2000
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	37,000	36,700	41,400	45,700	45,700	47,900	39,000	46,800	45,700
Zinc (Filtered)	µg/L	2		<b>5000</b>	11	<2	4	3	3	3	4	<5	7
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	270	264	294	285	285	303	291	300	284
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	-	315	331
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	440	457	463	417	417	394	431	399	390
Oxygen Demand - Chemical (COD)	mg/L	5			<8	<8	8	18	18	23	<8	16	98
Solids - Total Suspended (TSS)	mg/L				-	-	-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	<1	1	-	<1	<1	1	1	<b>3.9</b>	1.6
Oxygen Demand - Biological (BOD)	mg/L				-	-	-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.002			-	-	0.001	-	-	<0.002	-	<0.002	<0.002
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	72	71	72	78	78	75	80	79	33
Ammonia	mg/L	0.01			0.1	0.3	0.3	0.4	-	0.4	0.4	0.44	0.31
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	0.1	-	<0.06	<0.06	<0.06	<0.06	<0.06	0.06	<0.05
Nitrite (as N)	mg/L	0.03		<b>1</b>	-	<0.06	<0.03	-	-	<0.03	-	<0.05	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			-	-	<0.5	-	-	<0.5	-	0.6	-
Conductivity (lab)	µS/cm	1			758	750	740	730	730	732	708	763	746
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.85	8.03	7.62	7.95	7.95	7.73	7.79	7.92	7.93
<b>Field</b>													
DO (Field)	mg/L				-	-	4.1	6.5	-	-	5.4	6.76	5.98
Redox Potential (Field)	mV				-	-	-55	-106	-	-	-151	-4	43
Temp (Field)	°C				-	-	9.1	9.2	-	12.9	10.3	8.1	8.9
Conductivity (field)	µS/cm				-	-	501	576	-	-	486	748	331
pH (Field)	-				-	-	7.7	7.5	-	7.3	7.6	7.87	7.2





Table 6 - Groundwater Quality - Deep Bedrock

Unit	RDL	Hall's Glen BR RUC	ODWQS	Location	MW12-3	MW12-3	MW12-3	MW12-3	MW12-3	MW12-3	MW12-3	MW12-3	MW12-3	
				Date	2016-11-01	2017-10-04	2019-05-30	2019-10-29	2019-11-11	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>														
Arsenic (Filtered)	µg/L	0.1	<b>6.4</b>	<b>25</b>	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1
Barium (Filtered)	µg/L	0.01	<b>350</b>	<b>1000</b>	48.6	29.1	39.9	66.4	66.4	34	29.2	31	31	30
Boron (Filtered)	µg/L	0.2	<b>2529</b>	<b>5000</b>	108	79	90	143	143	77	69	83	83	83
Calcium (Filtered)	µg/L	10			129,000	134,000	162,000	140,000	140,000	127,000	134,000	133,000	127,000	127,000
Cadmium (Filtered)	µg/L	0.003		<b>5</b>	<0.003	0.004	<0.003	<0.003	<0.003	0.003	0.003	<0.015	<0.015	<0.015
Chloride (Filtered)	µg/L	200	<b>195000</b>	<b>250000</b>	52,000	60,000	55,000	51,000	51,000	52,000	47,000	48,600	44,500	44,500
Chromium (III+VI) (Filtered)	µg/L	0.03		<b>50</b>	0.36	0.55	0.26	0.15	0.15	0.09	0.72	<1	4	4
Copper (Filtered)	µg/L	0.02		<b>1000</b>	0.36	0.13	<0.2	<0.2	<0.2	0.4	0.3	0.1	<0.1	<0.1
Iron (Filtered)	µg/L	2	<b>154</b>	<b>300</b>	<b>368</b>	13	54	99	99	<7	56	19	44	44
Lead (Filtered)	µg/L	0.01		<b>10</b>	0.03	0.03	0.26	0.03	0.03	0.02	<0.01	0.08	0.08	0.08
Manganese (Filtered)	µg/L	0.01	<b>25.08</b>	<b>50</b>	<b>83.1</b>	11.1	14.5	<b>50.23</b>	<b>50.23</b>	<b>62.7</b>	19.3	<b>34</b>	<b>24</b>	<b>24</b>
Magnesium (Filtered)	µg/L	1			5720	5500	6180	8910	8910	5490	5370	5830	5430	5430
Mercury (Filtered)	µg/L	0.01		<b>1</b>	<0.01	-	<10	-	-	<b>10</b>	-	<0.02	<0.02	<0.02
Phosphorus (Filtered)	µg/L	10			-	-	<30	-	<100	<3	-	40	730	730
Potassium (Filtered)	µg/L	2			1850	1710	1940	2060	2060	1650	1660	1600	1800	1800
Sodium (Filtered)	µg/L	10	<b>136400</b>	<b>200000</b>	14,400	14,400	15,700	18,800	18,800	16,100	13,200	16,000	16,200	16,200
Zinc (Filtered)	µg/L	2		<b>5000</b>	4	3	8	<2	<2	<2	<2	<5	<5	<5
<b>Inorganics</b>														
Alkalinity (as CaCO3)	mg/L	2	<b>388</b>	<b>500</b>	276	277	290	272	272	296	334	283	263	263
Hardness (as CaCO3) (Filtered)	mg/L	1	<b>445</b>	<b>500</b>	-	-	-	-	-	-	-	356	340	340
Solids - Total Dissolved (TDS)	mg/L	3	<b>647</b>	<b>500</b>	443	486	443	391	391	403	394	362	361	361
Oxygen Demand - Chemical (COD)	mg/L	5			<8	<8	<8	<8	<8	<8	<8	<5	32	32
Solids - Total Suspended (TSS)	mg/L				-	-	-	-	-	-	-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	<b>3.5</b>	<b>5</b>	<1	1	-	1	1	1	1	3.5	1.6	1.6
Oxygen Demand - Biological (BOD)	mg/L				-	-	-	-	-	-	-	-	-	-
Phenols (4AAP)	mg/L	0.002			-	-	0.001	-	-	<0.002	-	<0.002	<0.002	<0.002
Sulphate	mg/L	0.2	<b>270</b>	<b>500</b>	21	25	26	24	24	23	21	23	23	23
Ammonia	mg/L	0.01			<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	0.02	0.05	0.05
Nitrate (as N)	mg/L	0.05	<b>4.22</b>	<b>10</b>	0.27	-	<0.06	<0.06	<0.06	<0.06	<0.06	<0.05	<0.05	<0.05
Nitrite (as N)	mg/L	0.03		<b>1</b>	-	<0.06	<0.03	-	-	<0.03	-	<0.05	-	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1			-	-	<0.5	-	-	<0.5	-	0.2	-	-
Conductivity (lab)	µS/cm	1			729	737	711	694	694	681	663	696	694	694
pH (Lab)	-	0.05	<b>6.5-8.5</b>	<b>6.5-8.5</b>	7.86	7.77	8.06	7.75	7.75	7.68	7.7	7.75	7.72	7.72
<b>Field</b>														
DO (Field)	mg/L				-	-	5.7	10.8	-	-	4.5	3.52	2.63	2.63
Redox Potential (Field)	mV				-	-	147	-51	-	-	-59	-5	12	12
Temp (Field)	°C				-	-	10.1	9.5	-	14.1	9.6	7.2	8.7	8.7
Conductivity (field)	µS/cm				-	-	510	572	-	-	446	694	300	300
pH (Field)	-			<b>6.5-8.5</b>	-	-	7.7	7.7	-	7.4	7.5	7.48	7.15	7.15













Table 7 - Groundwater Quality - Residential Wells

Unit	RDL	ODWQS	Location	R4									
			Date	2017-10-04	2019-05-30	2019-10-29	2019-10-29	2020-05-26	2020-11-18	2020-11-18	2021-06-28	2021-11-11	
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	25	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	C.1	0.2
Barium (Filtered)	µg/L	0.01	1000	152	117	141	141	114	125	125	125	128	122
Boron (Filtered)	µg/L	0.2	5000	32	16	29	29	16	31	31	31	20	26
Calcium (Filtered)	µg/L	10		133,000	128,000	120,000	120,000	116,000	126,000	126,000	126,000	127,000	113,000
Cadmium (Filtered)	µg/L	0.003	5	0.005	0.004	0.011	0.011	0.007	0.007	0.007	0.007	<0.015	<0.015
Chloride (Filtered)	µg/L	200	250000	280,000	52,000	210,000	210,000	210,000	220,000	220,000	220,000	183,000	126,000
Chromium (III+VI) (Filtered)	µg/L	0.03	50	0.85	0.25	0.58	0.58	0.29	1.23	1.23	1.23	2	<1
Copper (Filtered)	µg/L	0.02	1000	19.76	109	86.2	86.2	70.5	169	169	169	117	96.2
Iron (Filtered)	µg/L	2	300	19	<7	14	14	11	8	8	8	6	<5
Lead (Filtered)	µg/L	0.01	10	0.64	2.29 - 9	1.43	1.43	1.56	2.69	2.69	2.69	2.32	2.6
Manganese (Filtered)	µg/L	0.01	50	0.73	0.1	0.61	0.61	0.42	0.22	0.22	0.22	<1	<1
Magnesium (Filtered)	µg/L	1		4200	3290	3290	3290	3750	-	-	3290	3870	3200
Mercury (Filtered)	µg/L	0.01	1	-	<10	-	-	<10	-	-	-	<0.02	<0.02
Phosphorus total (P2O5)	µg/L	10		-	9	-	23	<30	-	-	-	10	30
Potassium (Filtered)	µg/L	2		3120	3260	3220	3220	2950	3160	3160	3160	2800	2700
Sodium (Filtered)	µg/L	10	200000	186,000	34,600	153,000	153,000	138,000	165,000	165,000	165,000	121,000	123,000
Zinc (Filtered)	µg/L	2	5000	14	2.29 - 23	37	37	31	30	30	30	45	28
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	500	403	288	336	336	304	347	347	347	267	338
Hardness (as CaCO3) (Filtered)	mg/L	1	500	-	-	-	-	-	-	-	-	333	294
Solids - Total Dissolved (TDS)	mg/L	3	500	880	411	726	726	629	797	797	797	605	563
Oxygen Demand - Chemical (COD)	mg/L	5		9	25	<8	<8	<8	18	18	18	<5	8
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2	5	3	5	1	1	2	4	4	4	2	2.1
Phenols (4AAP)	mg/L	0.002		-	<0.002	-	-	0.002	-	-	-	<0.002	<0.002
Sulphate	mg/L	0.2	500	18	13	17	17	10	14	14	14	12	10
Ammonia	mg/L	0.01		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.01
Nitrate (as N)	mg/L	0.05	10	-	3.15	1.59	1.59	0.56	220	2.12	2.12	1.38	0.97
Nitrite (as N)	mg/L	0.03	1	0.61	<0.03	-	-	<0.03	-	-	-	<0.05	<0.05
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1		-	<0.5	-	-	<0.5	-	-	-	0.2	0.2
Conductivity (lab)	µS/cm	1		1610	743	1290	1290	1130	1340	1340	1340	1300	1050
pH (Lab)	-	0.05	6.5-8.5	7.39	8.01	7.75	7.75	7.72	7.85	7.85	7.85	7.87	8.21
<b>Field</b>													
DO (Field)	mg/L			-	-	-	-	-	-	-	-	8.86	8.16
Redox Potential (Field)	mV			-	-	-	-	-	-	-	-	145	17
Temp (Field)	°C			-	-	-	-	-	-	-	-	13.4	19.1
Conductivity (field)	µS/cm			-	-	-	-	-	-	-	-	1046	425
pH (Field)	-		6.5-8.5	-	-	-	-	-	-	-	-	7.36	7.22



Table 8 - Groundwater Quality - VOCs

Unit RDL		ODWQS	Location Date	MW01-1 5/22/15	MW01-1 5/30/16	MW01-1 5/31/17	MW01-1 5/30/19	MW01-1 5/26/20	MW01-1 6/24/21
<b>BTEX</b>									
Benzene	ug/L	0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	0.5	60	<0.5	<0.5	<0.5	-	<0.5	<0.5
Ethylbenzene	ug/L	0.5	140	<0.5	-	<0.5	-	-	-
Xylene (m & p)	ug/L	0.5		<0.5	-	<0.5	-	-	-
Xylene (o)	ug/L	0.5		<0.5	-	<0.5	-	-	-
Xylene Tctal	ug/L	0.5	90	<0.5	-	<0.5	-	-	-
<b>VOCs</b>									
Monochlorobenzene (Chlorobenzene)	ug/L	0.2		<0.5	-	<0.5	-	-	<0.5
Acetone	ug/L	30		-	-	-	-	-	-
Bromodichloromethane	ug/L	0.5		<0.5	-	<0.5	-	-	-
Bromoform	ug/L	0.5		<0.5	-	<0.5	-	-	-
Bromomethane	ug/L	0.5		<0.5	-	<0.5	-	-	-
Carbon tetrachloride	ug/L	0.2	2	<0.2	-	<0.2	-	-	-
Chloroform	ug/L	0.5		<0.5	-	<0.5	-	-	-
Chloroethane	ug/L	3		<5	-	<5	-	-	-
Chloromethane	ug/L	2		<5	-	<5	-	-	-
Dibromochloromethane	ug/L	0.5		<0.5	-	<0.5	-	-	-
Dibromoethylene, 1,2-trans-	ug/L			-	-	<0.5	-	-	-
Dichlorobenzene, 1,2-	ug/L	0.5	200	<0.5	-	<0.5	-	-	-
Dichlorobenzene, 1,3-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Dichlorodifluoromethane	ug/L	2		-	-	-	-	-	-
Dichlorobenzene, 1,4-	ug/L	0.5	5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Dichloroethane, 1,1-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Dichloroethane, 1,2-	ug/L	0.5	5	<0.5	-	<0.5	-	-	-
Dichloroethylene, 1,1-	ug/L	0.5	14	<0.5	-	<0.5	-	-	-
Dichloroethylene, 1,2-trans-	ug/L	0.5		<0.5	-	-	-	-	-
Dichloroethylene, 1,2-cis-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Dichloropropane, 1,2-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Dichloropropene, 1,3-cis-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Dichloropropene, 1,3-trans-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Dichloropropene, 1,3-(cis+trans)	ug/L	0.5		-	-	-	-	-	-
Ethylene dibromide	ug/L	0.2		<0.2	-	<0.2	-	-	-
Hexane	ug/L	5		-	-	-	-	-	-
Methyl Ethyl Ketone	ug/L	20		-	-	-	-	-	-
Methyl Isobutyl Ketone	ug/L	20		-	-	-	-	-	-
Methylene chloride	ug/L	0.5	50	<0.5	<0.5	<0.5	-	<0.5	<5
Methyl tert-Butyl Ether	ug/L	2		-	-	-	-	-	-
Styrene	ug/L	0.5		<0.5	-	<0.5	-	-	-
Tetrachloroethane, 1,1,2,2-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Tetrachloroethane, 1,1,1,2-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Tetrachloroethylene	ug/L	0.5	10	<0.5	-	<0.5	-	-	-
Trichloroethane, 1,1,1-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Trichloroethane, 1,1,2-	ug/L	0.5		<0.5	-	<0.5	-	-	-
Trichloroethylene	ug/L	0.5	5	<0.5	-	<0.5	-	-	-
Trichlorofluoromethane	ug/L	5		<5	-	<5	-	-	-
Vinyl chloride	ug/L	0.2	1	<0.2	<0.2	<0.2	-	<0.2	<0.2





Table 8 - Groundwater Quality - VOCs

Unit		ODWQS	Location	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1	MW03-1
RDL			Date	5/30/16	11/01/16	10/04/17	5/30/19	11/08/19	5/26/20	11/18/20	6/24/21	11/11/21
<b>BTEX</b>												
Benzene	ug/L	0.5	1	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	0.5	60	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	0.5	140	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Xylene (m & p)	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<1
Xylene (o)	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5
Xylene Tctal	ug/L	0.5	90	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<1.1
<b>VOCs</b>												
Monochlorobenzene (Chlorobenzene)	ug/L	0.2		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acetone	µg/L	30		-	-	-	-	-	-	-	-	<30
Bromodichloromethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2
Bromoform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<5	<5
Bromomethane	ug/L	0.5		0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	ug/L	0.2	2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
Chloroform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
Chloroethane	µg/L	3		<5	<5	<5	<5	<0.5	<5	<5	<3	<3
Chloromethane	µg/L	2		<5	<5	<5	<5	<0.5	<5	<5	<2	<2
Dibromochloromethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2
Dibromoethylene, 1,2-trans-	ug/L			-	-	<0.5	<0.5	<0.2	<0.5	<0.5	-	-
Dichlorobenzene, 1,2-	ug/L	0.5	200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene, 1,3-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	µg/L	2		-	-	-	-	-	-	-	-	<2
Dichlorobenzene, 1,4-	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,1-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,2-	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,1-	ug/L	0.5	14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,2-trans-	µg/L	0.5		<0.5	<0.5	-	-	-	-	-	<0.5	<0.5
Dichloroethylene, 1,2-cis-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropane, 1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropene, 1,3-cis-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Dichloropropene, 1,3-trans-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropene, 1,3-(cis+trans)	µg/L	0.5		-	-	-	-	-	-	-	<0.5	<0.5
Ethylene dibromide	ug/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
Hexane	µg/L	5		-	-	-	-	-	-	-	-	<5
Methyl Ethyl Ketone	µg/L	20		-	-	-	-	-	-	-	-	<20
Methyl Isobutyl Ketone	µg/L	20		-	-	-	-	-	-	-	-	<20
Methylene chloride	ug/L	0.5	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
Methyl tert-Butyl Ether	µg/L	2		-	-	-	-	-	-	-	-	<2
Styrene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane, 1,1,2,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane, 1,1,1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	0.5	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,1-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	µg/L	5		<5	<5	<5	<5	<0.5	<5	<5	<5	<5
Vinyl chloride	ug/L	0.2	1	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2





















Table 8 - Groundwater Quality - VOCs

Unit		ODWQS	Location	MW06-1	MW06-1	MW06-1	MW06-1	MW06-1	MW06-1	MW06-1	MW06-1	MW06-1
RDL			Date	5/30/16	11/01/16	10/04/17	5/30/19	11/08/19	5/26/20	11/18/20	6/24/21	11/11/21
<b>BTEX</b>												
Benzene	ug/L	0.5	1	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	0.5	60	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	0.5	140	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Xylene (m & p)	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<1
Xylene (o)	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5
Xylene Tctal	ug/L	0.5	90	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<1.1
<b>VOCs</b>												
Monochlorobenzene (Chlorobenzene)	ug/L	0.2		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acetone	µg/L	30		-	-	-	-	-	-	-	-	<30
Bromodichloromethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2
Bromoform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<5	<5
Bromomethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	ug/L	0.2	2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
Chloroform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
Chloroethane	µg/L	3		<5	<5	<5	<5	<0.5	<5	<5	<3	<3
Chloromethane	µg/L	2		<5	<5	<5	<5	<0.5	<5	<5	<2	<2
Dibromochloromethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2
Dibromoethylene, 1,2-trans-	ug/L			-	-	<0.5	<0.5	<0.2	<0.5	<0.5	-	-
Dichlorobenzene, 1,2-	ug/L	0.5	200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene, 1,3-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	µg/L	2		-	-	-	-	-	-	-	-	<2
Dichlorobenzene, 1,4-	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,1-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,2-	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,1-	ug/L	0.5	14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,2-trans-	µg/L	0.5		<0.5	<0.5	-	-	-	-	-	<0.5	<0.5
Dichloroethylene, 1,2-cis-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropane, 1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropene, 1,3-cis-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Dichloropropene, 1,3-trans-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropene, 1,3-(cis+trans)	µg/L	0.5		-	-	-	-	-	-	-	<0.5	<0.5
Ethylene dibromide	ug/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
Hexane	µg/L	5		-	-	-	-	-	-	-	-	<5
Methyl Ethyl Ketone	µg/L	20		-	-	-	-	-	-	-	-	<20
Methyl Isobutyl Ketone	µg/L	20		-	-	-	-	-	-	-	-	<20
Methylene chloride	ug/L	0.5	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
Methyl tert-Butyl Ether	µg/L	2		-	-	-	-	-	-	-	-	<2
Styrene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane, 1,1,2,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane, 1,1,1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	0.5	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,1-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	µg/L	5		<5	<5	<5	<5	<0.5	<5	<5	<5	<5
Vinyl chloride	ug/L	0.2	1	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2























Table 8 - Groundwater Quality - VOCs

Unit	RDL	ODWQS	Location Date	MW11-1	MW11-1	MW11-1	MW11-1	MW11-1	MW11-1	MW11-1	MW11-1
				5/30/16	10/31/16	5/31/17	10/04/17	11/08/19	5/26/20	11/18/20	6/24/21
<b>BTEX</b>											
Benzene	ug/L	0.5	1	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5
Toluene	ug/L	0.5	60	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	0.5	140	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Xylene (m & p)	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<1
Xylene (o)	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
Xylene Tctal	ug/L	0.5	90	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<1.1
<b>VOCs</b>											
Monochlorobenzene (Chlorobenzene)	ug/L	0.2		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acetone	µg/L	30		-	-	-	-	-	-	-	<30
Bromodichloromethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2
Bromoform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<5
Bromomethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	ug/L	0.2	2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2
Chloroform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
Chloroethane	µg/L	3		<5	<5	<5	<5	<5	<5	<3	<3
Chloromethane	µg/L	2		<5	<5	<5	<5	<5	<5	<2	<2
Dibromochloromethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2
Dibromoethylene, 1,2-trans-	ug/L			-	-	<0.5	<0.5	<0.2	<0.5	-	-
Dichlorobenzene, 1,2-	ug/L	0.5	200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene, 1,3-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	µg/L	2		-	-	-	-	-	-	-	<2
Dichlorobenzene, 1,4-	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,1-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,2-	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,1-	ug/L	0.5	14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,2-trans-	µg/L	0.5		<0.5	<0.5	-	-	-	-	<0.5	<0.5
Dichloroethylene, 1,2-cis-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropane, 1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropene, 1,3-cis-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Dichloropropene, 1,3-trans-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropene, 1,3-(cis+trans)	µg/L	0.5		-	-	-	-	-	-	<0.5	<0.5
Ethylene dibromide	ug/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2
Hexane	µg/L	5		-	-	-	-	-	-	-	<5
Methyl Ethyl Ketone	µg/L	20		-	-	-	-	-	-	-	<20
Methyl Isobutyl Ketone	µg/L	20		-	-	-	-	-	-	-	<20
Methylene chloride	ug/L	0.5	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
Methyl tert-Butyl Ether	µg/L	2		-	-	-	-	-	-	-	<2
Styrene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5
Tetrachloroethane, 1,1,2,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5
Tetrachloroethane, 1,1,1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	0.5	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,1-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	µg/L	5		<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	0.2	1	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2





Table 8 - Groundwater Quality - VOCs

Unit RDL		ODWQS	Location Date	MW11-2 5/31/17	MW11-2 10/04/17	MW11-2 5/30/19	MW11-2 11/08/19	MW11-2 5/26/20	MW11-2 11/18/20	MW11-2 6/24/21	MW11-2 11/11/21
<b>BTEX</b>											
Benzene	ug/L	0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	0.5	60	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	0.5	140	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Xylene (m & p)	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<1
Xylene (o)	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Xylene Tctal	ug/L	0.5	90	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<1.1
<b>VOCs</b>											
Monochlorobenzene (Chlorobenzene)	ug/L	0.2		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acetone	µg/L	30		-	-	-	-	-	-	-	<30
Bromodichloromethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2
Bromoform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
Bromomethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	ug/L	0.2	2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
Chloroethane	µg/L	3		<5	<5	<5	<5	<5	<5	<3	<3
Chloromethane	µg/L	2		<5	<5	<5	<5	<5	<5	<2	<2
Dibromochloromethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<2	<2
Dibromoethylene, 1,2-trans-	ug/L			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
Dichlorobenzene, 1,2-	ug/L	0.5	200	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5
Dichlorobenzene, 1,3-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	µg/L	2		-	-	-	-	-	-	-	<2
Dichlorobenzene, 1,4-	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5
Dichloroethane, 1,1-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,2-	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,1-	ug/L	0.5	14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,2-trans-	µg/L	0.5		-	-	-	-	-	-	<0.5	<0.5
Dichloroethylene, 1,2-cis-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropane, 1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropene, 1,3-cis-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Dichloropropene, 1,3-trans-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloropropene, 1,3-(cis+trans)	µg/L	0.5		-	-	-	-	-	-	<0.5	<0.5
Ethylene dibromide	ug/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2
Hexane	µg/L	5		-	-	-	-	-	-	-	<5
Methyl Ethyl Ketone	µg/L	20		-	-	-	-	-	-	-	<20
Methyl Isobutyl Ketone	µg/L	20		-	-	-	-	-	-	-	<20
Methylene chloride	ug/L	0.5	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
Methyl tert-Butyl Ether	µg/L	2		-	-	-	-	-	-	-	<2
Styrene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5
Tetrachloroethane, 1,1,2,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane, 1,1,1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	0.5	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,1-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,2-	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	µg/L	5		<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	ug/L	0.2	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2





Table 8 - Groundwater Quality - VOCs

Unit	RDL	ODWQS	Location Date	MW12-3	MW12-3	MW12-3	MW12-3	MW12-3
				5/22/15	5/31/16	5/30/19	5/26/20	6/24/21
<b>BTEX</b>								
Benzene	ug/L	0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	0.5	60	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	0.5	140	-	-	-	-	-
Xylene (m & p)	ug/L	0.5		-	-	-	-	-
Xylene (o)	ug/L	0.5		-	-	-	-	-
Xylene Tctal	ug/L	0.5	90	-	-	-	-	-
<b>VOCs</b>								
Monochlorobenzene (Chlorobenzene)	ug/L	0.2		-	-	-	-	<0.5
Acetone	ug/L	30		-	-	-	-	-
Bromodichloromethane	ug/L	0.5		-	-	-	-	-
Bromoform	ug/L	0.5		-	-	-	-	-
Bromomethane	ug/L	0.5		-	-	-	-	-
Carbon tetrachloride	ug/L	0.2	2	-	-	-	-	-
Chloroform	ug/L	0.5		-	-	-	-	-
Chloroethane	ug/L	3		-	-	-	-	-
Chloromethane	ug/L	2		-	-	-	-	-
Dibromochloromethane	ug/L	0.5		-	-	-	-	-
Dibromoethylene, 1,2-trans-	ug/L			-	-	-	-	-
Dichlorobenzene, 1,2-	ug/L	0.5	200	-	-	-	-	-
Dichlorobenzene, 1,3-	ug/L	0.5		-	-	-	-	-
Dichlorodifluoromethane	ug/L	2		-	-	-	-	-
Dichlorobenzene, 1,4-	ug/L	0.5	5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,1-	ug/L	0.5		-	-	-	-	-
Dichloroethane, 1,2-	ug/L	0.5	5	-	-	-	-	-
Dichloroethylene, 1,1-	ug/L	0.5	14	-	-	-	-	-
Dichloroethylene, 1,2-trans-	ug/L	0.5		-	-	-	-	-
Dichloroethylene, 1,2-cis-	ug/L	0.5		-	-	-	-	-
Dichloropropane, 1,2-	ug/L	0.5		-	-	-	-	-
Dichloropropene, 1,3-cis-	ug/L	0.5		-	-	-	-	-
Dichloropropene, 1,3-trans-	ug/L	0.5		-	-	-	-	-
Dichloropropene, 1,3-(cis+trans)	ug/L	0.5		-	-	-	-	-
Ethylene dibromide	ug/L	0.2		-	-	-	-	-
Hexane	ug/L	5		-	-	-	-	-
Methyl Ethyl Ketone	ug/L	20		-	-	-	-	-
Methyl Isobutyl Ketone	ug/L	20		-	-	-	-	-
Methylene chloride	ug/L	0.5	50	<0.5	<0.5	<0.5	<0.5	<5
Methyl tert-Butyl Ether	ug/L	2		-	-	-	-	-
Styrene	ug/L	0.5		-	-	-	-	-
Tetrachloroethane, 1,1,2,2-	ug/L	0.5		-	-	-	-	-
Tetrachloroethane, 1,1,1,2-	ug/L	0.5		-	-	-	-	-
Tetrachloroethylene	ug/L	0.5	10	-	-	-	-	-
Trichloroethane, 1,1,1-	ug/L	0.5		-	-	-	-	-
Trichloroethane, 1,1,2-	ug/L	0.5		-	-	-	-	-
Trichloroethylene	ug/L	0.5	5	-	-	-	-	-
Trichlorofluoromethane	ug/L	5		-	-	-	-	-
Vinyl chloride	ug/L	0.2	1	<0.2	<0.2	<0.2	<0.2	<0.2





















Table 9 - Groundwater Quality - PWQO Comparison

Unit	RDL	PWQO	Location	MW08-2	MW08-2	MW08-2	MW08-2
			Date	2012-05-18	2012-10-09	2013-06-10	2013-11-05
<b>Metals</b>							
Arsenic (Filtered)	µg/L	0.1	5	-	-	-	-
Barium (Filtered)	µg/L	0.01		122	197	107	161
Boron (Filtered)	µg/L	0.2	200	15.3	35.7	11.1	27.4
Calcium (Filtered)	µg/L	10		98,000	131,000	85,100	113,000
Cadmium (Filtered)	µg/L	0.003	0.1 0.5	-	-	-	-
Chloride (Filtered)	µg/L	200		48,000	110,000	56,000	69,000
Chromium (III+VI) (Filtered)	µg/L	0.03	8.9	-	-	-	-
Copper (Filtered)	µg/L	0.02	1 5	-	-	-	-
Iron (Filtered)	µg/L	2	300	18	<3	20	12
Lead (Filtered)	µg/L	0.01	1 3 5	-	-	-	-
Manganese (Filtered)	µg/L	0.01		-	-	-	-
Magnesium (Filtered)	µg/L	1		3410	5020	2680	4140
Mercury (Filtered)	µg/L	0.01	0.2	-	-	-	-
Phosphorus (Filtered)	µg/L	3	30	-	-	-	-
Potassium (Filtered)	µg/L	2		-	-	-	-
Sodium (Filtered)	µg/L	10		28,800	50,700	29,500	35,900
Zinc (Filtered)	µg/L	2	20	-	-	-	-
<b>Inorganics</b>							
Alkalinity (as CaCO3)	mg/L	2		258	279	226	267
Hardness (as CaCO3) (Filtered)	mg/L	1		-	-	-	-
Solids - Total Dissolved (TDS)	mg/L	3		363	529	366	423
Oxygen Demand - Chemical (COD)	mg/L	5		15	<8	14	10
Solids - Total Suspended (TSS)	mg/L	2		-	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2		2.4	1.4	4.7	5.3
Oxygen Demand - Biological (BOD)	mg/L	2		-	-	-	-
Phenols (4AAP)	mg/L	0.001	0.001	-	-	-	-
Sulphate	mg/L	0.2		10	19	1.3	21
Ammonia	mg/L	0.01		<0.1	0.2	<0.1	<0.1
Nitrate (as N)	mg/L	0.05		0.44	1.22	0.1	0.35
Nitrite (as N)	mg/L	0.03		-	-	-	-
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1		-	-	-	-
Conductivity (lab)	µS/cm	1		657	929	604	757
pH (Lab)	-	0.05	6.5-8.5	7.87	8.07	7.91	8.23
<b>Field</b>							
DO (Field)	mg/L		5	-	-	-	-
Redox Potential (Field)	mV			-	-	-	-
Temp (Field)	°C			-	-	-	-
Conductivity (field)	µS/cm			-	-	-	-
pH (Field)	-		6.5-8.5	-	-	-	-



Table 9 - Groundwater Quality - PWQO Comparison

Unit	RDL	PWQO	Location	MW08-2						
			Date	2014-06-26	2014-11-06	2015-05-22	2016-05-30	2016-10-31	2017-05-31	2017-10-04
<b>Metals</b>										
Arsenic (Filtered)	µg/L	0.1	5	-	0.4	<0.2	<0.2	<0.2	<0.2	<0.2
Barium (Filtered)	µg/L	0.01		116	184	88	113	197	87.5	148
Boron (Filtered)	µg/L	0.2	200	13.8	29.6	10	18	32	20	31
Calcium (Filtered)	µg/L	10		97,500	125,000	84,100	116,000	156,000	81,900	118,000
Cadmium (Filtered)	µg/L	0.003	0.1 0.5	-	0.004	<0.003	<0.003	0.004	<0.003	0.005
Chloride (Filtered)	µg/L	200		38,000	74,000	24,000	55,000	150,000	45,000	68,000
Chromium (III+VI) (Filtered)	µg/L	0.03	8.9	-	2.7	0.28	0.34	0.34	0.61	0.67
Copper (Filtered)	µg/L	0.02	1 5	-	1.89	0.4	0.91	0.89	0.48	0.87
Iron (Filtered)	µg/L	2	300	6	15	20	8	26	<7	<7
Lead (Filtered)	µg/L	0.01	1 3 5	-	0.1	<0.01	0.02	0.04	<0.01	<0.01
Manganese (Filtered)	µg/L	0.01		-	9.1	3.25	0.82	4.47	1.75	1.89
Magnesium (Filtered)	µg/L	1		3260	4620	2950	3430	5410	2620	4140
Mercury (Filtered)	µg/L	0.01	0.2	-	-	0.01	<0.01	<0.01	<10	<10
Phosphorus (Filtered)	µg/L	3	30	-	-	<30	6	<30	<30	<30
Potassium (Filtered)	µg/L	2		-	2220	1000	979	1710	817	1370
Sodium (Filtered)	µg/L	10		23,900	43,200	23,500	28,700	60,700	30,500	36,500
Zinc (Filtered)	µg/L	2	20	-	2	<2	<2	3	<2	<2
<b>Inorganics</b>										
Alkalinity (as CaCO3)	mg/L	2		208	305	254	261	285	221	300
Hardness (as CaCO3) (Filtered)	mg/L	1		-	-	-	-	-	-	-
Solids - Total Dissolved (TDS)	mg/L	3		354	491	294	380	629	297	443
Oxygen Demand - Chemical (COD)	mg/L	5		8	<8	10	<8	16	<8	<8
Solids - Total Suspended (TSS)	mg/L	2		-	-	<2	<2	<2	17	<2
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2		3.9	2.5	-	-	-	-	-
Oxygen Demand - Biological (BOD)	mg/L	2		-	-	<4	<4	<4	<4	5
Phenols (4AAP)	mg/L	0.001	0.001	-	-	<0.001	0.002	0.001	<0.001	<0.001
Sulphate	mg/L	0.2		6.8	16	8	8	17	3	10
Ammonia	mg/L	0.01		0.2	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate (as N)	mg/L	0.05		0.24	0.53	0.16	0.46	1.33	<0.06	0.35
Nitrite (as N)	mg/L	0.03		-	-	<0.03	<0.03	<0.03	<0.03	<0.03
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1		-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Conductivity (lab)	µS/cm	1		615	807	559	700	1040	535	781
pH (Lab)	-	0.05	6.5-8.5	8.29	8.1	7.93	8.08	7.86	7.88	7.63
<b>Field</b>										
DO (Field)	mg/L		5	-	-	-	-	-	-	-
Redox Potential (Field)	mV			-	-	-	-	-	-	-
Temp (Field)	°C			-	-	-	-	-	-	-
Conductivity (field)	µS/cm			-	-	-	-	-	-	-
pH (Field)	-		6.5-8.5	-	-	-	-	-	-	-



Table 9 - Groundwater Quality - PWQO Comparison

Unit	RDL	PWQO	Location	MW08-2	MW08-2	MW08-2	MW08-2	MW08-2	MW08-2	MW08-2	
			Date	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>											
Arsenic (Filtered)	µg/L	0.1	5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1
Barium (Filtered)	µg/L	0.01		53.1	158	158	81.1	162	135	168	168
Boron (Filtered)	µg/L	0.2	200	14	50	50	26	23	15	28	28
Calcium (Filtered)	µg/L	10		103,000	127,000	127,000	80,100	145,000	114,000	119,000	119,000
Cadmium (Filtered)	µg/L	0.003	0.1 0.5	<0.003 - 0.003	0.005	0.005	0.025	<0.003	<0.015	<0.015	<0.015
Chloride (Filtered)	µg/L	200		3000	69,000	69,000	9000	120,000	65,500	67,500	67,500
Chromium (III+VI) (Filtered)	µg/L	0.03	8.9	0.27	0.25	0.25	0.26	0.31	73	<1	<1
Copper (Filtered)	µg/L	0.02	1 5	0.3	0.8	0.8	1.4	1.1	0.8	1	1
Iron (Filtered)	µg/L	2	300	7	10	10	24	15	19	<5	<5
Lead (Filtered)	µg/L	0.01	1 3 5	<3 - 0.02	0.03	0.03	0.09	0.04	0.13	0.03	0.03
Manganese (Filtered)	µg/L	0.01		0.74	4.33	4.33	4.34	0.97	4	2	2
Magnesium (Filtered)	µg/L	1		2820	3820	3820	2680	5280	4060	4140	4140
Mercury (Filtered)	µg/L	0.01	0.2	<10	<10	<10	10	<10	<0.02	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3	30	0.02	-	30	<30	<30	100	110	110
Potassium (Filtered)	µg/L	2		472	1400	1400	738	1210	1000	1800	1800
Sodium (Filtered)	µg/L	10		3740	36,800	36,800	23,500	29,400	38,300	44,000	44,000
Zinc (Filtered)	µg/L	2	20	2	3	3	9	<2	<5	<5	<5
<b>Inorganics</b>											
Alkalinity (as CaCO3)	mg/L	2		235	272	272	235	283	276	275	275
Hardness (as CaCO3) (Filtered)	mg/L	1		-	-	-	-	-	302	316	316
Solids - Total Dissolved (TDS)	mg/L	3		257	434	434	240	480	364	389	389
Oxygen Demand - Chemical (COD)	mg/L	5		<8	<8	<8	18	<8	7	10	10
Solids - Total Suspended (TSS)	mg/L	2		23	37	37	20	22	-	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2		-	-	-	-	-	3.7	2.7	2.7
Oxygen Demand - Biological (BOD)	mg/L	2		<4	<4	<4	<4	<4	-	-	-
Phenols (4AAP)	mg/L	0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002
Sulphate	mg/L	0.2		7	12	12	6	10	9	10	10
Ammonia	mg/L	0.01		<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.01	<0.01
Nitrate (as N)	mg/L	0.05		<0.06	0.66	0.66	0.15	0.67	0.74	0.41	0.41
Nitrite (as N)	mg/L	0.03		<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1		<0.5	<0.5	<0.5	<0.5	<0.5	0.4	0.3	0.3
Conductivity (lab)	µS/cm	1		429	748	748	452	838	700	744	744
pH (Lab)	-	0.05	6.5-8.5	7.66	8.12	8.12	7.85	7.81	7.94	8.27	8.27
<b>Field</b>											
DO (Field)	mg/L		5	3.4	6.8	-	-	11.3	13.26	2.49	2.49
Redox Potential (Field)	mV			196	79	-	-	135	140	-73	-73
Temp (Field)	°C			8.5	13.4	-	16.4	6.2	9.3	9.2	9.2
Conductivity (field)	µS/cm			419	803	-	-	486	652	334	334
pH (Field)	-		6.5-8.5	7.7	6.1	-	8.1	8.6	8.78	7.27	7.27





Table 9 - Groundwater Quality - PWQO Comparison

Unit	RDL	PWQO	Location	MW09-2	MW09-2	MW09-2	MW09-2	MW09-2	MW09-2	MW09-2	MW09-2	MW09-2
			Date	2017-05-31	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-28	2021-11-11
<b>Metals</b>												
Arsenic (Filtered)	µg/L	0.1	5	0.2	0.3	0.3	<0.2	<0.2	0.4	<0.2	0.2	0.1
Barium (Filtered)	µg/L	0.01		117	258	158	184	184	285	176	210	203
Boron (Filtered)	µg/L	0.2	200	26	84	26	65	65	143	39	40	45
Calcium (Filtered)	µg/L	10		83,700	107,000	105,000	121,000	121,000	80,800	126,000	124,000	119,000
Cadmium (Filtered)	µg/L	0.003	0.1 0.5	0.008	<0.003	<0.003 - 0.003	0.003	<0.003	0.007	0.01	<0.015	<0.015
Chloride (Filtered)	µg/L	200		35,000	70,000	66,000	73,000	73,000	50,000	77,000	88,500	70,500
Chromium (III+VI) (Filtered)	µg/L	0.03	8.9	0.54	0.71	0.15	0.16	0.16	0.23	0.28	<1	<1
Copper (Filtered)	µg/L	0.02	1 5	2.42	0.4	0.8	1.4	1.4	<0.2	4.2	0.6	0.4
Iron (Filtered)	µg/L	2	300	87	205	293	38	38	302	15	87	43
Lead (Filtered)	µg/L	0.01	1 3 5	<0.01	<0.01	<3 - 0.02	0.02	0.02	0.01	0.04	0.03	<0.02
Manganese (Filtered)	µg/L	0.01		22	15.9	29.1	4.64	4.64	33.2	3.31	3	3
Magnesium (Filtered)	µg/L	1		3120	5780	3890	3820	3820	8760	4270	4640	4550
Mercury (Filtered)	µg/L	0.01	0.2	10	<10	<10	<10	<10	<10	<10	<0.02	<0.02
Phosphorus (Filtered)	µg/L	3	30	<30	<30	0.02	-	<30	<30	<30	40	20
Potassium (Filtered)	µg/L	2		1910	2600	2160	2570	2570	2740	2650	2300	2700
Sodium (Filtered)	µg/L	10		32,600	45,700	42,900	46,500	46,500	44,400	44,600	55,600	48,200
Zinc (Filtered)	µg/L	2	20	2	<2	3	3	3	2	<2	<5	<5
<b>Inorganics</b>												
Alkalinity (as CaCO3)	mg/L	2		226	274	241	260	260	233	295	271	280
Hardness (as CaCO3) (Filtered)	mg/L	1		-	-	-	-	-	-	-	329	315
Solids - Total Dissolved (TDS)	mg/L	3		314	420	214	414	414	311	437	432	409
Oxygen Demand - Chemical (COD)	mg/L	5		<8	10	<8	<8	<8	<8	<8	<5	11
Solids - Total Suspended (TSS)	mg/L	2		3	<2	66	2	2	6	2	-	-
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2		-	-	-	-	-	-	-	3.3	2.4
Oxygen Demand - Biological (BOD)	mg/L	2		<4	<4	<4	<4	<4	<4	<4	-	-
Phenols (4AAP)	mg/L	0.001	0.001	0.006	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002
Sulphate	mg/L	0.2		20	14	16	11	11	10	10	13	13
Ammonia	mg/L	0.01		<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.03	0.03
Nitrate (as N)	mg/L	0.05		0.1	0.37	<0.06	0.93	0.93	<0.06	1.17	1.21	0.73
Nitrite (as N)	mg/L	0.03		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1		<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	0.2	0.2
Conductivity (lab)	µS/cm	1		560	719	653	737	737	591	791	821	780
pH (Lab)	-	0.05	6.5-8.5	7.75	7.57	8	8.11	8.11	7.9	7.91	7.69	7.66
<b>Field</b>												
DO (Field)	mg/L		5	-	-	3.6	4.1	-	-	5	2.63	2.91
Redox Potential (Field)	mV			-	-	-125	-86	-	-	60	160	30
Temp (Field)	°C			-	-	10.3	14.1	-	1.7	7.4	10.7	9.8
Conductivity (field)	µS/cm			-	-	404	655	-	-	471	792	332
pH (Field)	-		6.5-8.5	-	-	7.7	7.4	-	7.6	8	7.08	7.01





Table 9 - Groundwater Quality - PWQO Comparison

Unit	RDL	PWQO	Location	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2	MW10-2
			Date	2017-05-31	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	5	<0.2	<0.2	<0.2 - 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	<0.1
Barium (Filtered)	µg/L	0.01		459	506	626	580	580	491	416	510	574	
Boron (Filtered)	µg/L	0.2	200	123	131	118	145	145	106	96	109	125	
Calcium (Filtered)	µg/L	10		91,200	104,000	117,000	129,000	129,000	98,500	99,900	118,000	119,000	
Cadmium (Filtered)	µg/L	0.003	0.1 0.5	<0.003	0.004	<0.003 - 0.003	0.003	<0.003	<0.003	<0.003	<0.015	<0.015	
Chloride (Filtered)	µg/L	200		48,000	51,000	48,000	48,000	48,000	54,000	53,000	59,600	56,700	
Chromium (III+VI) (Filtered)	µg/L	0.03	8.9	0.68	0.59	0.14	0.12	0.12	0.16	0.22	<1	<1	
Copper (Filtered)	µg/L	0.02	1 5	0.27	0.15	0.3	<0.2	<0.2	0.4	0.8	1.2	0.6	
Iron (Filtered)	µg/L	2	300	3340	3370	6910	4030	4030	886	3290	<5	5280	
Lead (Filtered)	µg/L	0.01	1 3 5	<0.01	<0.01	0.12 - 20	0.01	<0.01	<0.01	0.04	0.46	<0.02	
Manganese (Filtered)	µg/L	0.01		97.3	60.1	171	54.4	54.4	95.1	58	38	42	
Magnesium (Filtered)	µg/L	1		11,300	11,000	11,200	10,900	10,900	12,700	10,400	11,400	11,300	
Mercury (Filtered)	µg/L	0.01	0.2	<10	<10	<10	<10	<10	10	<10	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	3	30	<30	30	0.12	-	60	40	80	110	90	
Potassium (Filtered)	µg/L	2		2580	2600	2420	2690	2690	2460	2600	2000	2500	
Sodium (Filtered)	µg/L	10		8990	6070	7470	5540	5540	9830	6930	6100	6500	
Zinc (Filtered)	µg/L	2	20	<2	<2	5	<2	<2	2	<2	<5	<5	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2		171	233	243	245	245	243	258	260	250	
Hardness (as CaCO3) (Filtered)	mg/L	1		-	-	-	-	-	-	-	342	343	
Solids - Total Dissolved (TDS)	mg/L	3		269	406	334	354	354	389	351	343	351	
Oxygen Demand - Chemical (COD)	mg/L	5		<8	<8	<8	<8	<8	8	<8	53	9	
Solids - Total Suspended (TSS)	mg/L	2		118	10	50	55	55	42	56	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2		-	-	-	-	-	-	-	2.8	2.6	
Oxygen Demand - Biological (BOD)	mg/L	2		<4	4	<4	<4	<4	4	<4	-	-	
Phenols (4AAP)	mg/L	0.001	0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.002	0.013	
Sulphate	mg/L	0.2		12	9	8	7	7	10	6	10	9	
Ammonia	mg/L	0.01		0.5	1	0.8	1.1	1.1	0.9	1	0.93	1.04	
Nitrate (as N)	mg/L	0.05		0.08	<0.06	0.08	0.08	0.08	<0.06	<0.06	0.07	<0.05	
Nitrite (as N)	mg/L	0.03		0.03	<0.03	0.07	0.04	0.04	<0.03	<0.03	<0.05	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1		0.8	1.1	0.7	1.1	1.1	0.8	1	1	1.1	
Conductivity (lab)	µS/cm	1		483	631	599	621	621	618	623	660	675	
pH (Lab)	-	0.05	6.5-8.5	7.92	7.67	7.54	8.03	8.03	7.83	7.79	7.83	7.68	
<b>Field</b>													
DO (Field)	mg/L		5	-	-	3.6	4	-	-	4.2	2.87	2.81	
Redox Potential (Field)	mV			-	-	-109	-115	-	-	-148	-15	19	
Temp (Field)	°C			-	-	10.6	13.8	-	15.1	6.7	9	10.3	
Conductivity (field)	µS/cm			-	-	442	518	-	-	364	665	297	
pH (Field)	-		6.5-8.5	-	-	7.6	7.6	-	7.7	7.9	8.45	7.38	





Table 9 - Groundwater Quality - PWQO Comparison

Unit	RDL	PWQO	Location	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2	MW11-2
			Date	2017-05-31	2017-10-04	2019-05-30	2019-10-29	2019-11-08	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>													
Arsenic (Filtered)	µg/L	0.1	5	<0.2	<0.2	<0.2	0.7	0.7	<0.2	<0.2	<0.1	<0.1	
Barium (Filtered)	µg/L	0.01		419	449	381	40.8	40.8	504	358	528	528	
Boron (Filtered)	µg/L	0.2	200	515	123	85	176	176	150	164	127	143	
Calcium (Filtered)	µg/L	10		90,100	93,800	96,600	147,000	147,000	102,000	93,400	117,000	113,000	
Cadmium (Filtered)	µg/L	0.003	0.1 0.5	<0.003	<0.003	<0.003 - 0.003	0.005	0.005	0.005	<0.003	<0.015	<0.015	
Chloride (Filtered)	µg/L	200		26,000	36,000	14,000	33,000	33,000	21,000	43,000	52,000	41,000	
Chromium (III+VI) (Filtered)	µg/L	0.03	8.9	0.68	0.53	0.59	0.2	0.2	0.18	0.21	<1	<1	
Copper (Filtered)	µg/L	0.02	1 5	0.22	0.19	<0.2	1.1	1.1	0.5	0.4	0.8	0.3	
Iron (Filtered)	µg/L	2	300	11	2130	1550	124	124	2130	1060	3030	2750	
Lead (Filtered)	µg/L	0.01	1 3 5	<0.01	0.01	0.01 - 12	0.02	0.02	0.03	0.04	0.06	<0.02	
Manganese (Filtered)	µg/L	0.01		84.2	29.6	24.5	14.7	14.7	31.4	19.8	35	33	
Magnesium (Filtered)	µg/L	1		25,200	8590	7400	22,100	221,000	12,700	12,300	11,300	11,100	
Mercury (Filtered)	µg/L	0.01	0.2	<10	<10	<10	<10	<10	30	<10	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	3	30	<30	40	<0.01	-	40	<30	30	80	80	
Potassium (Filtered)	µg/L	2		4710	2280	1990	7590	7590	2860	3720	2300	2800	
Sodium (Filtered)	µg/L	10		15,400	5300	6300	76,700	76,700	8390	6200	7300	6700	
Zinc (Filtered)	µg/L	2	20	<2	3	4	4	4	8	<2	<5	<5	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2		265	255	224	242	242	227	242	271	250	
Hardness (as CaCO3) (Filtered)	mg/L	1		-	-	-	-	-	-	-	339	329	
Solids - Total Dissolved (TDS)	mg/L	3		400	391	274	320	320	274	343	342	329	
Oxygen Demand - Chemical (COD)	mg/L	5		<8	8	<8	<8	<8	13	<8	<5	8	
Solids - Total Suspended (TSS)	mg/L	2		-	3	5	6	6	8	17	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2		<1	-	-	-	-	-	-	4.4	2.2	
Oxygen Demand - Biological (BOD)	mg/L	2		-	<4	<4	<4	<4	7	<4	-	-	
Phenols (4AAP)	mg/L	0.001	0.001	<0.002	<0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.002	<0.002	
Sulphate	mg/L	0.2		63	7	6	10	10	17	9	11	10	
Ammonia	mg/L	0.01		0.9	0.9	0.5	0.9	0.9	0.7	0.9	0.95	0.96	
Nitrate (as N)	mg/L	0.05		<0.06	<0.06	<0.06	0.18	0.18	0.13	<0.06	0.07	<0.05	
Nitrite (as N)	mg/L	0.03		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1		1.1	0.9	<0.5	1	1	0.6	0.8	1	1.1	
Conductivity (lab)	µS/cm	1		658	603	465	584	584	520	547	659	633	
pH (Lab)	-	0.05	6.5-8.5	7.91	7.63	8.09	8.1	8.1	7.76	7.77	7.81	7.8	
<b>Field</b>													
DO (Field)	mg/L		5	-	-	4	5.7	-	-	6.4	1.55	7.98	
Redox Potential (Field)	mV			-	-	-93	-122	-	-	-60	136	15	
Temp (Field)	°C			-	-	9.1	12.5	-	15.1	4.9	7.7	9	
Conductivity (field)	µS/cm			-	-	345	528	-	-	350	672	286	
pH (Field)	-		6.5-8.5	-	-	7.8	7.7	-	7.6	8.3	7.26	7.37	





Table 9 - Groundwater Quality - PWQO Comparison

Unit	RDL	PWQO	Location	MW12-1	MW12-1	MW12-1	MW12-1	MW12-1	MW12-1	MW12-1	MW12-1	
			Date	2017-10-04	2019-05-30	2019-10-29	2019-11-11	2020-05-26	2020-11-18	2021-06-24	2021-11-11	
<b>Metals</b>												
Arsenic (Filtered)	µg/L	0.1	5	<0.2	<0.2	0.8	0.8	<0.2	<0.2	<0.1	<0.1	
Barium (Filtered)	µg/L	0.01		152	713	230	230	621	311	743	994	
Boron (Filtered)	µg/L	0.2	200	83	104	99	99	106	110	121	156	
Calcium (Filtered)	µg/L	10		122,000	126,000	117,000	117,000	115,000	113,000	116,000	106,000	
Cadmium (Filtered)	µg/L	0.003	0.1 0.5	<0.003	<0.003 - 0.003	0.003	0.003	<0.003	<0.003	<0.015	<0.015	
Chloride (Filtered)	µg/L	200		54,000	51,000	44,000	44,000	55,000	44,000	40,700	39,400	
Chromium (III+VI) (Filtered)	µg/L	0.03	8.9	0.58	0.16	0.13	0.13	0.13	0.28	<1	<1	
Copper (Filtered)	µg/L	0.02	1 5	0.16	<0.2	0.5	0.5	0.3	0.4	<0.1	<0.1	
Iron (Filtered)	µg/L	2	300	18	10	19	19	20	24	<5	<5	
Lead (Filtered)	µg/L	0.01	1 3 5	<0.01	<0.01	0.01	0.01	0.01	0.03	0.09	<0.02	
Manganese (Filtered)	µg/L	0.01		15.6	3.52	20.1	20.1	5.18	16.4	3	3	
Magnesium (Filtered)	µg/L	1		6760	11,500	7580	7580	12,900	9820	13,400	14,300	
Mercury (Filtered)	µg/L	0.01	0.2	<10	<10	<10	<10	30	<10	<0.02	<0.02	
Phosphorus (Filtered)	µg/L	3	30	<30	<0.01	-	<30	<30	<30	20	10	
Potassium (Filtered)	µg/L	2		2100	3280	2250	2250	3340	2780	3100	3500	
Sodium (Filtered)	µg/L	10		12,300	13,700	12,000	12,000	16,900	11,200	11,700	10,600	
Zinc (Filtered)	µg/L	2	20	<2	3	3	3	2	<2	<5	<5	
<b>Inorganics</b>												
Alkalinity (as CaCO3)	mg/L	2		283	284	265	265	278	253	271	241	
Hardness (as CaCO3) (Filtered)	mg/L	1		-	-	-	-	-	-	345	325	
Solids - Total Dissolved (TDS)	mg/L	3		460	403	403	403	397	351	338	336	
Oxygen Demand - Chemical (COD)	mg/L	5		<8	<8	<8	<8	<8	<8	7	13	
Solids - Total Suspended (TSS)	mg/L	2		<2	42	38	38	8	8	-	-	
Organic Carbon - Dissolved (DOC) (Filtered)	mg/L	0.2		-	-	-	-	-	-	2.2	1.9	
Oxygen Demand - Biological (BOD)	mg/L	2		<4	<4	<4	<4	5	<4	-	-	
Phenols (4AAP)	mg/L	0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.004	0.006	
Sulphate	mg/L	0.2		24	22	28	28	23	25	20	26	
Ammonia	mg/L	0.01		0.1	0.1	<0.1	<0.1	<0.1	0.1	0.14	0.16	
Nitrate (as N)	mg/L	0.05		<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.08	<0.05	
Nitrite (as N)	mg/L	0.03		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.05	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.2	0.2	
Conductivity (lab)	µS/cm	1		710	675	649	649	684	595	650	647	
pH (Lab)	-	0.05	6.5-8.5	7.8	7.42	7.92	7.92	7.71	7.91	7.85	7.91	
<b>Field</b>												
DO (Field)	mg/L		5	-	3	5.9	-	-	6.5	2.83	3.6	
Redox Potential (Field)	mV			-	-92	-149	-	-	-128	-38	11	
Temp (Field)	°C			-	8.5	9.9	-	14.4	8.6	9.4	9.4	
Conductivity (field)	µS/cm			-	457	477	-	-	388	651	280	
pH (Field)	-		6.5-8.5	-	7.6	7.6	-	7.3	8.1	7.2	7.45	



Table 10 - Surface Water Quality

Unit	RDL	Hall's Glen SW	PWQO	Location	S1	S1	S1	S1	S1	S1
				Date	2011-11-01	2012-05-18	2013-06-10	2013-11-04	2014-06-26	2014-11-06
<b>Metals</b>										
Arsenic	µg/L	0.1	0.2	5	-	-	-	-	-	<0.2
Barium	µg/L	0.02	157		-	-	-	-	-	137
Boron	µg/L	0.2	50	200	-	-	-	-	-	20
Calcium	µg/L	10	146500		-	-	-	-	-	-
Cadmium	µg/L	0.003	0.016	0.1 0.5	-	-	-	-	-	0.008
Chloride	µg/L	200	77500		75,000	52,000	48,000	50,000	50,000	72,000
Chromium (III+VI)	µg/L	0.03	0.33	8.9	-	-	-	-	-	<0.03
Copper	µg/L	0.02	1.6	1 5	-	-	-	-	-	0.58
Iron	µg/L	2	46	300	36	42	5	9	<2	12
Lead	µg/L	0.01	0.08	1 3 5	-	-	-	-	-	0.05
Manganese	µg/L	0.01	4.1		-	-	-	-	-	-
Magnesium	µg/L	1	4680		-	-	-	-	-	-
Mercury (Filtered)	µg/L	0.01	10	0.2	-	-	-	-	-	<0.01
Phosphorus total (P2O5)	µg/L	3	37.5	30	90	<30	80	<30	<30	60
Potassium	µg/L	2	4010		-	-	-	-	-	-
Sodium	µg/L	10	42500		-	-	-	-	-	-
Zinc	µg/L	2	4	20	-	-	-	-	-	2
<b>Inorganics</b>										
Alkalinity (as CaCO3)	mg/L	2	316		262	231	225	218	271	288
Hardness (as CaCO3)	mg/L	1			-	-	-	-	-	-
Solids - Total Dissolved (TDS)	mg/L	3	483		474	337	360	329	360	440
Oxygen Demand - Chemical (COD)	mg/L	5	11		11	<8	<8	8	<8	12
Solids - Total Suspended (TSS)	mg/L	2	56		<2	6	2	<2	<2	<2
Oxygen Demand - Biological (BOD)	mg/L	2	4		<2	<4	<4	<4	<2	<4
Phenols (4AAP)	mg/L	0.001	0.003	0.001	<0.001	0.002	<0.001	<0.001	0.002	<0.001
Sulphate	mg/L	0.2	26		30	5.2	3.1	23	2.9	16
Ammonia, Unionized (Field)	mg/L	0.01		0.02	-	-	-	-	-	-
Ammonia	mg/L	0.01	0.2		0.3	<0.1	0.3	<0.1	<0.1	0.1
Nitrate (as N)	mg/L	0.05	1.27		1	0.48	0.59	0.34	0.82	0.64
Nitrite (as N)	mg/L	0.03	0.03		<0.06	<0.06	<0.03	<0.03	<0.03	<0.03
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1	0.5		1.5	<0.5	0.6	<0.5	<0.5	<0.5
Conductivity (lab)	µS/cm	1	848		774	601	595	625	656	749
pH (Lab)	-	0.05		6.5-8.5	8.06	8	7.91	8.19	8.08	8
<b>Field</b>										
DO (Field)	mg/L			5	-	-	-	-	-	-
Redox Potential (Field)	mV				-	-	-	-	-	-
Temp (Field)	°C				-	-	-	-	-	-
Conductivity (field)	µS/cm				-	-	-	-	-	-
pH (Field)	-			6.5-8.5	-	-	-	-	-	-



Table 10 - Surface Water Quality

Unit	RDL	Hall's Glen SW	PWQO	Location	S1	S1	S1	S1	S1	S1	S1	S1	
				Date	2015-05-22	2015-11-19	2016-05-16	2019-05-30	2019-10-29	2020-05-26	2020-11-18	2021-11-11	
<b>Metals</b>													
Arsenic	µg/L	0.1	<b>0.2</b>	<b>5</b>	<0.2	<0.2	<0.2	<0.2	<b>0.3</b>	-	<0.2	0.1	
Barium	µg/L	0.02	<b>157</b>		82.2	137	78.7	76.4	115	-	132	94	
Boron	µg/L	0.2	<b>50</b>	<b>200</b>	14.8	23	13	17	25	-	<b>52</b>	24	
Calcium	µg/L	10	<b>146500</b>		97,000	121,000	101,000	96,700	98,700	-	117,000	-	
Cadmium	µg/L	0.003	<b>0.016</b>	<b>0.1 0.5</b>	0.006	0.01	0.005	0.005	<b>0.03</b>	-	0.008	<0.015	
Chloride	µg/L	200	<b>77500</b>		59,000	64,000	61,000	56,000	33,000	-	63,000	71,800	
Chromium (III+VI)	µg/L	0.03	<b>0.33</b>	<b>8.9</b>	0.06	0.2	<b>0.53</b>	0.16	0.16	-	<b>0.46</b>	<1	
Copper	µg/L	0.02	<b>1.6</b>	<b>1 5</b>	0.68	1.12	0.58	0.7	<b>3.9</b>	-	0.9	0.6	
Iron	µg/L	2	<b>46</b>	<b>300</b>	43	26	23	10	42	-	<b>68</b>	27	
Lead	µg/L	0.01	<b>0.08</b>	<b>1 3 5</b>	0.01	0.07	0.04	<0.01	<b>0.29</b>	-	0.07	0.03	
Manganese	µg/L	0.01	<b>4.1</b>		0.8	1.07	0.74	3.06	<b>29.9</b>	-	<b>13</b>	-	
Magnesium	µg/L	1	<b>4680</b>		3350	4300	3490	3270	3850	-	4590	-	
Mercury (Filtered)	µg/L	0.01	<b>10</b>	<b>0.2</b>	<0.01	<0.01	<0.01	<10	<10	-	<10	<0.02	
Phosphorus total (P2O5)	µg/L	3	<b>37.5</b>	<b>30</b>	12	<30	<30	6	<b>48</b>	-	9	20	
Potassium	µg/L	2	<b>4010</b>		941	1660	1010	1510	2290	-	1730	-	
Sodium	µg/L	10	<b>42500</b>		34,400	36,500	35,500	35,300	22,200	-	33,700	-	
Zinc	µg/L	2	<b>4</b>	<b>20</b>	4	3	5	3	<b>12</b>	-	3	<5	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	<b>316</b>		253	273	225	240	245	-	267	277	
Hardness (as CaCO3)	mg/L	1			-	-	-	-	-	-	-	275	
Solids - Total Dissolved (TDS)	mg/L	3	<b>483</b>		374	431	383	366	354	-	406	385	
Oxygen Demand - Chemical (COD)	mg/L	5	<b>11</b>		9	10	<8	<8	<b>16</b>	-	<8	<b>13</b>	
Solids - Total Suspended (TSS)	mg/L	2	<b>56</b>		4	<2	<2	5	2	-	4	<3	
Oxygen Demand - Biological (BOD)	mg/L	2	<b>4</b>		<4	<4	<4	<4	<b>16</b>	-	<4	<3	
Phenols (4AAP)	mg/L	0.001	<b>0.003</b>	<b>0.001</b>	<0.001	0.001	<0.001	<b>0.004</b>	<b>0.01</b>	-	<0.001	<0.001	
Sulphate	mg/L	0.2	<b>26</b>		<1	15	6	4	17	-	17	8	
Ammonia, Unionized (Field)	mg/L	0.01		<b>0.02</b>	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.01	
Ammonia	mg/L	0.01	<b>0.2</b>		<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.01	
Nitrate (as N)	mg/L	0.05	<b>1.27</b>		0.32	0.54	0.44	0.18	1	-	<b>2.24</b>	0.23	
Nitrite (as N)	mg/L	0.03	<b>0.03</b>		<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1	<b>0.5</b>		<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	0.3	
Conductivity (lab)	µS/cm	1	<b>848</b>		642	746	651	603	587	-	717	738	
pH (Lab)	-	0.05		<b>6.5-8.5</b>	7.92	7.79	8.1	8.09	7.85	-	7.61	7.99	
<b>Field</b>													
DO (Field)	mg/L			<b>5</b>	-	-	-	5.9	5.71	8.29	10.2	6.58	
Redox Potential (Field)	mV				-	-	-	-	180	145	120	10	
Temp (Field)	°C				-	-	-	13.8	12.2	18	2.7	8.8	
Conductivity (field)	µS/cm				-	-	-	505	441	517	375	324	
pH (Field)	-			<b>6.5-8.5</b>	-	-	-	7.75	7.92	7.55	<b>8.81</b>	7.22	



Table 10 - Surface Water Quality

Unit	RDL	Hall's Glen SW	PWQO	Location	S2								
				Date	2014-11-06	2015-05-22	2015-11-19	2016-05-16	2019-05-30	2019-10-29	2020-05-26	2020-11-18	
<b>Metals</b>													
Arsenic	µg/L	0.1	0.2	5	0.5	<0.2	0.6	0.2	<0.2	0.5	-	0.8	
Barium	µg/L	0.02	157		110	108	109	91.5	59.3	115	-	106	
Boron	µg/L	0.2	50	200	19.7	17.9	16.5	16	13	30	-	52	
Calcium	µg/L	10	146500		-	97,800	107,000	95,500	89,500	106,000	-	111,000	
Cadmium	µg/L	0.003	0.016	0.1 0.5	0.015	0.006	0.022	0.006	0.003	0.071	-	0.111	
Chloride	µg/L	200	77500		98,000	34,000	84,000	29,000	67,000	36,000	-	33,000	
Chromium (III+VI)	µg/L	0.03	0.33	8.9	<0.03	0.05	0.15	0.48	0.12	0.32	-	0.65	
Copper	µg/L	0.02	1.6	1 5	0.69	1.02	1.65	1.4	0.7	4.4	-	5	
Iron	µg/L	2	46	300	30	42	51	44	20	25	-	316	
Lead	µg/L	0.01	0.08	1 3 5	0.06	<0.01	0.08	0.07	<0.01	0.17	-	0.48	
Manganese	µg/L	0.01	4.1		-	15.2	30.8	7.05	14.3	28.6	-	63.5	
Magnesium	µg/L	1	4680		-	3830	4030	3480	2900	4670	-	4800	
Mercury (Filtered)	µg/L	0.01	10	0.2	<0.01	<0.01	<0.01	<0.01	<10	<10	-	<10	
Phosphorus total (P2O5)	µg/L	3	37.5	30	50	21	<30	<30	8	404	-	136	
Potassium	µg/L	2	4010		-	2330	2690	1940	1070	6100	-	7130	
Sodium	µg/L	10	42500		-	22,100	54,600	19,400	42,800	20,300	-	15,500	
Zinc	µg/L	2	4	20	4	5	8	7	3	9	-	15	
<b>Inorganics</b>													
Alkalinity (as CaCO3)	mg/L	2	316		257	269	251	222	235	168	-	220	
Hardness (as CaCO3)	mg/L	1			-	-	-	-	-	-	-	-	
Solids - Total Dissolved (TDS)	mg/L	3	483		483	351	446	346	363	489	-	423	
Oxygen Demand - Chemical (COD)	mg/L	5	11		38	9	18	<8	11	60	-	58	
Solids - Total Suspended (TSS)	mg/L	2	56		6	<2	3	2	<2	28	-	34	
Oxygen Demand - Biological (BOD)	mg/L	2	4		4	<4	<4	<4	<4	23	-	10	
Phenols (4AAP)	mg/L	0.001	0.003	0.001	<0.001	0.001	0.002	0.001	0.003	0.011	-	0.002	
Sulphate	mg/L	0.2	26		42	2	26	9	7	89	-	54	
Ammonia, Unionized (Field)	mg/L	0.01		0.02	-	-	-	-	<0.005	<0.005	<0.005	<0.005	
Ammonia	mg/L	0.01	0.2		<0.1	<0.1	<0.1	<0.1	<0.1	0.3	-	<0.1	
Nitrate (as N)	mg/L	0.05	1.27		<0.06	<0.06	0.13	0.21	<0.06	10.3	-	0.49	
Nitrite (as N)	mg/L	0.03	0.03		<0.03	<0.03	<0.03	<0.03	<0.03	1.16	-	0.05	
Total Kjeldahl Nitrogen (TKN)	mg/L	0.1	0.5		0.7	<0.5	<0.5	<0.5	<0.5	1.1	-	0.7	
Conductivity (lab)	µS/cm	1	848		793	591	779	551	638	675	-	604	
pH (Lab)	-	0.05		6.5-8.5	8.07	7.98	7.88	8.24	7.7	7.72	-	7.72	
<b>Field</b>													
DO (Field)	mg/L			5	-	-	-	-	7.3	5.06	6.04	10.5	
Redox Potential (Field)	mV				-	-	-	-	-	190	151	100	
Temp (Field)	°C				-	-	-	-	14.9	13.9	18.1	0.4	
Conductivity (field)	µS/cm				-	-	-	-	555	648	498	305	
pH (Field)	-			6.5-8.5	-	-	-	-	7.52	7.74	7.5	9.36	









**Table 12 - Monthly Summary of Accepted Materials**

	<b>Waste (tonnes)</b>	<b>Containers (tonnes)</b>	<b>Fibres (tonnes)</b>	<b>Mattresses (tonnes)</b>	<b>MHSW (tonnes)</b>	<b>Organics (tonnes)</b>	<b>WEEE (tonnes)</b>
January	229.27	1.61	1.54	-	-	1.43	-
February		1.26	1.12	-	-	2.22	-
March		1.11	2.01	-	-	1.40	-
April	310.61	1.54	2.07	-	-	2.00	1.62
May		1.49	3.44	-	-	1.19	1.31
June		1.49	3.05	-	-	0.82	-
July	317.98	3.60	3.46	-	-	4.11	2.30
August		2.68	3.89	-	-	2.76	-
September		2.28	2.96	-	-	3.51	1.84
October	243.67	2.15	2.20	-	-	2.74	1.83
November		1.11	2.08	-	-	0.92	-
December		1.21	1.75	-	-	1.02	-
<b>Total</b>	<b>1101.53</b>	<b>21.52</b>	<b>29.58</b>	<b>0.04</b>	<b>5.45</b>	<b>24.12</b>	<b>8.90</b>



---

## **Appendix A**

### **Monitoring and Screening Checklist**

---

Fully accessible appended items are available upon request.

## Appendix D-Monitoring and Screening Checklist

### General Information and Instructions

**General Information: The checklist is to be completed, and submitted with the Monitoring Report.**

**Instructions:** A complete checklist consists of:

- (a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
- (b) completed contact information for the Competent Environmental Practitioner (CEP)
- (c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

**Definition of Groundwater CEP:**

For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:

- (a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
- (b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..

**Definition of Surface water CEP:**

A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

<b>Monitoring Report and Site Information</b>	
<b>Waste Disposal Site (WDS) Name</b>	Hall's Glen Waste Transfer Station
<b>Location (e.g. street address, lot, concession)</b>	Lot 25, Concession 84 geographic Township of Dummer, 1951 Regional Road 6
<b>GPS Location (taken within the property boundary at front gate/ front entry)</b>	Zone 17, 727911 m east, 4933207 m north, North American Datum (NAD) 83
<b>Municipality</b>	Township of Douro-Dummer
<b>Client and/or Site Owner</b>	Corporation of the Township of Duoro-Dummer
<b>Monitoring Period (Year)</b>	2021
This Monitoring Report is being submitted under the following:	
<b>Environmental Compliance Approval (ECA) Number (formerly "Certificate of Approval" (C of A)) :</b>	A341004
<b>Director's Order No.:</b>	
<b>Provincial Officer's Order No.:</b>	

<b>Other:</b>			
<b>Report Submission Frequency</b>	<input checked="" type="radio"/> Annual <input type="radio"/> Other		
<b>The site is: (Operation Status)</b>	<input type="radio"/> Open <input type="radio"/> Inactive <input checked="" type="radio"/> Closed		
<b>Is there an active waste transfer station at the site?</b>	<input checked="" type="radio"/> Yes <input type="radio"/> No		
<b>Does this WDS have a Closure Plan?</b>	<input type="radio"/> Not yet submitted <input type="radio"/> Submitted and under review <input checked="" type="radio"/> Submitted and approved		
<b>Total Approved Capacity</b>		Units	Cubic Metres
<b>Maximum Approved Fill Rate</b>		Units	
<b>Total Waste Received within Monitoring Period (Year)</b>	1,101.53	Units	Tonnes
<b>Total Waste Received within Monitoring Period (Year)</b> <i>Describe the methodology used to determine this quantity</i>	Weighed		
<b>Estimated Remaining Capacity</b>		Units	Cubic Metres
<b>Estimated Remaining Capacity</b> <i>Describe the methodology used to determine this quantity</i>			
<b>Estimated Remaining Capacity</b> <i>Date Last Determined</i>			
<b>Non-Hazardous Approved Waste Types</b>	<input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Industrial, Commercial & Institutional (IC&I) <input checked="" type="checkbox"/> Source Separated Organics (Green Bin) <input type="checkbox"/> Tires	<input type="checkbox"/> Contaminated Soil <input type="checkbox"/> Wood Waste <input checked="" type="checkbox"/> Blue Box Material <input type="checkbox"/> Processed Organics <input type="checkbox"/> Leaf and Yard Waste	<input type="checkbox"/> Food Processing/Preparation Operations Waste <input type="checkbox"/> Hauled Sewage Other: Mattresses, MHSW, WEEE
<b>Subject Waste Approved Waste Classes: Hazardous &amp; Liquid Industrial</b> <i>(separate waste classes by comma)</i>	Municipal Special and Hazardous Wastes (MHSW) including Waste Class Nos. 112, 121, 122, 145, 146, 147, 148, 212, 213, 221, 242, 252, 261, 263, 269, 312, and 331 used by residents to transport MHSW		

<b>Year Site Opened</b> <i>(enter the Calendar Year only)</i>	1977	<b>Current ECA Issue Date</b>	22-Aug-2016
<b>Is your Site required to submit Financial Assurance?</b>		<input type="radio"/> Yes <input checked="" type="radio"/> No	
<b>Describe how your WDS is designed.</b>		<input checked="" type="radio"/> Natural Attenuation only <input type="radio"/> Fully engineered Facility <input type="radio"/> Partially engineered Facility	
<b>Does your Site have an approved Contaminant Attenuation Zone?</b>		<input type="radio"/> Yes <input checked="" type="radio"/> No	
<b>If closed, specify ECA, control or authorizing document closure date:</b>		22-May-1996	
<b>Has the nature of the operations at the site changed during this monitoring period?</b>	<input type="radio"/> Yes <input checked="" type="radio"/> No		
<b>If yes, provide details:</b>			

<p>Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i.e. exceeded the LEL for methane)</p>	<p><input type="radio"/> Yes</p> <p><input checked="" type="radio"/> No</p>
---	---

**Groundwater WDS Verification:**

Based on all available information about the site and site knowledge, it is my opinion that:

**Sampling and Monitoring Program Status:**

<p>1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>	
---	---	--

<p>2) All groundwater, leachate and landfill gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by ECA or other relevant authorizing/control document(s):</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Not Applicable</p>	<p>If no, list exceptions below or attach information.</p>
---	---	--

Groundwater Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date


<b>3) a) Some or all groundwater, leachate and landfill gas sampling and monitoring requirements have been established or defined outside of a ministry ECA, authorizing, or control document.</b>	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Applicable
--	--

<b>b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document:</b>	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Applicable	If no, list exceptions below or attach additional information.
---	--	--

Groundwater Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date

<p>4) All field work for groundwater investigations was done in accordance with Standard Operating Procedures (SOP) as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p><b>Sampling and Monitoring Program Results/WDS Conditions and Assessment:</b></p>		
<p>5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>6) The site meets compliance and assessment criteria.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	
<p>7) The site continues to perform as anticipated. There have been no unusual trends/changes in measured leachate and groundwater levels or concentrations.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>	

<p>1) Is one or more of the following risk reduction practices in place at the site:</p> <p>(a) There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/ treatment; or</p> <p>(b) There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or</p> <p>(c) The site meets the following two conditions (typically achieved after 15 years or longer of site operation):</p> <p><i>i.</i>The site has developed stable leachate mound(s) and stable leachate plume geometry/ concentrations; and</p> <p><i>ii.</i>Seasonal and annual water levels and water quality fluctuations are well understood.</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>	<p>Note which practice(s):</p>	<p><input type="checkbox"/> (a)</p> <p><input type="checkbox"/> (b)</p> <p><input checked="" type="checkbox"/> (c)</p>
<p>9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):</p>	<p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input checked="" type="radio"/> Not Applicable</p>		

**Groundwater CEP Declaration:**

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Environmental Compliance Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories*, or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

## Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

No changes to the monitoring program are recommended

The following change(s) to the monitoring program is/are recommended:

Refer to Section 4.5 of the Report. Various reductions to the environmental monitoring program have been proposed.

No Changes to site design and operation are recommended

The following change(s) to the site design and operation is/are recommended:

Name:

Cameron MacDougall, P.Geo.,

Seal:

Add Image



<b>Signature:</b>		<b>Date:</b>	25-Apr-2022
<b>CEP Contact Information:</b>	Cameron MacDougall, P.Geo.		
<b>Company:</b>	Cambium Inc.		
<b>Address:</b>	194 Sophia Street Peterborough, ON K9H 1E5		
<b>Telephone No.:</b>	705-742-7900 ext 212	<b>Fax No.:</b>	705-742-7907
<b>E-mail Address:</b>	cameron.macdougall@cambium-inc.com		
<b>Co-signers for additional expertise provided:</b>			
<b>Signature:</b>		<b>Date:</b>	
<b>Signature:</b>		<b>Date:</b>	
<b>Surface Water WDS Verification:</b>			
<b>Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):</b>			
<b>Name (s)</b>	un-named wetland that discharges to Indian River and ultimately to Otanabee River		

<b>Distance(s)</b>	200 m east of the existing waste disposal area
--------------------	--

**Based on all available information and site knowledge, it is my opinion that:**

**Sampling and Monitoring Program Status:**

<b>1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:</b>	<input type="radio"/> Yes <input checked="" type="radio"/> No	S2 is continually dry and cannot be sampled. Cambium recommends that the surface water sampling program be modified to move station S2 further south of the waste mound to act as a down-stream station (in this case station S1 will act as the background surface water quality monitoring location).
--	--	---

<b>2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the ECA or relevant authorizing/control document(s) (if applicable):</b>	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not applicable	If no, specify below or provide details in an attachment.
--	--	---

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date
S1	A northeast/southwest trending ridge separates station S1 from direct runoff generated from the waste mound; therefore, it represents background SW quality	20-Apr-2022
S2	S2 should be moved further south of the waste mound where it is commonly wet to act as a down-stream station	

<b>3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry ECA or authorizing/control document.</b>	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Applicable
--	--

<b>b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:</b>	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Applicable	If no, specify below or provide details in an attachment.
--	--	---

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date

<p>4) All field work for surface water investigations was done in accordance with SOP, including internal/external QA/QC requirements, as established/outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>	
--	---	--

**Sampling and Monitoring Program Results/WDS Conditions and Assessment:**

<p>5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6):</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>
--	---

If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table on the following page or provide details in an attachment:

Parameter	Compliance or Assessment Criteria or Background	Amount by which Compliance or Assessment Criteria or Background Exceeded
e.g. Nickel	e.g. ECA limit, PWQO, background	e.g. X% above PWQO
<p>6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>	

<p>7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>	
<p>8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g., PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Not Known</p> <p><input type="radio"/> Not Applicable</p>	<p>See report Section 4.2.6 of the report for details</p>
<p>9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):</p>	<p><input type="radio"/> Yes</p> <p><input checked="" type="radio"/> No</p> <p><input type="radio"/> Not Applicable</p>	

## Surface Water CEP Declaration:

I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.

I have examined the applicable Environmental Compliance Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories, or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

## Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

<p><input type="radio"/> No Changes to the monitoring program are recommended</p> <p><input checked="" type="radio"/> The following change(s) to the monitoring program is/are recommended:</p>	<p>Refer to Section 4.5 of the Report. Cambium has recommended that an additional surface water sampling station be added in order to further characterize surface water conditions. Station S1 should be reviewed as the background station, and the need to include station S2 in the monitoring program should be reviewed regularly.</p>
<p><input checked="" type="radio"/> No changes to the site design and operation are recommended</p> <p><input type="radio"/> The following change(s) to the site design and operation is/are recommended:</p>	

<b>CEP Signature</b>		
<b>Relevant Discipline</b>	Physical Geography	
<b>Date:</b>	25-Apr-2022	
<b>CEP Contact Information:</b>	Cameron MacDougall P.Geo.,	
<b>Company:</b>	Cambium Inc.	
<b>Address:</b>	194 Sophia Street Peterborough, Ontario K9H 1E5	
<b>Telephone No.:</b>	705-742-7900 x212	
<b>Fax No.:</b>	705-742-7907	
<b>E-mail Address:</b>	cameron.macdougall@cambium-inc.com	
<b>Save As</b>		<b>Print Form</b>



---

**Appendix B**  
**Provisional Compliance Approval No. A341004**

---

Fully accessible appended items are available upon request.



AMENDED PROVISIONAL CERTIFICATE OF APPROVAL  
WASTE DISPOSAL SITE  
NUMBER A341004  
Issue Date: May 26, 2011

The Corporation of the Township of Douro-Dummer  
894 South St  
Post Office Box, No. 92  
Warsaw, Ontario  
K0L 3A0

Site Location: Hall's Glen Waste Transfer Station  
1951 County Road 6  
Lot 25, Concession 4, Dummer Ward  
Douro-Dummer Township, County of Peterborough

*You have applied in accordance with Section 27 of the Environmental Protection Act for approval of:*

for the use and operation of a waste transfer station and a household hazardous waste depot at the closed Hall's Glen landfill site with a total site area of 48.5 hectares.

*For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:*

1.  
"Certificate" means this entire *Provisional Certificate of Approval* document, issued in accordance with section 39 of the *EPA*, and includes any schedules to it, the application and the supporting documentation listed in Schedule "A";

"County" means the County of Peterborough.

"Director" means any *Ministry* employee appointed in writing by the *Minister* pursuant to section 5 of the *EPA* as a Director for the purposes of Part V of the *EPA*;

"District Manager" means the *District Manager* of the local district office of the *Ministry* in which the *Site* is geographically located;

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

"Ministry" means the Ministry of the Environment;

"Operator" means any person, other than the Owner's employees, authorized by the *Owner* as having the charge, management or control of any aspect of the site;

"Owner" means any person that is responsible for the establishment or operation of the site being approved by this *Certificate*, and includes Township of Douro-Dummer, and its successors and assigns;

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

"PA" means the *Pesticides Act*, R.S.O. 1990, c. P-11, as amend from time to time;

"Provincial Officer" means any person designated in writing by the *Minister* as a Provincial Officer pursuant to section 5 of the *OWRA* or section 5 of the *EPA* or section 17 of *PA*.

## CONTENT COPY OF ORIGINAL

"*Regional Director*" means the Regional Director of the local Regional Office of the *Ministry* in which the *Site* is located;

"*Reg. 347*" means Regulation 347, R.R.O. 1990, made under the *EPA*, as amended from time to time;

"*Site*" means the closed Landfill Site, Transfer Station and Household Hazardous Waste Collection operations being approved under this Certificate of Approval, at the Hall's Glen landfill site located on Part Lot 25, Concession 4, Township of Douro-Dummer, County of Peterborough.

"*Township*" means the Corporation of the Township of Douro-Dummer.

"*Trained personnel*" means knowledgeable in the following through instruction and/or practice:

- i. relevant waste management legislation, regulations and guidelines;
- ii. major environmental concerns pertaining to the waste to be handled;
- iii. occupational health and safety concerns pertaining to the processes and wastes to be handled;
- iv. management procedures including the use and operation of equipment for the processes and wastes to be handled;
- v. emergency response procedures;
- vi. specific written procedures for the control of nuisance conditions;
- vii. specific written procedures for refusal of unacceptable waste loads;
- viii. the requirements of this *Certificate*.

"*Waste electrical and electronic equipment (WEEE)*" means devices listed in Schedules 1 through 7 of *Ontario Regulation 393/04*.

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

### **TERMS AND CONDITIONS**

#### **GENERAL**

##### **Compliance**

2. The *Owner* and *Operator* shall ensure compliance with all the conditions of this *Certificate* and shall ensure that any person authorized to carry out work on or operate any aspect of the *Site* is notified of this *Certificate* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

3. Any person authorized to carry out work on or operate any aspect of the *Site* shall comply with the conditions of this *Certificate*.

##### **Build, etc. in Accordance**

4. Except as otherwise provided by this *Certificate*, the *Site* shall be designed, developed, built, operated and maintained in accordance with the applications for this *Certificate* and all supporting documentation listed in Schedule "A".

##### **Interpretation**

5. Where there is a conflict between a provision of any document, including the application, referred to in this *Certificate*, and the conditions of this *Certificate*, the conditions in this *Certificate* shall take precedence.

6. Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the *Ministry* approved the amendment.

7. Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.

8. The requirements of this *Certificate* are severable. If any requirement of this *Certificate*, or the application of any requirement of this *Certificate* to any circumstance, is held invalid or unenforceable, the application of such requirement to

other circumstances and the remainder of this *Certificate* shall not be affected thereby.

### **Other Legal Obligations**

9. The issuance of, and compliance with the conditions of, this *Certificate* does not:

- a. relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or
- b. limit in any way the authority of the *Ministry* to require certain steps be taken or to require the *Owner* and *Operator* to furnish any further information related to compliance with this *Certificate*;

### **Adverse Effects**

10. The *Owner* and *Operator* shall take steps to minimize and ameliorate immediately any adverse effect on the natural environment or impairment of water quality resulting from the *Site*, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

11. Despite an *Owner*, *Operator* or any other person fulfilling any obligations imposed by this *Certificate*, the person remains responsible for any contravention of any other condition of this *Certificate* or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

### **Change of Owner**

12. The *Owner* shall notify the *Director* in writing, and forward a copy of the notification to the *District Manager*, within 30 days of the occurrence of any changes:

- a. the ownership of the *Site*
- b. the *Operator* of the *Site*;
- c. the address of the *Owner* or *Operator*;
- d. the partners, where the *Owner* is or at any time becomes a partnership and a copy of the most recent declaration filed under the *Business Names Act*, R.S.O. 1990, c. B-17 shall be included in the notification;
- e. the name of the corporation where the *Owner* is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the *Corporations Information Act*, R.S.O. 1990, C-39 shall be included in the notification; or

13. No portion of this *Site* shall be transferred or encumbered prior to or after closing of the *Site* unless the *Director* is notified in advance and sufficient financial assurance is deposited with the *Ministry* to ensure that these conditions will be carried out. In the event of any change in *Ownership* of the *Site*, other than change to a successor municipality, the *Owner* shall notify the successor of and provide the successor with a copy of this *Certificate*, and the *Owner* shall provide a copy of the notification to the *District Manager* and the *Director*.

### **Waste Transfer Site (TS)**

14. Only waste from households within the Township of Douro-Dummer, the Township of North Kawartha, and the Township of Havelock-Belmont-Methuen shall be accepted at this Waste Transfer Site.

15. The TS shall not receive or transfer more than 250 cubic metres of waste per day.

16. The TS shall only operate as follows:

(a) from Canada Day to Labour Day, the TS will operate on Sundays, Mondays and Fridays from 2:00 p.m. until 6:00 p.m., on Saturdays and Wednesdays from 9:00 a.m. to 6:00 p.m. and on holiday weekends (Sunday or Monday) may remain open until 8:00 p.m.;

(b) from Labour Day to Thanksgiving Day, the TS will operate on Sundays, Mondays, Wednesdays, Fridays and Saturdays from 2:00 p.m. until 6:00 p.m.;

(c) from Thanksgiving Day to Victoria Day, the TS will operate on Sundays, Wednesdays and Saturdays from 2:00 p.m.

## CONTENT COPY OF ORIGINAL

until 5:00 p.m.; and

(d) from Victoria Day to Canada Day, the TS will operate on Sundays, Mondays, Wednesdays, Fridays and Saturdays from 2:00 p.m. until 6:00 p.m.

where the Owner may change operational hours of the Site, if he is granted written approval by the District Manager.

17. All wastes transferred off the site may only be handled by parties who bear proper licensing and a valid Certificate of Approval from the Ministry of Environment to do so.

18. All wastes stored by the transfer station shall be segregated into solid non-hazardous waste, polystyrene recyclables, cardboard recyclables, multi-material recyclables, white goods, tires, brush, metals, and construction and demolition materials.

19. All solid, non-hazardous waste and recyclables must be stored in bins that are clearly marked and segregated.

20. For solid, non-hazardous waste, the following stipulations apply:

- (a) At no time shall there be more than 125 cubic metres of solid, non-hazardous waste stored at the TS;
- (b) No solid, non-hazardous waste may be stored outside of the designated bin;
- (c) All solid, non-hazardous wastes may only be stored at the TS for a maximum of Thirty (30) days or until the 125 cubic metre storage maximum is reached.

21. For all recyclable materials, the following stipulations apply:

- (a) At no time shall there be more than 120 cubic metres of recyclable materials stored at the TS;
- (b) No recyclable materials may be stored outside of their designated bins;
- (c) All recyclable materials may only be stored at the TS for a maximum of Thirty (30) days or until the 120 cubic metre storage maximum is reached.

22. For all other wastes, the following stipulations apply:

- (a) At no time shall there be more than 200 cubic metres of tire waste stored at the TS;
- (b) At no time shall there be more than 300 cubic metres of brush and wood waste stored at the TS;
- (c) At no time shall there be more than 300 cubic metres of metal waste stored at the TS;
- (d) At no time shall there be more than 300 cubic metres of white goods stored at the TS;
- (e) At no time shall there be more than 300 cubic metres of construction and demolition waste at the TS.

23. No waste oil shall be stored in containers which do not indicate the type of waste stored therein, or which are not suitable in design or construction.

24. (a) The amount of waste oil stored at the Site at any one time shall not exceed two thousand (2000) litres.

(b) At least once per year all accumulated waste oil shall be removed from the Site.

25. All waste oil transferred from the Site must be done so by a company with a valid Certificate of Approval for a Waste Management System.

26. No waste oil shall be deposited at the Site unless an authorized attendant is on duty.

27. The Township shall ensure that trained staff are on duty at all times when the Site is open to ensure proper supervision of all activities.

28. Prior to being accepted at the Site, all incoming waste shall be inspected by the Township, and shall only be permitted to enter the Site if the Site is approved to accept that type of waste.

29. If any Unacceptable Waste is discovered on-site, that waste shall immediately be disposed of in accordance with Ontario Regulation 347, R.R.O. 1990, as amended from time to time.

### **Staff Training**

30. All operators of the Site shall be trained with respect to the following:

- (a) the terms, conditions and operating requirements of this Certificate;
- (b) operation and management of the TS, or areas within the TS, as per the specific job requirements of each individual operator, and which may include procedures for receiving, screening, refusal, and handling of waste;
- (c) shipping and manifesting procedures, if such functions fall within the job requirements of the individual operator;
- (d) the Site plan and location of relevant equipment, including that for emergencies and spills;
- (e) an outline of the responsibilities of Site personnel including roles and responsibilities during emergencies and spills;
- (f) Spill Emergency and Contingency Plan equipment and procedures;
- (g) any environmental and occupational health and safety concerns pertaining to the waste to be processed;
- (h) emergency first-aid information;
- (i) relevant waste management legislation and regulations, including the *EPA* and *Ontario Regulation 347*;
- (j) information recording procedures;
- (k) Equipment and Site Inspection procedures; and
- (l) procedures for recording and responding to public complaints.

31. The Owner shall maintain a written record at the Site which shall include (as a minimum) the following:

- (a) the date of training;
- (b) the name and signature of the person who has been trained; and
- (c) a description of the training provided.

### **Equipment and site inspection**

32. The Township shall conduct regular inspections of the equipment, buildings, facilities and security fencing and barriers to ensure that all are maintained in good working order and secure at all times. Any deficiencies detected during these regular inspections shall be promptly corrected. A written record shall be maintained at the Site, which includes the following:

- (a) name and signature of trained personnel conducting the inspection;
- (b) date and time of the inspection;
- (c) list of equipment inspected and all deficiencies observed;

- (d) a detailed description of the maintenance activity;
- (e) date and time of maintenance activity; and
- (f) recommendations for remedial action and actions undertaken.

**Nuisance impact control**

33. The Owner shall routinely conduct visual inspections of the Site to ensure that no off-site impacts such as vermin, vectors, odour, dust, and litter, result from the operation of the Site. A written record shall be maintained at the Site, which includes the following:

- (a) name and signature of trained personnel conducting the inspection;
- (b) date and time of the inspection;
- (c) list of any nuisance impacts observed;
- (d) date, time and detailed description of remedial action taken in order to control the nuisance; and
- (e) recommendations for any preventative measures that can be taken to prevent future reoccurrences.

**Record Keeping**

34. The Owner shall maintain a written record at the Site containing (as a minimum) the following information:

- (a) the date of record;
- (b) the quantity and types of waste received;
- (c) the receiving Site for product shipped from the Site;
- (d) the quantity and type of any rejected wastes;
- (e) the Equipment and Site inspection report;
- (f) details on any complaints regarding Site operations, including (as a minimum) the following information:
  - (i) the nature of the complaint;
  - (ii) the date and time of the complaint;
  - (iii) the name, address and telephone number of the complainant; and
  - (iv) any resulting contacts and remedial action taken;
- (g) details on all spills, fires, upsets or other problems encountered during the operation of the Site, and all actions taken to remediate the problem; and
- (h) records of staff training.

**Spills and emergency responses**

35. All spills, upsets and fires shall be immediately reported to the **Ministry's Spills Action Centre at 1-800-268-6060** and a written record shall be made as to the nature of the spill or upset, and the action taken for clean-up, correction and prevention of future occurrences.

36. The Owner shall immediately take all measures necessary to contain and clean up any spill or leak which may result from the operation at this Site.

### **Site Closure**

37. Upon commissioning of the TS, the Township must begin implementing a detailed closure plan of the existing landfill disposal area, all in accordance with the report submitted to the MOEE Peterborough District Office listed in Schedule "A".

38. Within ten (10) days after closure of the Site, the Company shall notify the Director, in writing, that the Site has been closed in accordance with the approved Closure Plan.

39. At a time when the Township is prepared to terminate the use of this facility as a transfer station, the Township must begin implementing a closure plan, all in accordance with the items listed in Schedule "A".

### **HOUSEHOLD HAZARDOUS WASTE COLLECTION FACILITY (MHSW)**

40. The Site shall only accept waste for bulking and temporary storage pending transfer to an approved carrier for disposal elsewhere, the following household hazardous wastes: Waste Class Nos. 112, 121, 122, 145, 146, 147, 148, 212, 213, 221, 242, 252, 261, 263, 269, 312 and 331 as described in the Ministry document "New Ontario Waste Classes" dated January, 1986.

41. (a) The MHSW depot shall not receive more than 20 cubic metres of MHSW per day; and

(b) The MHSW depot shall not store in excess of 50 cubic metres of MHSW on site.

42. MHSW shall not be stored at the Site for longer than one hundred eighty (180) days, unless the consent of the District Manager has been obtained.

43. All household hazardous waste received and stored must be managed in accordance with Ontario Regulation 347, R.R.O. 1990, as amended, and with the Ministry of Environment document entitled "Household Hazardous Waste Collection and Facility Guidelines" dated May 1993.

44. All storage of liquid wastes shall be in accordance with this Ministry's publication "Guidelines of Environmental Protection Measures at Chemical Storage Facilities", dated October 1978 as amended.

45. All MHSW shall be stored in secondary containment that is adequate to contain any spills or leaks. Segregated secondary containment shall be provided for incompatible types of waste.

46. Incoming MHSW shall be inspected by Competent personnel, prior to being accepted at the Site, to ensure that the Site is approved to accept that type of waste.

47. All containers shall be clearly labeled indicating the type and nature of the hazardous waste stored as required by regulation. All points of access to the Site shall be posted to warn that the area contains hazardous materials.

48. No radioactive wastes shall be accepted at this Site.

49. Oil and oil-based paints which have been manufactured prior to 1972; or whose manufacturing date cannot be determined, may contain PCBs and shall be handled as follows:

(a) The oil and oil-based paints shall not be mixed (bulked) with other paints prior to testing. Paints which are lab-packed are not considered to be mixed under this Certificate;

(b) The oil and oil-based paints shall be tested by a certified laboratory for PCB content and shall be handled in the manner outlined in Condition 49(c) if found to contain PCBs;

(c) If the oil and oil-based paints are found to have PCBs at or above levels identified in Condition 49(d), it shall be

**CONTENT COPY OF ORIGINAL**

forthwith reported to the District Manager and shall be managed in accordance with Regulation 362 and stored or removed from the Site to an approved PCB storage site, in accordance with written instructions from the District Manager; and

(d) The oil and oil-based paints shall not be distributed for reuse if they have any measurable PCB content. The oil and oil-based paint is considered to be a PCB waste, if measured levels are equal to or greater than 50 parts per million.

50. Except for oil based paints that become classified as PCB Waste, paints may be offered for reuse to the public. Records shall be kept of the type, volume and recipient of paint returned to the public.

51. The County shall maintain, at the Site, a log book which records daily, the following information:

- (a) date of record;
- (b) types, quantities and source of MHSW received;
- (c) quantities of MHSW stored at the Site;
- (d) quantities and destination of MHSW shipped from the Site; and
- (e) quantities of waste returned to the public as noted in Condition 55.

52. In this Notice, the term "waste generators" means those households within the County of Peterborough.

53. (a) The MHSW Depot shall be operated and maintained in accordance with the plans and specifications

contained in the documents listed in this Certificate, including Items 18 and 19 in Schedule "A", subject to the Conditions of this Certificate.

(b) Incidental waste which does not conform to Condition 53(a) above shall either be:

- (i) returned to the generator; or
- (ii) in the absence of a known generator, characterized and managed in accordance with Ontario Regulation 347.

(c) A detailed record shall be made of any incidental waste discovered at the Facilities, including but not limited to:

- (i) the date;
- (ii) the type of waste;
- (iii) the amount of waste;
- (iv) the condition of the container; and
- (v) how the waste was managed.

(d) All biomedical waste (waste class 312) received at the Site shall be managed in accordance with the Operator's "Operations Manual for Handling and Storage of Biohazard Sharps or Needles" prepared in accordance with the Ministry document entitled "Guideline C-4: The Management of Biomedical Waste in Ontario" dated November 2009, as amended. This waste shall be limited to waste generated by residents of the County of Peterborough from households only.

54. Waste received at the Depot shall be stored in accordance with the "County of Peterborough Municipal Hazardous or Special Waste (MHSW) Facility Operations Manual update 28 May, 2010", submitted under Items 18 and 19 of Schedule "A" in such a manner that:

- (a) all liquid wastes shall be stored in secondary containment that meets the requirements of the Ministry document entitled "Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities" dated May 2007, as amended;
- (b) containers and/or storage areas containing flammable and/or ignitable materials shall be adequately grounded;
- (c) storage containers shall be clearly labelled indicating the type and nature of the hazardous waste stored as required by applicable legislation;
- (d) incompatible waste types shall be segregated during storage;
- (e) all waste being transported from the Depot shall be transported in accordance with Ontario Regulation 347 and the

## CONTENT COPY OF ORIGINAL

Environmental Protection Act.

55. The Operator shall not offer household hazardous waste for reuse unless:

- (a) the waste is in its original packaging, and the label on the package is legible;
- (b) the waste has been inspected by trained personnel to ensure the waste meets the requirements for reuse for that specific waste type; and
- (c) the waste is one of the following:
  - (i) household cleaners, wheel and tire cleaners, other than bleach or ammonia;
  - (ii) varsol, turpentine, thinners, linseed oil;
  - (iii) polishes and waxes;
  - (iv) adhesives (tile and wood), glue (contact cement);
  - (v) caulking, grout, mortar (cement), drywall compound;
  - (vi) citronella (liquid or wax), lamp oil;
  - (vii) aerosols (hairspray, air fresheners, cleaners);
  - (viii) motor oil (auto marine, lawnmower), provided the original container has never been opened;
  - (ix) antifreeze, provided the original container has never been opened;
  - (x) barbecue starting fluid, windshield washer fluid and CLR
  - (xi) other items as determined by the Operator provided they comply with the conditions of this Certificate.
  - (xi) waste paint, subject to the requirements of Condition 56 below;

56. The Operator shall only offer waste paint for reuse provided that the following conditions are met:

- (a) the waste paint is contained in the original manufacturer's container;
- (b) the original manufacturer's label containing product information use and product hazards is clearly legible;
- (c) the original manufacturer's container is in an undamaged state such that the material may be transported without risk of leaks or spills; and
- (d) the Operator does not suspect the paint to have been manufactured prior to 1972.

57. The Operator shall only accept hazardous waste under the following restrictions:

- (a) no waste shall be received from waste generators where the generator's activities include waste management;
- (b) the Operator may only receive up to 60 kg of hazardous waste per visit;
- (c) the Operator may only receive up to a maximum of 300 litres of liquid industrial waste per visit;
- (d) no hazardous waste shall be received in containers greater than 25 litres in size;
- (e) no liquid industrial waste shall be received in containers greater than 25 litres in size;
- (f) all containers shall be closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of waste;
- (g) no broken or leaking containers, or containers otherwise unsuitable for the type of waste they contain, shall be accepted at the MHSW Depot;

58. An area for the acceptance, storage and preparation for transport for recycling, of waste electrical and electronic equipment (WEEE), and subsequent transfer of such wastes by an approved carrier for disposal elsewhere shall be operated in accordance with the following:

- (a) the materials shall be stored: in a roll-off bin (covered), a trailer or other suitable shelter; in an orderly fashion, to avoid breakage (broken materials shall be placed in containers), such that WEEE is sheltered from rain and snow, and as provided under the contractual agreement with the MOE approved program plan administrators.
- (b) maximum storage volume is 40 cubic yards;
- (c) the Site Plan submitted annually shall show the location of the storage area;
- (d) a log shall be kept of the firm used for the transportation and the destination where the waste will be consolidated for recycling, re-use, refurbishment or disposal as per the WEEE Program Plan and in accordance with the Conditions of this Certificate.

### **ORGANICS COLLECTION SYSTEM**

## CONTENT COPY OF ORIGINAL

59. The *County* shall operate the organics collection waste system in accordance with Items 14 through 17 listed in Schedule "A".

60. The *County* shall retain a record of the following information at the Site the following information:

- (i) dates the collection system are emptied;
- (ii) approximate volume transferred to the collection truck per load; and;
- (iii) record of any spills that occur during emptying and a description outlining any remediation measures that were implemented.

61. The organics collection program shall be operated and maintained in such a manner that does not pose a danger or health risk to the environment or public.

### ANNUAL REPORT

62. By March 31, 2012 and on an annual basis thereafter, a written report shall be prepared for the previous calendar year ("*Annual Report*"). The Annual Report shall be submitted to the *District Manager* on March 31 of each year and retained at *Site* and shall include, at a minimum, the following information:

- a. a detailed monthly summary of the type and quantity of all incoming and outgoing wastes and the destination of all outgoing wastes;
- b. any environmental and operational problems, that could negatively impact the environment, encountered during the operation and during the facility inspections and any mitigative actions taken;
- c. any changes to the Emergency Response (Contingency) Plan,
- d. any changes to the Design and Operation Report (Manual) that have been approved by the *Director* since the last *Annual Report*; and
- e. any recommendations to minimize environmental impacts from the operation and to improve *Site* operations and monitoring programs in this regard.

### Schedule "A"

This Schedule "A" forms part of Provisional Certificate of Approval No. A341004.

1. Letter (with attachments) dated January 15, 2001, from M. Cant of Totten Sims Hubicki Associates to M. Williams of MOE Re: Township of Douro-Dummer Hall's Landfill Site Certificate of Approval # A341004.
2. Letter (with attachments) dated February 27, 2001, from M. Cant of Totten Sims Hubicki Associates to E. Zaltsberg of MOE Re: Township of Douro-Dummer Hall's Glen Landfill Site MOE Reference #7347-4TMUP.
3. Application for a Provisional Certificate of Approval for a Waste Disposal Site. Cover letter dated June 25, 2002, sent from Mr. Michael Cant of Totten Sims Hubicki Associates to M. Williams, MOEE.
4. "Hall's Glen Landfill Site: Closure Report" dated May 15, 2002, sent from Mr. Michael Cant of Totten Sims Hubicki Associates to Mr. David Clifford of the Township of Douro-Dummer.
5. Hall's Glen Landfill Site Transfer Station: Design, Operation, Maintenance and Closure Report" dated June 24, 2002, sent from Mr. Michael Cant of Totten Sims Hubicki Associates to Mr. David Clifford of the Township of Douro-Dummer.
6. Application for a Provisional Certificate of Approval for a Waste Disposal Site dated May 14, 2003 and signed by Mr. David Clifford, CAO, Corporation of the Township of Douro-Dummer including all attached supporting information.
7. Application for a Provisional Certificate of Approval for a Waste Disposal Site dated September 1, 2005 and signed by Mr. David Clifford, CAO, The Corporation of the Township of Douro-Dummer including all attached supporting information and documentation.
8. Document entitled "*County of Peterborough: Household Hazardous Waste (MHSW) Facility Operations Manual*" dated August 10, 2005.

## CONTENT COPY OF ORIGINAL

9. Letter dated August 30, 2005 to Mr. James O'Mara, Director, Environmental Assessment and Approvals Branch, Ministry of Environment from Mr. Michael Cant, Manager, Solid Waste, Totten Sims Hubicki Associates. Re: Amendment for Certificate of Approval No. A341004 including all attachments.
10. Letter dated October 11, 2005 to Mr. Matthew Chisholm, Application Processor, Ministry of Environment, from Mr. Michael Cant, Manager, Solid Waste, Totten Sims Hubicki Associates. Re: Application for Approval of a Waste Disposal Site, MOE Reference No. 2960-6FTPZG.
11. Letter dated January 24, 2006 to Mr. David Lee, Waste Evaluator, Ministry of Environment, from Mr. Michael Cant, TSH Associates, Re: Draft Notice of Amendment for Certificate of Approval No. A341004.
12. Application for a Provisional Certificate of Approval for a Waste Disposal Site for the Hall's Glen Landfill Site dated November 14, 2006 .
13. Figure 1 entitled "Revised Site Plan" dated November 2006, prepared by Totten Sims Hubicki Associates Limited.
14. Letter dated March 20, 2007 to Dale I. Gable, Senior Review Engineer, Ministry of the Environment from David Clifford, CAO, The Corporation of the Township of Douro-Dummer.
15. Letter dated March 30, 2007 to Dale I. Gable, Senior Review Engineer, Ministry of the Environment from Sherry Arcaro, Manager of Environmental Services, County of Peterborough.
16. Letter dated June 12, 2007 to David Clifford, CAO, The Corporation of the Township of Douro-Dummer from David Lee, Waste Evaluator, Ministry of the Environment.
17. Letter dated August 10, 2007 to David Lee, Waste Evaluator, Ministry of the Environment from Sherry Acaro, Manager of Environmental Services, County of Peterborough including attached site plan, and description of organic collection system entitled "*County of Peterborough Depot Organics Collection System Description*".
18. Application for a Provisional Certificate of Approval for a Waste Disposal Site dated June 14, 2010, signed by David Clifford, Chief Administrative Officer, The Corporation of the Township of Douro-Dummer, including all documents attached to this application.
19. E-mail dated June 18, 2010, including all attachments to the e-mail, from Laurie Westaway, County of Peterborough (Project Technical Information Contact) to Nihar Bhatt, Ontario Ministry of the Environment, providing electronic copies of the appendices to the Operations Manual for the Site.

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

- 1. The reason for Condition 1 is to simplify the wording of the subsequent conditions and define the specific meaning of terms as used in this Provisional Certificate of Approval.*
- 2. The reasons for Conditions 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and 13 are to clarify the legal rights and responsibilities of the Owner and Operator.*
- 3. The reason for Conditions 14 through 22 is to ensure that the types and amounts of waste received at the Site, the storage locations and disposal of the waste are in accordance with that considered by the Director and approved under this Certificate.*
- 4. The reason for the conditions 23 through 39 is to ensure that the waste transfer station are managed in a manner that protects the environment and the health and safety of the public.*
- 5. The reason for Conditions 40 through 48 is to ensure that the Household Hazardous Waste Depot is operated in a manner which does not result in a nuisance or a hazard to the health and safety of the environment or public.*
- 6. The reason for Condition 49, 50 and 51 to ensure PCB waste is handled in an environmentally acceptable manner in accordance with Ontario Regulation 363. This ensures protection of the natural environment and public health and safety.*

7. The reason for Conditions 14 and 52 is to define the generators from which waste will be accepted.

9. The reason for Conditions 53,55, 56 and 57 is to ensure that only acceptable waste is received at the Household Hazardous Waste Depot, and to ensure all waste received is handled in an appropriate manner.

10. The reason for Conditions 54 is to ensure that all waste is handled in an appropriate manner, and that any spills are handled in an appropriate manner.

11. The reason for Condition 59, 60 and 61 is to ensure that the organic collection system is operated in a manner which does not result in a hazard or nuisance to the natural environment or any person.

12. The reasons for Condition 62 is to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

**This Provisional Certificate of Approval revokes and replaces Certificate(s) of Approval No. A341004 issued on October 8, 1980.**

In accordance with Section 139 of the *Environmental Protection Act*, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the *Environmental Protection Act*, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the 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.

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

*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, 15th Floor  
Toronto, Ontario  
M5G 1E5

AND

The Director  
Section 39, *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) 314-4600, Fax: (416) 314-4506 or [www.ert.gov.on.ca](http://www.ert.gov.on.ca)

*The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.*

DATED AT TORONTO this 26th day of May, 2011

Tesfaye Gebrezghi, P.Eng.  
Director  
Section 39, *Environmental Protection Act*

AT/

c: District Manager, MOE Peterborough  
Laurie Westaway, County of Peterborough

Content Copy Of Original



Ministry of the Environment and Climate Change  
Ministère de l'Environnement et de l'Action en matière de changement  
climatique

**AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER A341004

Notice No. 1

Issue Date: August 22, 2016

The Corporation of the Township of Douro-Dummer  
894 South St P.O. Box 92  
Post Office Box, No. 92  
Warsaw, Ontario  
K0L 3A0

Site Location: Hall's Glen Closed Landfill Site and Transfer Station  
1951 County Road 6  
Lot 25, Concession 4, Dummer Ward  
Douro-Dummer Township, County of Peterborough

*You are hereby notified that I have amended Approval No. A341004 issued on May 26, 2011 for a waste transfer station and a household hazardous waste depot at the closed Hall's Glen landfill site , as follows:*

**I. For the purposes of this Approval, the following definitions are hereby added:**

*"Household Hazardous Waste Collection Facility" or "MHSW"* means the 20 feet by 40 feet area of the *Site* used for the transfer of hazardous and liquid industrial wastes listed under this Approval;

*"MHSW Operator"* means the County of Peterborough authorized by the *Owner* as having charge, management or control of any aspect of the *MHSW* ;

*"Waste Transfer Site" or "TS"* means the area of the *Site* used for the transfer of municipal waste, including solid non-hazardous commercial and industrial waste and recyclable materials as listed in Schedules 1 and 2 of Ontario Regulation 101/94, as well as waste categories 251, 252, 253 and 254 as described in the New Ontario Waste Classes, dated January, 1986, limited to waste oil of domestic origin only

**II. Conditions 16, 24 (a), 40, 53 (a) and 54 of this Approval are hereby revoked and replaced by:**

16. The TS shall only operate as follows:

(a) Summer (May 1st to October 31st) - Mondays, Wednesdays, Fridays and Saturdays: 10:00 a.m. to 2:00 p.m. ; Sundays: 10:00 a.m. to 6 p.m.

(b) Winter (November 1st to April 30) - Wednesdays, Saturdays and Sundays: 10 a.m. to 2 p.m.

24. (a) The amount of waste oil stored at the *Site* at any one time shall not exceed two thousand two hundred and seventy litres (2,270 L).

40. (1) (a) The *Site* shall only accept waste for bulking and temporary storage pending transfer to

an approved carrier disposal elsewhere, the following household hazardous wastes: Waste Class no. 112, 121, 122, 145, 146, 147, 148, 212, 213, 221, 242, 252, 261, 263, 269, 312 and 331 as described in the Ministry document "New Ontario Waste Classes" dated January 1986.

(b) The *Owner* shall accept the wastes listed under Conditions 40 (1) (a) and 58 during the hours of operation specified in Condition 16 of this Approval.

(2) The *Owner* is approved to hold *County* environmental day event(s), as operated by the *MHSW Operator*, to accept the wastes listed under Conditions 40 (1) (a) and 58. The *MHSW Operator* shall notify the *Owner* and the *District Manager*, in writing, fifteen (15) days in advance of the details of such an event. The event(s) shall be held subject to the terms and conditions of this Approval, and in accordance with the documents identified in Schedule "A".

53. (a) The *MHSW* Depot shall be operated and maintained in accordance with the updated *MHSW* Site Plan and Operational Manual identified in Appendix C of Item 20 of Schedule "A", as well as previous plans and specifications contained in Items 18 and 19 of Schedule "A", subject to the Conditions of this Approval.

54. Waste received at the *MHSW* Depot shall be stored in accordance with the updated *MHSW* Site Plan and Operational Manual identified in Appendix C of Item 20 of Schedule "A", as well as previous documentation submitted under Items 18 and 19 of Schedule "A" in a manner such that:

(a) all liquid wastes shall be stored in secondary containment that meets the requirements of the *Ministry* document entitled "Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities" dated May 2007, as amended;

(b) containers and/or storage areas containing flammable and/or ignitable materials shall be adequately grounded;

(c) storage containers shall be clearly labelled indicating the type and nature of the hazardous waste stored as required by applicable legislation;

(d) all batteries shall be stored in a manner which prevents leakage;

(e) incompatible waste types shall be segregated during storage;

(f) all waste being transported from the Depot shall be transported in accordance with Ontario Regulation 347 and the Environmental Protection Act.

### **III. The following Item is hereby added to Schedule "A":**

20. Letter by GHD Limited, dated January 7, 2016 and signed by Steven Gagne and Nyle McIlveen, including all appendices and attached documentation.

### **IV. The reasons for this amendment to the Approval are as follows:**

1. The reason for Conditions 16 and 24 (a) is to change the hours of operation of the *Site*, and waste oil storage limit, as requested by The Corporation of the Township of Douro-Dummer

2. The reason for Conditions 40, 53 and 54 is to recognize changes to the *Household Hazardous Waste Collection Facility*, as requested by The Township of the Douro-Dummer and the County of

Peterborough.

**This Notice shall constitute part of the approval issued under Approval No. A341004 dated May 26, 2011**

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

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 and  
Climate Change  
135 St. Clair Avenue West, 1st Floor  
Toronto, Ontario  
M4V 1P5

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

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

DATED AT TORONTO this 22nd day of August, 2016

Dale Gable, P.Eng.  
Director  
appointed for the purposes of Part II.1 of  
the *Environmental Protection Act*

MT/

c: District Manager, MOECC Peterborough  
Nyle McIlveen, GHD, The Corporation of the Township of Douro-Dummer



---

## **Appendix C**

### **Field and Precipitation Data**

---

Fully accessible appended items are available upon request.



LOCATION: Halls Glen WDS

DATE: June 24 and 28, 2021

WEATHER (SAMPLE DAY): 18°C Sun 27°C

PROJECT NUMBER: 12987-002

SAMPLED BY: N. Morin, M. Pion and R. Doyle

WEATHER (PREVIOUS DAY): 19°C Sun

FIELD SHEET – GROUNDWATER DEVELOPMENT & SAMPLING

Sample Location	Water Level	B.H. Depth (m)	B.H. Dia. (mm)	Stick – Up (m)	Purge Volumes (L)		Temp (°C)	pH (units)	Cond. (µS/cm)	DO (mg/L)	ORP (mV)	CH4 (% Iel)	H2S (ppm)	Observations				
					Needed	Actual								Clarity	Colour	Odour	Sheen	Other
MW01-1	3.32	7.65	50.8	0.82	26	Dry x 1 8	10.9	7.04	1216	5.17	151	< 1	<0.1	Clear	None	None	None	
MW01-2	Dry	2.74	38.1	0.82	-	-	-	-	-	-	-	<1	<0.1	-	-	-	-	
MW02-1	14.32	15.33	50.8	0.22	6	-	-	-	-	-	-	<1	<0.1	-	-	-	-	Insufficient volumes
MW02-2	Dry	5.45	50.8	0.21	-	-	-	-	-	-	-	<1	<0.1	-	-	-	-	
MW03-1	2.33	5.51	50.8	0.66	19	Dry x 1 7	10.0	7.84	653	9.56	132	<1	<0.1	Clear	None	None	None	QA/QC #5 (VOCs)
MW03-2	Dry	1.72	38.1	0.49	-	-	-	-	-	-	-	<1	<0.1	-	-	-	-	
MW04-1	2.46	5.62	50.8	0.92	19	19	8.0	7.87	735	4.06	140	<1	<0.1	Clear	None	None	None	
MW04-2	2.29	2.99	38.1	0.85	4	4	9.0	7.53	569	9.71	145	<1	<0.1	Cloudy	Brown	None	None	
MW05-1	5.10	7.68	50.8	0.00	15	15	9.0	7.08	1747	1.58	96	<1	<0.1	Cloudy	Grey	Leachate	None	QA/QC #1 + QA/QC # 4 (VOCs)
MW05-2	3.89	4.38	38.1	0.22	1.5	Dry x1 0.75	9.3	7.15	1962	6.67	140	<1	<0.1	Cloudy	Yellow	Leachate	None	
MW06-1	5.09	7.85	50.8	0.61	16	16	10.2	6.97	1023	4.72	143	<1	<0.1	Clear	None	None	None	Ants in well
MW06-2	3.56	5.13	38.1	0.60	6	6	10.0	7.29	2433	8.96	162	<1	<0.1	Clear	None	None	None	Ants in well
MW07-1	2.90	6.98	50.8	0.79	24	Dry x1 8	11.1	8.71	800	9.94	138	<1	<0.1	Cloudy	Grey	None	None	
MW07-2	2.82	3.37	50.8	0.74	4	4	11.1	7.51	1048	6.88	132	<1	<0.1	Cloudy	Grey	None	None	
MW08-1	5.44	11.31	50.8	0.69	35	Dry x1 20	11.1	7.04	792	3.15	221	<1	<0.1	Clear	None	None	None	QA/QC #3
MW08-2	6.51	7.70	50.8	0.70	7	Dry x1 3	9.3	8.78	652	13.26	140	<1	<0.1	Cloudy	Brown	None	None	



LOCATION: Halls Glen WDS

DATE: June 24 and 28, 2021

WEATHER (SAMPLE DAY): 18°C Sun 27°C

PROJECT NUMBER: 12987-002

SAMPLED BY: N. Morin, M. Pion and R. Doyle

WEATHER (PREVIOUS DAY): 19°C Sun

FIELD SHEET – GROUNDWATER DEVELOPMENT & SAMPLING

Sample Location	Water Level	B.H. Depth (m)	B.H. Dia. (mm)	Stick – Up (m)	Purge Volumes (L)		Temp (°C)	pH (units)	Cond. (µS/cm)	DO (mg/L)	ORP (mV)	CH4 (% lcl)	H2S (ppm)	Observations				
					Needed	Actual								Clarity	Colour	Odour	Sheen	Other
MW09-1	1.20	9.92	50.8	0.68	48	Dry x1 18	10.8	7.83	622	6.10	119	<1	<0.1	Cloudy	None	Sulfur	None	
MW09-2	1.97	6.16	50.8	0.68	24	24	10.7	7.08	792	2.63	160	<1	<0.1	Clear	None	Sulfur	None	
MW10-1	2.56	9.89	50.8	0.74	44	44	8.9	8.15	648	2.59	-118	<1	<0.1	Clear	None	Sulfur	None	
MW10-2	2.64	6.65	50.8	0.73	24	24	9.0	8.45	665	2.87	-15	<1	<0.1	Cloudy	Brown	None	None	
MW11-1	3.13	9.96	50.8	0.70	42	Dry x1 15	8.3	8.76	655	12.42	5	<1	<0.1	Cloudy	Black	Sulfur	None	
MW11-2	3.21	6.74	50.8	0.72	21	21	7.7	7.26	672	1.55	136	<1	<0.1	Clear	None	None	None	
MW12-1	2.16	6.84	50.8	0.89	28	28	9.4	7.20	651	2.83	-38	<1	<0.1	Clear	None	Sulfur	None	QA/QC #2
MW12-2	2.12	10.21	50.8	0.91	48	48	8.1	7.87	748	6.76	-4	<1	<0.1	Clear	None	Sulfur	None	
MW12-3	2.06	13.09	50.8	0.90	66	66	7.2	7.48	694	3.52	-5	<1	<0.1	Clear	None	Sulfur	None	
MW13-1	2.14	6.04	50.8	0.86	24	24	10.1	7.23	848	7.01	135	<1	<0.1	Clear	None	None	None	
MW13-2	2.02	3.76	50.8	0.86	9	Dry x1 6	12.4	7.23	715	6.56	131	<1	<0.1	Cloudy	Grey	None	None	
R1	-	5.65	-	1.00	-	Dry x1 10	10.4	7.18	678	4.89	125	-	-	Opaque	Brown	None	None	Monitoring Well
R2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Resident Not Home
R3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Resident Not Home
R4	-	-	-	-	20	20	13.4	7.36	1046	8.86	145	-	-	Clear	None	None	None	



LOCATION: Halls Glen WDS

DATE: November 11, 2021

WEATHER (SAMPLE DAY): 2°C Overcast 8°C

PROJECT NUMBER: 12987-002

SAMPLED BY: N. Morin, M. Pion and  
W. Verduyn

WEATHER (PREVIOUS DAY): 8°C Sun

FIELD SHEET – GROUNDWATER DEVELOPMENT & SAMPLING

Sample Location	Water Level	B.H. Depth (m)	B.H. Dia. (mm)	Stick – Up (m)	Purge Volumes (L)		Temp (°C)	pH (units)	Cond. (µS/cm)	DO (mg/L)	ORP (mV)	CH4 (% lel)	H2S (ppm)	Observations				
					Needed	Actual								Clarity	Colour	Odour	Sheen	Other
MW01-1	2.94	7.65	50.8	0.82	29	Dry x 1 10	10.7	7.18	435	9.03	173	<1	<0.1	Clear	None	None	None	O2: 20.9 % vol CO2: 0.0 % vol
MW01-2	Dry	2.74	38.1	0.82	-	-	-	-	-	-	-	<1	<0.1	-	-	-	-	O2: 20.9 % vol CO2: 0.0 % vol Dry
MW02-1	14.06	15.33	50.8	0.22	-	-	-	-	-	-	-	20.6	<0.1	-	-	-	-	O2: 20.9 % vol CO2: 0.2 % vol Insufficient Volumes
MW02-2	Dry	5.45	50.8	0.21	-	-	-	-	-	-	-	17% vol	<0.1	-	-	-	-	Dry, went into alarm O2: 18.4 % vol CO2: 3.4 % vol
MW03-1	1.75	5.51	50.8	0.66	23	Dry x 1 10	10.1	6.99	378	5.73	69	<1	<0.1	Clear	None	None	None	O2: 20.9 % vol CO2: 0.2 % vol
MW03-2	1.39	1.72	38.1	0.49	1.25	1.25	9.7	6.78	671	4.28	85	<1	<0.1	Cloudy	None	None	None	O2: 20.9 % vol CO2: 0.0 % vol
MW04-1	2.05	5.62	50.8	0.92	22	22	9.0	6.80	431	4.00	45	<1	<0.1	Clear	None	None	None	QA/QC #2 O2: 20.9 % vol CO2: 0.0 % vol
MW04-2	1.87	2.99	38.1	0.85	4.00	4.00	9.5	7.10	277	7.53	28	<1	<0.1	Opaque	Brown	None	None	O2: 20.9 % vol CO2: 0.0 % vol
MW05-1	4.65	7.68	50.8	0.00	19	19	8.6	6.55	600	4.76	123	<1	<0.1	Opaque	Red-brown	None	None	O2: 20.9 % vol CO2: 0.0 % vol
MW05-2	3.88	4.38	38.1	0.22	1.75	Dry x 1 1.25	8.5	6.63	786	6.47	121	<1	<0.1	Opaque	Grey	None	None	O2: 20.9 % vol CO2: 0.0 % vol
MW06-1	4.67	7.85	50.8	0.61	20	20	9.4	6.78	553	3.61	83	<1	<0.1	Clear	None	None	None	QA/QC #1 O2: 20.9 % vol CO2: 0.0 % vol
MW06-2	3.48	5.13	38.1	0.60	6	6	9.7	6.83	788	8.02	102	<1	<0.1	Clear	None	Leachate	None	O2: 20.9 % vol CO2: 0.0 % vol
MW07-1	3.41	6.98	50.8	0.79	22	Dry x 1 8	9.3	7.73	354	6.70	121	<1	<0.1	Opaque	Grey	None	None	O2: 20.9 % vol CO2: 0.0 % vol
MW07-2	2.41	3.37	50.8	0.74	6	6	9.0	6.98	503	7.35	135	<1	<0.1	Cloudy	Grey	None	None	O2: 20.9 % vol CO2: 0.5 % vol
MW08-1	5.10	11.31	50.8	0.69	38	38	9.0	7.24	335	2.30	-72	<1	<0.1	Clear	None	None	None	O2: 20.6 % vol CO2: 0.0 % vol



LOCATION: Halls Glen WDS

DATE: November 11, 2021

WEATHER (SAMPLE DAY): 2°C Overcast 8°C

PROJECT NUMBER: 12987-002

SAMPLED BY: N. Morin, M. Pion and  
W. Verduyn

WEATHER (PREVIOUS DAY): 8°C Sun

FIELD SHEET – GROUNDWATER DEVELOPMENT & SAMPLING

Sample Location	Water Level	B.H. Depth (m)	B.H. Dia. (mm)	Stick – Up (m)	Purge Volumes (L)		Temp (°C)	pH (units)	Cond. (µS/cm)	DO (mg/L)	ORP (mV)	CH4 (% lcl)	H2S (ppm)	Observations				
					Needed	Actual								Clarity	Colour	Odour	Sheen	Other
MW08-2	5.95	7.70	50.8	0.70	11	11	9.2	7.27	334	2.49	-73	<1	<0.1	Clear	None	None	None	O2: 20.6 % vol CO2: 0.0 % vol
MW09-1	0.88	9.92	50.8	0.68	56	Dry x 1 18	9.4	7.82	271	3.33	-96	<1	<0.1	Clear	Grey	Sulphur	None	O2: 20.9 % vol CO2: 0.0 % vol
MW09-2	1.61	6.16	50.8	0.68	28	28	9.8	7.01	332	2.91	30	<1	<0.1	Clear	None	None	None	O2: 20.9 % vol CO2: 0.0 % vol
MW10-1	2.13	9.89	50.8	0.74	48	48	9.4	7.32	284	2.07	15	<1	<0.1	Clear	None	None	None	O2: 20.6 % vol CO2: 0.0 % vol
MW10-2	2.22	6.65	50.8	0.73	27	27	10.3	7.38	297	2.81	19	<1	<0.1	Cloudy	None	Sulphur	None	O2: 20.8 % vol CO2: 0.0 % vol
MW11-1	2.75	9.96	50.8	0.70	44	Dry x 1 15	9.0	7.80	294	9.36	15	<1	<0.1	Cloudy	Black	Leachate	None	O2: 20.6 % vol CO2: 0.0 % vol
MW11-2	2.78	6.74	50.8	0.72	25	Dry x 1 15	9.0	7.37	286	7.98	15	<1	<0.1	Clear	None	None	None	QA/QC#3 O2: 20.6 % vol CO2: 0.0 % vol
MW12-1	1.72	6.84	50.8	0.89	32	32	9.4	7.45	280	3.60	11	1	<0.1	Clear	None	Sulphur	None	O2: 19.6 % vol CO2: 0.5 % vol
MW12-2	1.63	10.21	50.8	0.91	53	Dry x 1 20	8.9	7.20	331	5.98	43	17	<0.1	Opaque	Grey	Leachate	None	O2: 19.6 % vol CO2: 0.5 % vol
MW12-3	1.62	13.09	50.8	0.90	70	70	8.7	7.15	300	2.63	12	1	<0.1	Cloudy	Grey	None	None	O2: 20.6 % vol CO2: 0.2 % vol
MW13-1	1.82	6.04	50.8	0.86	26	26	10.6	7.00	412	5.20	57	<1	<0.1	Clear	None	None	None	O2: 20.9 % vol CO2: 0.0 % vol
MW13-2	1.74	3.76	50.8	0.86	13	13	10.1	6.90	353	2.51	45	<1	<0.1	Clear	None	None	None	O2: 20.9 % vol CO2: 0.0 % vol
R1	-	5.65	-	-	-	-	9.4	7.06	319	4.10	8	-	-	Opaque	Red-brown	None	None	
R2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Resident not home
R3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Resident not home



LOCATION: Halls Glen WDS

DATE: November 11, 2021

WEATHER (SAMPLE DAY): 2°C Overcast 8°C

PROJECT NUMBER: 12987-002

SAMPLED BY: N. Morin, M. Pion and  
W. Verduyn

WEATHER (PREVIOUS DAY): 8°C Sun

FIELD SHEET – GROUNDWATER DEVELOPMENT & SAMPLING

Sample Location	Water Level	B.H. Depth (m)	B.H. Dia. (mm)	Stick - Up (m)	Purge Volumes (L)		Temp (°C)	pH (units)	Cond. (µS/cm)	DO (mg/L)	ORP (mV)	CH4 (% lcl)	H2S (ppm)	Observations				
					Needed	Actual								Clarity	Colour	Odour	Sheen	Other
R4	-	-	-	-	-	-	19.1	7.22	425	8.16	17	-	-	Clear	None	None	None	Taken from kitchen – tap had been used by resident







Daily Data Report for June 2021

PETERBOROUGH TRENT U
ONTARIO
Current Station Operator: ECCC - MSC

Latitude: 44°21'00.000" N Longitude: 78°18'00.000" W Elevation: 216.00 m
Climate ID: 6166456 WMO ID: 71672 TC ID: TPQ

Table with 12 columns: DAY, Max Temp (°C), Min Temp (°C), Mean Temp (°C), Heat Deg Days, Cool Deg Days, Total Rain (mm), Total Snow (cm), Total Precip (mm), Snow on Grnd (cm), Dir of Max Gust (10's deg), Spd of Max Gust (km/h). Rows include daily data from 01 to 30 and a Sum row.



Daily Data Report for November 2021

PETERBOROUGH TRENT U
ONTARIO
Current Station Operator: ECCC - MSC

Latitude: 44°21'00.000" N Longitude: 78°18'00.000" W Elevation: 216.00 m
Climate ID: 6166456 WMO ID: 71672 TC ID: TPQ

Table with 12 columns: DAY, Max Temp (°C), Min Temp (°C), Mean Temp (°C), Heat Deg Days, Cool Deg Days, Total Rain (mm), Total Snow (cm), Total Precip (mm), Snow on Grnd (cm), Dir of Max Gust (10's deg), Spd of Max Gust (km/h). Rows include daily data from 01 to 30 and a Sum row.



---

## **Appendix D**

# **Laboratory Certificates of Analysis**

---

Fully accessible appended items are available upon request.

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW4-I	MW4-II	MW12-I
					Sample I.D.	B21-19679-1	B21-19679-2	B21-19679-3	B21-19679-4
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	313	296	263	271	
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	1260	750	594	650	
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.73	7.63	7.80	7.85	
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	680	392	308	338	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	2.2	4.0	3.4	2.2	
COD	mg/L	5	SM5220C	28-Jun-21/K	< 5	< 5	42	7	
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	< 0.002	< 0.002	< 0.002	0.004	
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	175	54.0	26.2	40.7	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3 H	29-Jun-21/K	0.04	0.80	0.02	0.14	
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	79	15	13	20	
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	2.54	1.56	0.55	0.08	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	02-Jul-21/K	0.3	1.0	0.3	0.2	
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	469	335	322	345	
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	< 0.0001	0.0001	< 0.0001	
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.233	0.124	0.136	0.743	
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.073	0.066	0.033	0.121	
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	165	125	122	116	
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	0.004	< 0.001	< 0.001	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0013	0.0013	0.0040	< 0.0001	
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	0.034	0.135	< 0.005	
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00013	0.00014	0.00028	0.00009	
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	13.7	5.53	4.04	13.4	
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	< 0.001	0.147	0.020	0.003	
Phosphorus-Total	mg/L	0.01	E3516.2	02-Jul-21/K	0.06	0.02	0.42	0.02	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW4-I	MW4-II	MW12-I	
					Sample I.D.	Date Collected				
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O	B21-19679-1	24-Jun-21	4.5	4.8	1.6	3.1
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O	B21-19679-2	24-Jun-21	83.3	31.4	16.3	11.7
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O	B21-19679-3	24-Jun-21	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	30-Jun-21/O	B21-19679-4	24-Jun-21	13.0	7.87	6.30	6.99
Cation Sum	meq/L		Calc.	30-Jun-21/O			13.1	8.24	7.18	7.49
% Difference	%		Calc.	30-Jun-21/O			0.346	2.32	6.49	3.42
Ion Ratio	AS/CS		Calc.	30-Jun-21/O			0.993	0.955	0.878	0.934
TDS(ion sum calc.)	mg/L	1	Calc.	30-Jun-21/O			708	415	341	368
Conductivity (calc.)	µmho/cm		Calc.	30-Jun-21/O			1251	761	635	687
Langelier Index(25°C)	S.I.		Calc.	30-Jun-21/O			0.960	0.736	0.855	0.894



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	GW_QAQC5	MW12-II	MW12-III	MW3-I
<b>Sample I.D.</b>	B21-19679-5	B21-19679-6	B21-19679-7	B21-19679-8
<b>Date Collected</b>	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	269	300	283	266
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	653	763	696	726
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.76	7.92	7.75	7.74
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	339	399	362	378
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	2.3	3.9	3.5	2.9
COD	mg/L	5	SM5220C	28-Jun-21/K	8	16	< 5	< 5
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	0.003	< 0.002	< 0.002	< 0.002
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	41.7	32.2	48.6	73.8
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-21/K	0.14	0.44	0.02	< 0.01
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	26	79	23	11
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	0.72	0.06	< 0.05	1.48
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	02-Jul-21/K	0.2	0.6	0.2	0.2
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	334	315	356	347
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	0.0006	< 0.0001	< 0.0001
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.719	0.195	0.031	0.112
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.119	0.674	0.083	0.029
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	112	78.0	133	132
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	< 0.001	< 0.001	< 0.001	< 0.001
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	< 0.0001	0.0001	0.0012
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	< 0.005	0.019	0.016
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00008	0.00170	0.00008	0.00007
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	13.2	29.1	5.83	4.19
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	0.003	0.114	0.034	0.001
Phosphorus-Total	mg/L	0.01	E3516.2	02-Jul-21/K	< 0.01	0.17	0.04	0.02



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC5	MW12-II	MW12-III	MW3-I
					Sample I.D.	Date Collected	B21-19679-5	B21-19679-6	B21-19679-7
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O		3.0	3.5	1.6	3.3
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O		11.6	46.8	16.0	25.2
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O		< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	30-Jun-21/O		7.15	8.60	7.51	7.72
Cation Sum	meq/L		Calc.	30-Jun-21/O		7.27	8.45	7.86	8.11
% Difference	%		Calc.	30-Jun-21/O		0.798	0.914	2.29	2.48
Ion Ratio	AS/CS		Calc.	30-Jun-21/O		0.984	1.02	0.955	0.952
TDS(ion sum calc.)	mg/L	1	Calc.	30-Jun-21/O		369	450	398	409
Conductivity (calc.)	µmho/cm		Calc.	30-Jun-21/O		683	783	732	766
Langelier Index(25°C)	S.I.		Calc.	30-Jun-21/O		0.786	0.827	0.873	0.822



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW6-I	MW6-II	MW5-II	MW5-I
Sample I.D.	B21-19679-10	B21-19679-11	B21-19679-12	B21-19679-13
Date Collected	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	342	1120	826	757
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	1020	2440	1960	1730
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.59	7.54	7.67	7.35
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	544	1350	1080	946
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	4.1	22.3	14.1	13.4
COD	mg/L	5	SM5220C	28-Jun-21/K	31	119	113	134
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	< 0.002	< 0.002	< 0.002	< 0.002
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	124	167	172	147
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-21/K	2.84	43.0	26.4	16.4
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	29	83	7	8
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	1.50	0.06	0.20	0.09
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	02-Jul-21/K	4.7	48.0	30.3	21.5
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	411	969	810	746
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0003	0.0024	0.0031	0.0030
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.233	0.699	0.910	0.911
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.087	1.08	0.662	0.502
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	< 0.000029	< 0.000029	< 0.000015
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	151	310	269	255
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	< 0.001	0.002	0.001	0.001
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0014	0.0074	0.0023	0.0002
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	0.717	21.7	34.4	44.5
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00015	0.00046	0.00249	0.00011
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	8.04	47.1	33.4	26.5
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	0.698	8.58	6.23	3.12



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW6-I	MW6-II	MW5-II	MW5-I
Sample I.D.	B21-19679-10	B21-19679-11	B21-19679-12	B21-19679-13
Date Collected	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
					MW6-I	MW6-II	MW5-II	MW5-I
Phosphorus-Total	mg/L	0.01	E3516.2	02-Jul-21/K	0.28	0.04	0.41	1.10
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O	8.6	51.4	41.8	30.0
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O	64.2	158	117	85.0
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	0.006	0.006	< 0.005
Anion Sum	meq/L		Calc.	30-Jun-21/O	11.0	28.7	21.5	19.4
Cation Sum	meq/L		Calc.	30-Jun-21/O	11.5	32.1	26.3	23.0
% Difference	%		Calc.	30-Jun-21/O	1.95	5.48	10.0	8.46
Ion Ratio	AS/CS		Calc.	30-Jun-21/O	0.962	0.896	0.818	0.844
TDS(ion sum calc.)	mg/L	1	Calc.	30-Jun-21/O	595	1572	1210	1074
Conductivity (calc.)	µmho/cm		Calc.	30-Jun-21/O	1074	2430	1980	1733
Langelier Index(25°C)	S.I.		Calc.	30-Jun-21/O	0.830	1.57	1.50	1.12



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	GW_QAQC1	MW7-11	MW10-I	MW10-2
Sample I.D.	B21-19679-14	B21-19679-16	B21-19679-17	B21-19679-18
Date Collected	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	755	510	251	260
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	1710	1220	648	660
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.35	7.72	7.76	7.83
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	939	659	336	343
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	14.3	9.1	2.8	2.8
COD	mg/L	5	SM5220C	28-Jun-21/K	164	33	< 5	53
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	< 0.002	< 0.002	< 0.002	< 0.002
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	146	104	54.2	59.6
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-21/K	16.2	0.39	0.15	0.93
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	7	37	23	10
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	0.11	0.48	< 0.05	0.07
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	02-Jul-21/K	21.0	0.9	0.1	1.0
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	753	588	335	342
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0030	0.0002	< 0.0001	0.0003
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.918	0.416	0.944	0.510
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.502	0.324	0.184	0.109
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	257	200	105	118
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	0.001	< 0.001	< 0.001	< 0.001
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0002	0.0046	0.0001	0.0012
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	44.6	0.051	0.018	< 0.005
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00010	0.00025	0.00005	0.00046
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	26.8	21.3	17.7	11.4
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	3.14	0.022	0.062	0.038



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	GW_QAQC1	MW7-11	MW10-1	MW10-2
<b>Sample I.D.</b>	B21-19679-14	B21-19679-16	B21-19679-17	B21-19679-18
<b>Date Collected</b>	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3516.2	02-Jul-21/K	1.36	0.08	0.03	0.11
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O	30.2	10.3	3.5	2.0
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O	85.7	82.8	11.2	6.1
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	30-Jun-21/O	19.4	13.9	7.04	7.11
Cation Sum	meq/L		Calc.	30-Jun-21/O	23.2	15.6	7.29	7.21
% Difference	%		Calc.	30-Jun-21/O	9.02	5.81	1.69	0.722
Ion Ratio	AS/CS		Calc.	30-Jun-21/O	0.834	0.890	0.967	0.986
TDS(ion sum calc.)	mg/L	1	Calc.	30-Jun-21/O	1074	761	366	365
Conductivity (calc.)	µmho/cm		Calc.	30-Jun-21/O	1735	1326	689	694
Langelier Index(25°C)	S.I.		Calc.	30-Jun-21/O	1.13	1.25	0.728	0.864



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
194 Sophia St.,  
Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
Kingston Ontario K7K 6Z1  
Tel: 613-544-2001  
Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW11-I	MW11-II	MW7-I	MW8-II
					Sample I.D.	B21-19679-19	B21-19679-20	B21-19679-21	B21-19679-22
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	271	271	336	276	
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	666	659	802	700	
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.91	7.81	8.16	7.94	
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	346	342	421	364	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	3.0	4.4	4.5	3.7	
COD	mg/L	5	SM5220C	28-Jun-21/K	65	< 5	125	7	
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	< 0.002	< 0.002	< 0.002	< 0.002	
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	27.9	52.0	53.6	65.5	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-21/K	0.88	0.95	0.04	< 0.01	
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	62	11	31	9	
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	0.07	0.19	0.74	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	02-Jul-21/K	1.6	1.0	1.3	0.4	
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	339	339	129	302	
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	< 0.0001	0.0005	< 0.0001	
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.570	0.528	0.162	0.135	
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.610	0.127	0.533	0.015	
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	79.2	117	36.9	114	
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	< 0.001	< 0.001	< 0.001	0.073	
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	0.0008	0.0015	0.0008	
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	0.116	3.03	0.088	0.019	
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00007	0.00006	0.00026	0.00013	
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	34.4	11.3	8.90	4.06	
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	0.086	0.035	0.006	0.004	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW11-I	MW11-II	MW7-I	MW8-II
Sample I.D.	B21-19679-19	B21-19679-20	B21-19679-21	B21-19679-22
Date Collected	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3516.2	02-Jul-21/K	0.18	0.08	1.91	0.10
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O	5.4	2.3	2.3	1.0
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O	19.8	7.3	157	38.3
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	< 0.005	< 0.005	< 0.005
Anion Sum	meq/L		Calc.	30-Jun-21/O	7.55	7.13	8.92	7.59
Cation Sum	meq/L		Calc.	30-Jun-21/O	7.85	7.38	9.47	7.72
% Difference	%		Calc.	30-Jun-21/O	1.99	1.68	3.00	0.796
Ion Ratio	AS/CS		Calc.	30-Jun-21/O	0.961	0.967	0.942	0.984
TDS(ion sum calc.)	mg/L	1	Calc.	30-Jun-21/O	394	368	492	397
Conductivity (calc.)	µmho/cm		Calc.	30-Jun-21/O	712	687	845	734
Langelier Index(25°C)	S.I.		Calc.	30-Jun-21/O	0.790	0.858	0.790	0.985



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW4-I	MW4-II	MW12-I
					Sample I.D.	B21-19679-1	B21-19679-2	B21-19679-3	B21-19679-4
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	313	296	263	271	
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	1260	750	594	650	
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.73	7.63	7.80	7.85	
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	680	392	308	338	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	2.2	4.0	3.4	2.2	
COD	mg/L	5	SM5220C	28-Jun-21/K	< 5	< 5	42	7	
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	< 0.002	< 0.002	< 0.002	0.004	
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	175	54.0	26.2	40.7	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-21/K	0.04	0.80	0.02	0.14	
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	79	15	13	20	
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	2.54	1.56	0.55	0.08	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	02-Jul-21/K	0.3	1.0	0.3	0.2	
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	469	335	322	345	
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	< 0.0001	0.0001	< 0.0001	
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.233	0.124	0.136	0.743	
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.073	0.066	0.033	0.121	
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	165	125	122	116	
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	0.004	< 0.001	< 0.001	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0013	0.0013	0.0040	< 0.0001	
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	0.034	0.135	< 0.005	
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00013	0.00014	0.00028	0.00009	
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	13.7	5.53	4.04	13.4	
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	< 0.001	0.147	0.020	0.003	
Phosphorus-Total	mg/L	0.01	E3199A.1	02-Jul-21/K	0.06	0.02	0.42	0.02	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW4-I	MW4-II	MW12-I
					Sample I.D.				
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O	B21-19679-1	4.5	4.8	1.6	3.1
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O	B21-19679-2	83.3	31.4	16.3	11.7
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O	B21-19679-3	< 0.005	< 0.005	< 0.005	< 0.005
					B21-19679-4				

1. Filtered and acidified from GWC



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	GW_QAQC5	MW12-II	MW12-III	MW3-I
Sample I.D.	B21-19679-5	B21-19679-6	B21-19679-7	B21-19679-8
Date Collected	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	269	300	283	266
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	653	763	696	726
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.76	7.92	7.75	7.74
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	339	399	362	378
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	2.3	3.9	3.5	2.9
COD	mg/L	5	SM5220C	28-Jun-21/K	8	16	< 5	< 5
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	0.003	< 0.002	< 0.002	< 0.002
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	41.7	32.2	48.6	73.8
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-21/K	0.14	0.44	0.02	< 0.01
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	26	79	23	11
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	0.72	0.06	< 0.05	1.48
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	02-Jul-21/K	0.2	0.6	0.2	0.2
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	334	315	356	347
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	0.0006	< 0.0001	< 0.0001
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.719	0.195	0.031	0.112
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.119	0.674	0.083	0.029
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	112	78.0	133	132
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	< 0.001	< 0.001	< 0.001	< 0.001
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	< 0.0001	0.0001	0.0012
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	< 0.005	0.019	0.016
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00008	0.00170	0.00008	0.00007
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	13.2	29.1	5.83	4.19
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	0.003	0.114	0.034	0.001
Phosphorus-Total	mg/L	0.01	E3199A.1	02-Jul-21/K	< 0.01	0.17	0.04	0.02



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC5	MW12-II	MW12-III	MW3-I
					Sample I.D.	B21-19679-5	B21-19679-6	B21-19679-7	B21-19679-8
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O	3.0	3.5	1.6	3.3	
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O	11.6	46.8	16.0	25.2	
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

1. Filtered and acidified from GWC



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW6-I	MW6-II	MW5-II	MW5-I
					Sample I.D.	B21-19679-10	B21-19679-11	B21-19679-12	B21-19679-13
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	342	1120	826	757	
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	1020	2440	1960	1730	
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.59	7.54	7.67	7.35	
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	544	1350	1080	946	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	4.1	22.3	14.1	13.4	
COD	mg/L	5	SM5220C	28-Jun-21/K	31	119	113	134	
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	< 0.002	< 0.002	< 0.002	< 0.002	
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	124	167	172	147	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-21/K	2.84	43.0	26.4	16.4	
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	29	83	7	8	
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	1.50	0.06	0.20	0.09	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	02-Jul-21/K	4.7	48.0	30.3	21.5	
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	411	969	810	746	
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0003	0.0024	0.0031	0.0030	
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.233	0.699	0.910	0.911	
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.087	1.08	0.662	0.502	
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	< 0.000029	< 0.000029	< 0.000015	
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	151	310	269	255	
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	< 0.001	0.002	0.001	0.001	
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0014	0.0074	0.0023	0.0002	
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	0.717	21.7	34.4	44.5	
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00015	0.00046	0.00249	0.00011	
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	8.04	47.1	33.4	26.5	
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	0.698	8.58	6.23	3.12	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW6-I	MW6-II	MW5-II	MW5-I
Sample I.D.	B21-19679-10	B21-19679-11	B21-19679-12	B21-19679-13
Date Collected	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3199A.1	02-Jul-21/K	0.28	0.04	0.41	1.10
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O	8.6	51.4	41.8	30.0
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O	64.2	158	117	85.0
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	0.006	0.006	< 0.005

1 Filtered and acidified from GWC



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC1	MW7-11	MW10-1	MW10-2
					Sample I.D.	B21-19679-14	B21-19679-16	B21-19679-17	B21-19679-18
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	755	510	251	260	
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	1710	1220	648	660	
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.35	7.72	7.76	7.83	
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	939	659	336	343	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	14.3	9.1	2.8	2.8	
COD	mg/L	5	SM5220C	28-Jun-21/K	164	33	< 5	53	
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	< 0.002	< 0.002	< 0.002	< 0.002	
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	146	104	54.2	59.6	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-21/K	16.2	0.39	0.15	0.93	
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	7	37	23	10	
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	0.11	0.48	< 0.05	0.07	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	02-Jul-21/K	21.0	0.9	0.1	1.0	
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	753	588	335	342	
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0030	0.0002	< 0.0001	0.0003	
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.918	0.416	0.944	0.510	
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.502	0.324	0.184	0.109	
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	257	200	105	118	
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	0.001	< 0.001	< 0.001	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	0.0002	0.0046	0.0001	0.0012	
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	44.6	0.051	0.018	< 0.005	
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00010	0.00025	0.00005	0.00046	
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	26.8	21.3	17.7	11.4	
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	3.14	0.022	0.062	0.038	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	GW_QAQC1	MW7-11	MW10-1	MW10-2
<b>Sample I.D.</b>	B21-19679-14	B21-19679-16	B21-19679-17	B21-19679-18
<b>Date Collected</b>	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3199A.1	02-Jul-21/K	1.36	0.08	0.03	0.11
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O	30.2	10.3	3.5	2.0
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O	85.7	82.8	11.2	6.1
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O	< 0.005	< 0.005	< 0.005	< 0.005

1 Filtered and acidified from GWC



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
194 Sophia St.,  
Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
Kingston Ontario K7K 6Z1  
Tel: 613-544-2001  
Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW11-I	MW11-II	MW7-I	MW8-II
					Sample I.D.	B21-19679-19	B21-19679-20	B21-19679-21	B21-19679-22
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	28-Jun-21/O	271	271	336	276	
Conductivity @25°C	µmho/cm	1	SM 2510B	28-Jun-21/O	666	659	802	700	
pH @25°C	pH Units		SM 4500H	28-Jun-21/O	7.91	7.81	8.16	7.94	
Total Dissolved Solids	mg/L	3	SM 2540D	05-Jul-21/O	346	342	421	364	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	28-Jun-21/O	3.0	4.4	4.5	3.7	
COD	mg/L	5	SM5220C	28-Jun-21/K	65	< 5	125	7	
Phenolics	mg/L	0.002	MOEE 3179	28-Jun-21/K	< 0.002	< 0.002	< 0.002	< 0.002	
Chloride	mg/L	0.5	SM4110C	28-Jun-21/O	27.9	52.0	53.6	65.5	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	29-Jun-21/K	0.88	0.95	0.04	< 0.01	
Sulphate	mg/L	1	SM4110C	28-Jun-21/O	62	11	31	9	
Nitrite (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	< 0.05	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	28-Jun-21/O	< 0.05	0.07	0.19	0.74	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	02-Jul-21/K	1.6	1.0	1.3	0.4	
Mercury	mg/L	0.00002	SM 3112 B	29-Jun-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	28-Jun-21/O	339	339	129	302	
Arsenic	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	< 0.0001	0.0005	< 0.0001	
Barium	mg/L	0.001	SM 3120	28-Jun-21/O	0.570	0.528	0.162	0.135	
Boron	mg/L	0.005	SM 3120	28-Jun-21/O	0.610	0.127	0.533	0.015	
Cadmium	mg/L	0.000015	EPA 200.8	29-Jun-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	28-Jun-21/O	79.2	117	36.9	114	
Chromium	mg/L	0.001	EPA 200.8	29-Jun-21/O	< 0.001	< 0.001	< 0.001	0.073	
Copper	mg/L	0.0001	EPA 200.8	29-Jun-21/O	< 0.0001	0.0008	0.0015	0.0008	
Iron	mg/L	0.005	SM 3120	28-Jun-21/O	0.116	3.03	0.088	0.019	
Lead	mg/L	0.00002	EPA 200.8	29-Jun-21/O	0.00007	0.00006	0.00026	0.00013	
Magnesium	mg/L	0.02	SM 3120	28-Jun-21/O	34.4	11.3	8.90	4.06	
Manganese	mg/L	0.001	SM 3120	28-Jun-21/O	0.086	0.035	0.006	0.004	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW11-I	MW11-II	MW7-I	MW8-II	
					Sample I.D.	Date Collected				
Phosphorus-Total	mg/L	0.01	E3199A.1	02-Jul-21/K	B21-19679-19	24-Jun-21	0.18	0.08	1.91	0.10
Potassium	mg/L	0.1	SM 3120	28-Jun-21/O	B21-19679-20	24-Jun-21	5.4	2.3	2.3	1.0
Sodium	mg/L	0.2	SM 3120	28-Jun-21/O	B21-19679-21	24-Jun-21	19.8	7.3	157	38.3
Zinc	mg/L	0.005	SM 3120	28-Jun-21/O	B21-19679-22	24-Jun-21	< 0.005	< 0.005	< 0.005	< 0.005

1 Filtered and acidified from GWC



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW4-I	MW4-II	MW12-I
					Sample I.D.	B21-19679-1	B21-19679-2	B21-19679-3	B21-19679-4
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R		< 5	< 5	< 5	
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R		< 0.2	< 0.2	< 0.2	
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R		< 3	< 3	< 3	
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R		< 1	< 1	< 1	
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R		< 0.2	< 0.2	< 0.2	
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW4-I	MW4-II	MW12-I
					Sample I.D.	Date Collected			
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	B21-19679-1	24-Jun-21	< 0.5	< 0.5	
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	B21-19679-2	24-Jun-21	< 0.5	< 0.5	
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	B21-19679-3	24-Jun-21	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	B21-19679-4	24-Jun-21	< 0.5	< 0.5	
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			< 0.5	< 0.5	
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R			< 0.5	< 0.5	
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R			< 5	< 5	
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R			< 0.2	< 0.2	< 0.2

1 Revised to include additional parameter



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC5	MW12-II	MW12-III	MW3-I
					Sample I.D.	Date Collected	B21-19679-5	B21-19679-6	B21-19679-7
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R					< 2
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R					< 5
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R					< 0.2
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R					< 3
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R					< 1
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R					< 2
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R					< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R					< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R		< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R			< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC5	MW12-II	MW12-III	MW3-I
					Sample I.D.	B21-19679-5	B21-19679-6	B21-19679-7	B21-19679-8
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R					< 5
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

1 Revised to include additional parameter



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC5	MW6-I	MW6-II	MW5-II
					Sample I.D.	B21-19679-9	B21-19679-10	B21-19679-11	B21-19679-12
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R	< 3	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	GW_QAQC5	MW6-I	MW6-II	MW5-II
<b>Sample I.D.</b>	B21-19679-9	B21-19679-10	B21-19679-11	B21-19679-12
<b>Date Collected</b>	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tetrachloroethane,1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2

1 Revised to include additional parameter



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW5-I	GW_QAQC4	MW7-11	MW10-I
					Sample I.D.	B21-19679-13	B21-19679-15	B21-19679-16	B21-19679-17
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R	< 3	< 3	< 3	< 3	
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R	< 1	< 1	< 1	< 1	
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW5-I	GW_QAQC4	MW7-11	MW10-I
<b>Sample I.D.</b>	B21-19679-13	B21-19679-15	B21-19679-16	B21-19679-17
<b>Date Collected</b>	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tetrachloroethane,1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2

1 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW10-2	MW11-I	MW11-II	MW7-I
					Sample I.D.	B21-19679-18	B21-19679-19	B21-19679-20	B21-19679-21
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R		< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R		< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R		< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R		< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R		< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW10-2	MW11-I	MW11-II	MW7-I
<b>Sample I.D.</b>	B21-19679-18	B21-19679-19	B21-19679-20	B21-19679-21
<b>Date Collected</b>	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tetrachloroethane,1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R		< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2

1 Revised to include additional parameter



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW8-II		
Sample I.D.	B21-19679-22		
Date Collected	24-Jun-21		

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5		
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R			
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R			
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R			
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R			
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R			
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R			
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R			
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R			
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R			
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5		
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5		
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5		
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R			



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW8-II			
Sample I.D.	B21-19679-22			
Date Collected	24-Jun-21			

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tetrachloroethane,1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R				
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R				
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R				
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5			
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R				
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R				
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R				
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R				
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2			

1 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW4-I	MW4-II	MW12-I
					Sample I.D.	B21-19679-1	B21-19679-2	B21-19679-3	B21-19679-4
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R		< 5	< 5	< 5	
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R		< 0.2	< 0.2	< 0.2	
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R		< 3	< 3	< 3	
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R		< 1	< 1	< 1	
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R		< 0.2	< 0.2	< 0.2	
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW4-I	MW4-II	MW12-I
					Sample I.D.				
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	B21-19679-1	B21-19679-2	B21-19679-3	B21-19679-4	
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R		< 5	< 5	< 5	
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC5	MW12-II	MW12-III	MW3-I
					Sample I.D.	B21-19679-5	B21-19679-6	B21-19679-7	B21-19679-8
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R					< 2
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R					< 5
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R					< 0.2
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R					< 3
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R					< 1
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R					< 2
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R					< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R					< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC5	MW12-II	MW12-III	MW3-I
					Sample I.D.	B21-19679-5	B21-19679-6	B21-19679-7	B21-19679-8
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R					< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R					< 5
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC5	MW6-I	MW6-II	MW5-II
					Sample I.D.	B21-19679-9	B21-19679-10	B21-19679-11	B21-19679-12
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R	< 3	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	GW_QAQC5	MW6-I	MW6-II	MW5-II
<b>Sample I.D.</b>	B21-19679-9	B21-19679-10	B21-19679-11	B21-19679-12
<b>Date Collected</b>	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tetrachloroethane,1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW5-1	GW_QAQC4	MW7-11	MW10-1
					Sample I.D.	B21-19679-13	B21-19679-15	B21-19679-16	B21-19679-17
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R	< 3	< 3	< 3	< 3	
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R	< 1	< 1	< 1	< 1	
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R	< 2	< 2	< 2	< 2	
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2	
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW5-I	GW_QAQC4	MW7-11	MW10-I
Sample I.D.	B21-19679-13	B21-19679-15	B21-19679-16	B21-19679-17
Date Collected	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tetrachloroethane,1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW10-2	MW11-I	MW11-II	MW7-I
					Sample I.D.	B21-19679-18	B21-19679-19	B21-19679-20	B21-19679-21
Date Collected					24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R		< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R		< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R		< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R		< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R		< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R		< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW10-2	MW11-I	MW11-II	MW7-I
<b>Sample I.D.</b>	B21-19679-18	B21-19679-19	B21-19679-20	B21-19679-21
<b>Date Collected</b>	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Tetrachloroethane,1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R		< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R		< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2	< 0.2	< 0.2	< 0.2



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW8-II		
Sample I.D.	B21-19679-22		
Date Collected	24-Jun-21		

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Benzene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5		
Bromodichloromethane	µg/L	2	EPA 8260	29-Jun-21/R			
Bromoform	µg/L	5	EPA 8260	29-Jun-21/R			
Bromomethane	µg/L	0.5	EPA 8260	29-Jun-21/R			
Carbon Tetrachloride	µg/L	0.2	EPA 8260	29-Jun-21/R			
Chloroethane	µg/L	3	EPA 8260	29-Jun-21/R			
Chloroform	µg/L	1	EPA 8260	29-Jun-21/R			
Chloromethane	µg/L	2	EPA 8260	29-Jun-21/R			
Dibromochloromethane	µg/L	2	EPA 8260	29-Jun-21/R			
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	29-Jun-21/R			
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5		
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	29-Jun-21/R	< 5		
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	29-Jun-21/R			
Styrene	µg/L	0.5	EPA 8260	29-Jun-21/R			



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G103644

REPORT No. B21-19679 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 25-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 06-Jul-21

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW8-II			
Sample I.D.	B21-19679-22			
Date Collected	24-Jun-21			

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Tetrachloroethane,1,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Tetrachloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R			
Toluene	µg/L	0.5	EPA 8260	29-Jun-21/R	< 0.5		
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	29-Jun-21/R			
Trichloroethylene	µg/L	0.5	EPA 8260	29-Jun-21/R			
Trichlorofluoromethane	µg/L	5	EPA 8260	29-Jun-21/R			
Vinyl Chloride	µg/L	0.2	EPA 8260	29-Jun-21/R	< 0.2		



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW8-1	GW_QAQC3	MW9-II	MW9-I
Sample I.D.	B21-20195-1	B21-20195-2	B21-20195-3	B21-20195-4
Date Collected	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	05-Jul-21/O	273	273	271	236
Conductivity @25°C	µmho/cm	1	SM 2510B	05-Jul-21/O	822	822	821	607
pH @25°C	pH Units		SM 4500H	05-Jul-21/O	7.77	7.79	7.69	7.84
Total Dissolved Solids	mg/L	3	SM 2540D	07-Jul-21/O	433	433	432	315
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	05-Jul-21/O	2.8	2.2	3.3	2.6
COD	mg/L	5	SM5220C	02-Jul-21/K	< 5	< 5	< 5	33
Phenolics	mg/L	0.002	MOEE 3179	05-Jul-21/K	< 0.002	< 0.002	< 0.002	0.009
Chloride	mg/L	0.5	SM4110C	06-Jul-21/O	84.1	83.6	88.5	15.2
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3 H	05-Jul-21/K	0.02	0.01	0.03	0.65
Sulphate	mg/L	1	SM4110C	06-Jul-21/O	20	20	13	55
Nitrite (N)	mg/L	0.05	SM4110C	06-Jul-21/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	06-Jul-21/O	0.22	0.24	1.21	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	07-Jul-21/K	0.2	0.2	0.2	0.7
Mercury	mg/L	0.00002	SM 3112 B	06-Jul-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	05-Jul-21/O	329	329	329	223
Arsenic	mg/L	0.0001	EPA 200.8	06-Jul-21/O	0.0004	0.0004	0.0002	< 0.0001
Barium	mg/L	0.001	SM 3120	05-Jul-21/O	0.109	0.109	0.210	0.768
Boron	mg/L	0.005	SM 3120	05-Jul-21/O	0.079	0.080	0.040	0.571
Cadmium	mg/L	0.000015	EPA 200.8	06-Jul-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Calcium	mg/L	0.02	SM 3120	05-Jul-21/O	115	115	124	51.6
Chromium	mg/L	0.001	EPA 200.8	06-Jul-21/O	< 0.001	< 0.001	< 0.001	0.007
Copper	mg/L	0.0001	EPA 200.8	06-Jul-21/O	0.0022	0.0022	0.0006	< 0.0001
Iron	mg/L	0.005	SM 3120	05-Jul-21/O	0.010	0.011	0.087	0.040
Lead	mg/L	0.00002	EPA 200.8	06-Jul-21/O	0.00008	0.00007	0.00003	0.00007
Magnesium	mg/L	0.02	SM 3120	05-Jul-21/O	10.2	10.1	4.64	22.9
Manganese	mg/L	0.001	SM 3120	05-Jul-21/O	0.017	0.016	0.003	0.064
Phosphorus-Total	mg/L	0.01	E3516.2	07-Jul-21/K	0.05	0.06	0.04	0.06



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW8-1	GW_QAQC3	MW9-II	MW9-I
<b>Sample I.D.</b>	B21-20195-1	B21-20195-2	B21-20195-3	B21-20195-4
<b>Date Collected</b>	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Potassium	mg/L	0.1	SM 3120	05-Jul-21/O	3.0	3.0	2.3	5.4
Sodium	mg/L	0.2	SM 3120	05-Jul-21/O	53.4	53.2	55.6	54.4
Zinc	mg/L	0.005	SM 3120	05-Jul-21/O	< 0.005	< 0.005	< 0.005	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW13-II	MW13-I	R-4	R-I
Sample I.D.	B21-20195-5	B21-20195-6	B21-20195-7	B21-20195-8
Date Collected	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	05-Jul-21/O	268	262	267	254
Conductivity @25°C	µmho/cm	1	SM 2510B	05-Jul-21/O	763	913	1130	679
pH @25°C	pH Units		SM 4500H	05-Jul-21/O	7.68	7.73	7.87	7.74
Total Dissolved Solids	mg/L	3	SM 2540D	07-Jul-21/O	399	484	605	353
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	05-Jul-21/O	3.3	2.4	2.0	3.7
COD	mg/L	5	SM5220C	02-Jul-21/K	< 5	17	< 5	450
Phenolics	mg/L	0.002	MOEE 3179	05-Jul-21/K	< 0.002	< 0.002	< 0.002	< 0.002
Chloride	mg/L	0.5	SM4110C	06-Jul-21/O	70.3	124	183	51.7
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	05-Jul-21/K	0.02	< 0.01	< 0.01	0.08
Sulphate	mg/L	1	SM4110C	06-Jul-21/O	12	11	12	10
Nitrite (N)	mg/L	0.05	SM4110C	06-Jul-21/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	06-Jul-21/O	1.71	0.90	1.38	1.58
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	07-Jul-21/K	0.2	0.2	0.2	1.1
Mercury	mg/L	0.00002	SM 3112 B	06-Jul-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	05-Jul-21/O	324	298	333	327
Arsenic	mg/L	0.0001	EPA 200.8	06-Jul-21/O	0.0001	0.0001	0.0001	0.0003
Barium	mg/L	0.001	SM 3120	05-Jul-21/O	0.135	0.132	0.128	0.165
Boron	mg/L	0.005	SM 3120	05-Jul-21/O	0.027	0.020	0.020	0.020
Cadmium	mg/L	0.000015	EPA 200.8	06-Jul-21/O	< 0.000015	< 0.000015	< 0.000015	0.000054
Calcium	mg/L	0.02	SM 3120	05-Jul-21/O	123	114	127	123
Chromium	mg/L	0.001	EPA 200.8	06-Jul-21/O	< 0.001	< 0.001	0.002	0.001
Copper	mg/L	0.0001	EPA 200.8	06-Jul-21/O	0.0016	0.0012	0.117	0.0025
Iron	mg/L	0.005	SM 3120	05-Jul-21/O	0.006	< 0.005	0.006	0.577
Lead	mg/L	0.00002	EPA 200.8	06-Jul-21/O	0.00008	0.00008	0.00232	0.00083
Magnesium	mg/L	0.02	SM 3120	05-Jul-21/O	3.93	3.27	3.87	4.64
Manganese	mg/L	0.001	SM 3120	05-Jul-21/O	< 0.001	< 0.001	< 0.001	0.940
Phosphorus-Total	mg/L	0.01	E3516.2	07-Jul-21/K	0.07	0.02	0.01	0.96



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW13-II	MW13-I	R-4	R-I
<b>Sample I.D.</b>	B21-20195-5	B21-20195-6	B21-20195-7	B21-20195-8
<b>Date Collected</b>	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Potassium	mg/L	0.1	SM 3120	05-Jul-21/O	3.2	2.6	2.8	1.5
Sodium	mg/L	0.2	SM 3120	05-Jul-21/O	43.7	91.5	121	36.5
Zinc	mg/L	0.005	SM 3120	05-Jul-21/O	< 0.005	< 0.005	0.045	< 0.005



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (i)

**Report To:**

**Cambium Environmental**  
194 Sophia St.,  
Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
Kingston Ontario K7K 6Z1  
Tel: 613-544-2001  
Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 13-Jul-21

P.O. NUMBER: 12987-003

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW8-1	GW_QAQC3	MW9-II	MW9-I
					Sample I.D.	B21-20195-1	B21-20195-2	B21-20195-3	B21-20195-4
Date Collected					28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	05-Jul-21/O	273	273	271	236	
Conductivity @25°C	µmho/cm	1	SM 2510B	05-Jul-21/O	822	822	821	607	
pH @25°C	pH Units		SM 4500H	05-Jul-21/O	7.77	7.79	7.69	7.84	
Total Dissolved Solids	mg/L	3	SM 2540D	07-Jul-21/O	433	433	432	315	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	05-Jul-21/O	2.8	2.2	3.3	2.6	
COD	mg/L	5	SM5220C	02-Jul-21/K	< 5	< 5	< 5	33	
Phenolics	mg/L	0.002	MOEE 3179	05-Jul-21/K	< 0.002	< 0.002	< 0.002	0.009	
Chloride	mg/L	0.5	SM4110C	06-Jul-21/O	84.1	83.6	88.5	15.2	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	05-Jul-21/K	0.02	0.01	0.03	0.65	
Sulphate	mg/L	1	SM4110C	06-Jul-21/O	20	20	13	55	
Nitrite (N)	mg/L	0.05	SM4110C	06-Jul-21/O	< 0.05	< 0.05	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	06-Jul-21/O	0.22	0.24	1.21	< 0.05	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	07-Jul-21/K	0.2	0.2	0.2	0.7	
Mercury	mg/L	0.00002	SM 3112 B	06-Jul-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	05-Jul-21/O	329	329	329	223	
Arsenic	mg/L	0.0001	EPA 200.8	06-Jul-21/O	0.0004	0.0004	0.0002	< 0.0001	
Barium	mg/L	0.001	SM 3120	05-Jul-21/O	0.109	0.109	0.210	0.768	
Boron	mg/L	0.005	SM 3120	05-Jul-21/O	0.079	0.080	0.040	0.571	
Cadmium	mg/L	0.000015	EPA 200.8	06-Jul-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	05-Jul-21/O	115	115	124	51.6	
Chromium	mg/L	0.001	EPA 200.8	06-Jul-21/O	< 0.001	< 0.001	< 0.001	0.007	
Copper	mg/L	0.0001	EPA 200.8	06-Jul-21/O	0.0022	0.0022	0.0006	< 0.0001	
Iron	mg/L	0.005	SM 3120	05-Jul-21/O	0.010	0.011	0.087	0.040	
Lead	mg/L	0.00002	EPA 200.8	06-Jul-21/O	0.00008	0.00007	0.00003	0.00007	
Magnesium	mg/L	0.02	SM 3120	05-Jul-21/O	10.2	10.1	4.64	22.9	
Manganese	mg/L	0.001	SM 3120	05-Jul-21/O	0.017	0.016	0.003	0.064	
Phosphorus-Total	mg/L	0.01	E3199A.1	07-Jul-21/K	0.05	0.06	0.04	0.06	

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 13-Jul-21

P.O. NUMBER: 12987-003

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW8-1	GW_QAQC3	MW9-II	MW9-I
					Sample I.D.				
Potassium	mg/L	0.1	SM 3120	05-Jul-21/O	B21-20195-1	3.0	3.0	2.3	5.4
Sodium	mg/L	0.2	SM 3120	05-Jul-21/O	B21-20195-2	53.4	53.2	55.6	54.4
Zinc	mg/L	0.005	SM 3120	05-Jul-21/O	B21-20195-3	< 0.005	< 0.005	< 0.005	< 0.005
					B21-20195-4				



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (i)

**Report To:**

**Cambium Environmental**  
194 Sophia St.,  
Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
Kingston Ontario K7K 6Z1  
Tel: 613-544-2001  
Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 13-Jul-21

P.O. NUMBER: 12987-003

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW13-II	MW13-I	R-4	R-1
Sample I.D.	B21-20195-5	B21-20195-6	B21-20195-7	B21-20195-8
Date Collected	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	05-Jul-21/O	268	262	267	254
Conductivity @25°C	µmho/cm	1	SM 2510B	05-Jul-21/O	763	913	1130	679
pH @25°C	pH Units		SM 4500H	05-Jul-21/O	7.68	7.73	7.87	7.74
Total Dissolved Solids	mg/L	3	SM 2540D	07-Jul-21/O	399	484	605	353
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	05-Jul-21/O	3.3	2.4	2.0	3.7
COD	mg/L	5	SM5220C	02-Jul-21/K	< 5	17	< 5	450
Phenolics	mg/L	0.002	MOEE 3179	05-Jul-21/K	< 0.002	< 0.002	< 0.002	< 0.002
Chloride	mg/L	0.5	SM4110C	06-Jul-21/O	70.3	124	183	51.7
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	05-Jul-21/K	0.02	< 0.01	< 0.01	0.08
Sulphate	mg/L	1	SM4110C	06-Jul-21/O	12	11	12	10
Nitrite (N)	mg/L	0.05	SM4110C	06-Jul-21/O	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	06-Jul-21/O	1.71	0.90	1.38	1.58
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	07-Jul-21/K	0.2	0.2	0.2	1.1
Mercury	mg/L	0.00002	SM 3112 B	06-Jul-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	05-Jul-21/O	324	298	333	327
Arsenic	mg/L	0.0001	EPA 200.8	06-Jul-21/O	0.0001	0.0001	0.0001	0.0003
Barium	mg/L	0.001	SM 3120	05-Jul-21/O	0.135	0.132	0.128	0.165
Boron	mg/L	0.005	SM 3120	05-Jul-21/O	0.027	0.020	0.020	0.020
Cadmium	mg/L	0.000015	EPA 200.8	06-Jul-21/O	< 0.000015	< 0.000015	< 0.000015	0.000054
Calcium	mg/L	0.02	SM 3120	05-Jul-21/O	123	114	127	123
Chromium	mg/L	0.001	EPA 200.8	06-Jul-21/O	< 0.001	< 0.001	0.002	0.001
Copper	mg/L	0.0001	EPA 200.8	06-Jul-21/O	0.0016	0.0012	0.117	0.0025
Iron	mg/L	0.005	SM 3120	05-Jul-21/O	0.006	< 0.005	0.006	0.577
Lead	mg/L	0.00002	EPA 200.8	06-Jul-21/O	0.00008	0.00008	0.00232	0.00083
Magnesium	mg/L	0.02	SM 3120	05-Jul-21/O	3.93	3.27	3.87	4.64
Manganese	mg/L	0.001	SM 3120	05-Jul-21/O	< 0.001	< 0.001	< 0.001	0.940
Phosphorus-Total	mg/L	0.01	E3199A.1	07-Jul-21/K	0.07	0.02	0.01	0.96



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 13-Jul-21

P.O. NUMBER: 12987-003

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW13-II	MW13-I	R-4	R-I
					Sample I.D.	Date Collected	B21-20195-5	B21-20195-6	B21-20195-7
Potassium	mg/L	0.1	SM 3120	05-Jul-21/O		3.2	2.6	2.8	1.5
Sodium	mg/L	0.2	SM 3120	05-Jul-21/O		43.7	91.5	121	36.5
Zinc	mg/L	0.005	SM 3120	05-Jul-21/O		< 0.005	< 0.005	0.045	< 0.005



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW8-1	GW_QAQC3	MW9-II	MW9-I
					Sample I.D.	B21-20195-1	B21-20195-2	B21-20195-3	B21-20195-4
Date Collected					28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21
Benzene	µg/L	0.5	EPA 8260	02-Jul-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	02-Jul-21/R					
Bromoform	µg/L	5	EPA 8260	02-Jul-21/R					
Bromomethane	µg/L	0.5	EPA 8260	02-Jul-21/R					
Carbon Tetrachloride	µg/L	0.2	EPA 8260	02-Jul-21/R					
Chloroethane	µg/L	3	EPA 8260	02-Jul-21/R					
Chloroform	µg/L	1	EPA 8260	02-Jul-21/R					
Chloromethane	µg/L	2	EPA 8260	02-Jul-21/R					
Dibromochloromethane	µg/L	2	EPA 8260	02-Jul-21/R					
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	02-Jul-21/R					
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	02-Jul-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	02-Jul-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	02-Jul-21/R	< 0.5			< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW8-1	GW_QAQC3	MW9-II	MW9-I
					Sample I.D.	B21-20195-1	B21-20195-2	B21-20195-3	B21-20195-4
Date Collected					28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21
Styrene	µg/L	0.5	EPA 8260	02-Jul-21/R					
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Tetrachloroethylene	µg/L	0.5	EPA 8260	02-Jul-21/R					
Toluene	µg/L	0.5	EPA 8260	02-Jul-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Trichloroethylene	µg/L	0.5	EPA 8260	02-Jul-21/R					
Trichlorofluoromethane	µg/L	5	EPA 8260	02-Jul-21/R					
Vinyl Chloride	µg/L	0.2	EPA 8260	02-Jul-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

1. Revised to include additional parameter



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW13-II	MW13-I	R-4	R-I
					Sample I.D.	B21-20195-5	B21-20195-6	B21-20195-7	B21-20195-8
Date Collected					28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21
Benzene	µg/L	0.5	EPA 8260	02-Jul-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	02-Jul-21/R			< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	02-Jul-21/R			< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	02-Jul-21/R			< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	02-Jul-21/R			< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	02-Jul-21/R			< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	02-Jul-21/R			< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	02-Jul-21/R			< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	02-Jul-21/R			< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	02-Jul-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	02-Jul-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	02-Jul-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW13-II	MW13-I	R-4	R-I
<b>Sample I.D.</b>	B21-20195-5	B21-20195-6	B21-20195-7	B21-20195-8
<b>Date Collected</b>	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Styrene	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	02-Jul-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	02-Jul-21/R			< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	02-Jul-21/R			< 5	< 5
Vinyl Chloride	µg/L	0.2	EPA 8260	02-Jul-21/R	< 0.2	< 0.2	< 0.2	< 0.2

1. Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 13-Jul-21

P.O. NUMBER: 12987-003

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW8-1	GW_QAQC3	MW9-II	MW9-I
					Sample I.D.				
					Date Collected	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21
Benzene	µg/L	0.5	EPA 8260	02-Jul-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	02-Jul-21/R					
Bromoform	µg/L	5	EPA 8260	02-Jul-21/R					
Bromomethane	µg/L	0.5	EPA 8260	02-Jul-21/R					
Carbon Tetrachloride	µg/L	0.2	EPA 8260	02-Jul-21/R					
Chloroethane	µg/L	3	EPA 8260	02-Jul-21/R					
Chloroform	µg/L	1	EPA 8260	02-Jul-21/R					
Chloromethane	µg/L	2	EPA 8260	02-Jul-21/R					
Dibromochloromethane	µg/L	2	EPA 8260	02-Jul-21/R					
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	02-Jul-21/R					
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	02-Jul-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	02-Jul-21/R		< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	02-Jul-21/R					



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 13-Jul-21

P.O. NUMBER: 12987-003

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW8-1	GW_QAQC3	MW9-II	MW9-I
					Sample I.D.				
Styrene	µg/L	0.5	EPA 8260	02-Jul-21/R					
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Tetrachloroethylene	µg/L	0.5	EPA 8260	02-Jul-21/R					
Toluene	µg/L	0.5	EPA 8260	02-Jul-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R					
Trichloroethylene	µg/L	0.5	EPA 8260	02-Jul-21/R					
Trichlorofluoromethane	µg/L	5	EPA 8260	02-Jul-21/R					
Vinyl Chloride	µg/L	0.2	EPA 8260	02-Jul-21/R		< 0.2	< 0.2	< 0.2	< 0.2



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 13-Jul-21

P.O. NUMBER: 12987-003

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW13-II	MW13-I	R-4	R-I
					Sample I.D.	28-Jun-21	28-Jun-21	28-Jun-21	28-Jun-21
Benzene	µg/L	0.5	EPA 8260	02-Jul-21/R	B21-20195-5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	02-Jul-21/R	B21-20195-6			< 2	< 2
Bromoform	µg/L	5	EPA 8260	02-Jul-21/R	B21-20195-7			< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	02-Jul-21/R	B21-20195-8			< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	02-Jul-21/R				< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	02-Jul-21/R				< 3	< 3
Chloroform	µg/L	1	EPA 8260	02-Jul-21/R				< 1	< 1
Chloromethane	µg/L	2	EPA 8260	02-Jul-21/R				< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	02-Jul-21/R				< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	02-Jul-21/R				< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	02-Jul-21/R		< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	02-Jul-21/R		< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G80327

REPORT No. B21-20195 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 30-Jun-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 13-Jul-21

P.O. NUMBER: 12987-003

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW13-II	MW13-I	R-4	R-I
					Sample I.D.	Date Collected			
Styrene	µg/L	0.5	EPA 8260	02-Jul-21/R	B21-20195-5	28-Jun-21		< 0.5	< 0.5
Tetrachloroethane,1,1,2,2-	µg/L	0.5	EPA 8260	02-Jul-21/R	B21-20195-6	28-Jun-21		< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	02-Jul-21/R	B21-20195-7	28-Jun-21		< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	02-Jul-21/R	B21-20195-8	28-Jun-21	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Trichloroethane,1,1,2-	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	02-Jul-21/R				< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	02-Jul-21/R				< 5	< 5
Vinyl Chloride	µg/L	0.2	EPA 8260	02-Jul-21/R			< 0.2	< 0.2	< 0.2



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101052

REPORT No. B21-37353

Rev. 2

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 11-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

<b>Client I.D.</b>	S-1	SW_QAQC	
<b>Sample I.D.</b>	B21-37353-1	B21-37353-2	
<b>Date Collected</b>	11-Nov-21	11-Nov-21	

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	26-Nov-21/O	277	277	
Conductivity @25°C	µmho/cm	1	SM 2510B	26-Nov-21/O	738	739	
pH @25°C	pH Units		SM 4500H	26-Nov-21/O	7.99	7.92	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	385	386	
Total Suspended Solids	mg/L	3	SM2540D	15-Nov-21/K	< 3	< 3	
BOD(5 day)	mg/L	3	SM 5210B	12-Nov-21/K	< 3	< 3	
COD	mg/L	5	SM5220C	25-Nov-21/K	13	13	
Phenolics	mg/L	0.001	MOEE 3179	19-Nov-21/K	< 0.001	< 0.001	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	71.8	72.1	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	0.01	0.03	
Ammonia (N)-unionized	mg/L	0.01	CALC	26-Nov-21/K	< 0.01	< 0.01	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	8	8	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	0.23	0.27	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	08-Dec-21/K	0.3	0.4	
Mercury	mg/L	0.00002	SM 3112 B	18-Nov-21/O	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	275	279	
Arsenic	mg/L	0.0001	EPA 200.8	25-Nov-21/O	0.0001	0.0001	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.094	0.094	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.024	0.015	
Cadmium	mg/L	0.000015	EPA 200.8	25-Nov-21/O	< 0.000015	< 0.000015	
Chromium	mg/L	0.001	EPA 200.8	25-Nov-21/O	< 0.001	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	25-Nov-21/O	0.0006	0.0012	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	0.027	0.029	
Lead	mg/L	0.00002	EPA 200.8	25-Nov-21/O	0.00003	0.00003	
Phosphorus-Total	mg/L	0.01	E3516.2	08-Dec-21/K	0.02	0.04	
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	0.013	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101052

REPORT No. B21-37353

Rev. 2

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 11-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

Client I.D.	S-1	SW_QAQC		
Sample I.D.	B21-37353-1	B21-37353-2		
Date Collected	11-Nov-21	11-Nov-21		

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed
-----------	-------	------	------------------	--------------------

1. Revised to change sample ID



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC2	MW12-I	MW12-II	MW12-III
					Sample I.D.	B21-37354-1	B21-37354-2	B21-37354-3	B21-37354-4
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	270	241	284	263	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	652	647	746	694	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.77	7.91	7.93	7.72	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	339	336	390	361	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	1.9	1.9	1.6	1.6	
COD	mg/L	5	SM5220C	25-Nov-21/K	55	13	98	32	
Phenolics	mg/L	0.001	MOEE 3179	23-Nov-21/K	< 0.001	0.006	< 0.001	< 0.001	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	30.8	39.4	43.2	44.5	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3 H	26-Nov-21/K	0.03	0.16	0.31	0.05	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	10	26	33	23	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05	< 0.05			
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	0.48	< 0.05	< 0.05	< 0.05	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	08-Dec-21/K	0.5	0.2			
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	315	325	331	340	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	< 0.0001	0.0048	< 0.0001	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.161	0.994	0.130	0.030	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.041	0.156	0.175	0.083	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	0.000021	< 0.000015	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	120	106	102	127	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	< 0.001	0.004	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0022	< 0.0001	0.0011	< 0.0001	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	0.917	0.044	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00005	< 0.00002	0.00815	0.00008	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	4.01	14.3	18.8	5.43	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.002	0.003	0.292	0.024	
Phosphorus-Total	mg/L	0.01	E3516.2	08-Dec-21/K	1.23	0.01	1.01	0.73	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC2	MW12-I	MW12-II	MW12-III
					Sample I.D.	B21-37354-1	B21-37354-2	B21-37354-3	B21-37354-4
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	2.1	3.5	2.0	1.8	
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	26.1	10.6	45.7	16.2	
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	0.007	< 0.005	
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R		< 0.5			
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R		< 0.5			
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R		< 5			
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R		< 0.5			
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R		< 0.2			
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	21-Apr-22/R		< 0.5			

- 1 Solids present in metals bottle
- 2 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW13-I	MW13-II	MW10-I	MW10-II
					Sample I.D.	B21-37354-5	B21-37354-6	B21-37354-7	B21-37354-8
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	309	318	236	250	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	998	827	649	675	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.64	7.72	7.80	7.68	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	532	436	337	351	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	2.0	2.7	1.4	2.6	
COD	mg/L	5	SM5220C	25-Nov-21/K	56	10	10	9	
Phenolics	mg/L	0.001	MOEE 3179	23-Nov-21/K	< 0.001	< 0.001	0.002	0.013	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	115	56.7	48.4	56.7	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	< 0.01	0.02	0.18	1.04	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	11	23	20	9	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O		< 0.05		< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	2.55	1.28	< 0.05	< 0.05	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	08-Dec-21/K		0.2		1.1	
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	328	375	317	343	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0001	0.0001	< 0.0001	< 0.0001	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.138	0.168	0.888	0.574	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.023	0.046	0.193	0.125	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	125	143	98.5	119	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	< 0.001	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0038	0.0014	< 0.0001	0.0006	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	0.017	5.28	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00014	0.00003	< 0.00002	< 0.00002	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	3.50	4.39	17.4	11.3	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	< 0.001	< 0.001	0.102	0.042	
Phosphorus-Total	mg/L	0.01	E3516.2	08-Dec-21/K	0.09	0.02	< 0.01	0.09	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW13-I	MW13-II	MW10-I	MW10-II
					Sample I.D.				
					Date Collected	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O		2.6	4.5	3.7	2.5
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O		87.0	36.5	11.5	6.5
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O		< 0.005	< 0.005	< 0.005	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5		< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5		< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R			< 5		< 5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5		< 0.5
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R			< 0.2		< 0.2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	21-Apr-22/R			< 0.5		< 0.5

- 1 Solids present in metals bottle
- 2 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW11-I	MW11-II	GW_QAQC3	MW9-11
Sample I.D.	B21-37354-9	B21-37354-10	B21-37354-11	B21-37354-12
Date Collected	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	243	250	254	280
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	693	633	640	780
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.69	7.80	7.78	7.66
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	360	329	332	409
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	2.3	2.2	2.2	2.4
COD	mg/L	5	SM5220C	25-Nov-21/K	58	8	10	11
Phenolics	mg/L	0.001	MOEE 3179	23-Nov-21/K	0.008	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	35.7	41.0	43.1	70.5
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	1.03	0.96	0.98	0.03
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	49	10	10	13
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O		< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05	< 0.05	< 0.05	0.73
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	08-Dec-21/K		1.1	1.0	0.2
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	335	329	334	315
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	< 0.0001	< 0.0001	0.0001
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.748	0.528	0.535	0.203
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.442	0.143	0.138	0.045
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	91.9	113	116	119
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	< 0.001	< 0.001
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	0.0003	0.0002	0.0004
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	0.048	2.75	2.79	0.043
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	25.6	11.1	11.1	4.55
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.055	0.033	0.034	0.003



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Rev. 1**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW11-I	MW11-II	GW_QAQC3	MW9-11
<b>Sample I.D.</b>	B21-37354-9	B21-37354-10	B21-37354-11	B21-37354-12
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3516.2	08-Dec-21/K	0.17	0.08	0.04	0.02
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	4.5	2.8	2.8	2.7
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	15.8	6.7	6.7	48.2
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	< 0.005	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R				< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R				< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R				< 5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R				< 0.5
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R				< 0.2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	21-Apr-22/R				< 0.5

- 1 Solids present in metals bottle
- 2 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW5-I	MW5-II	MW7-I
					Sample I.D.	B21-37354-13	B21-37354-14	B21-37354-15	B21-37354-16
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	292	588	700	316	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	1170	1400	1790	822	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.85	7.38	7.56	8.16	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	627	761	983	433	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	1.1	10.6	10.5	2.4	
COD	mg/L	5	SM5220C	25-Nov-21/K	16	80	160	76	
Phenolics	mg/L	0.001	MOEE 3179	23-Nov-21/K	< 0.001	< 0.001	< 0.001	< 0.001	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	153	80.7	149	53.1	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	0.06	13.6	23.2	0.06	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	63	10	9	30	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O			< 0.05		
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	1.85	0.12	0.10	0.19	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	08-Dec-21/K			30.4		
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	0.00004	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	451	620	723	125	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0001	0.0023	0.0042	0.0011	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.245	0.612	0.936	0.024	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.093	0.359	0.477	0.571	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	0.000053	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	156	215	245	34.5	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	0.001	< 0.001	0.001	0.004	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0012	0.001	0.0020	0.0045	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	32.0	42.1	< 0.005	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00009	0.00013	0.00020	0.0149	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	14.9	20.0	26.8	9.39	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	< 0.001	2.31	4.30	0.001	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW1-I	MW5-I	MW5-II	MW7-I
<b>Sample I.D.</b>	B21-37354-13	B21-37354-14	B21-37354-15	B21-37354-16
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3516.2	08-Dec-21/K	0.88	0.26	0.76	1.05
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	5.6	25.5	40.7	2.9
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	83.8	57.9	83.8	163
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	0.007	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R				
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R				
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	21-Apr-22/R				

- 1 Solids present in metals bottle
- 2 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW7-II	GW_QAQC	MW6-I	MW6-II
Sample I.D.	B21-37354-17	B21-37354-18	B21-37354-19	B21-37354-20
Date Collected	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	474	345	347	876
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	1220	1290	1280	1990
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.80	7.54	7.62	7.64
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	659	697	694	1100
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	6.7	1.7	1.6	17.7
COD	mg/L	5	SM5220C	25-Nov-21/K	33	70	51	73
Phenolics	mg/L	0.001	MOEE 3179	23-Nov-21/K	< 0.001	< 0.001	< 0.001	< 0.001
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	80.3	167	167	98.8
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	0.06	3.13	3.19	28.4
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	29	54	47	65
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05			< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	4.96	1.18	1.55	< 0.05
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	08-Dec-21/K	0.7			30.8
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	511	511	508	817
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0002	0.0002	0.0002	0.0017
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.364	0.264	0.262	0.540
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.294	0.081	0.079	0.833
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	177	191	189	268
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	0.009	0.002	< 0.001	0.008
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0039	0.0006	0.0004	0.0016
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	0.031	1.11	1.10	9.81
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00030	0.00011	0.00008	0.00004
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	16.9	8.47	8.34	35.7
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.007	0.726	0.721	7.25



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW7-II	GW_QAQC	MW6-I	MW6-II
<b>Sample I.D.</b>	B21-37354-17	B21-37354-18	B21-37354-19	B21-37354-20
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3516.2	08-Dec-21/K	0.05	0.39	0.40	0.03
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	8.2	8.4	8.3	43.7
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	69.9	75.0	74.3	101
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	< 0.005	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R				
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R				
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	21-Apr-22/R				

- 1 Solids present in metals bottle
- 2 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW3-I	MW3-II	MW4-I	MW4-II
					Sample I.D.	B21-37354-21	B21-37354-22	B21-37354-23	B21-37354-24
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	347	745	351	270	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	1040	1660	1010	644	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.68	7.53	7.58	7.75	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	558	907	541	334	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	2.5	10.1	2.8	1.7	
COD	mg/L	5	SM5220C	25-Nov-21/K	11	40	157	13	
Phenolics	mg/L	0.001	MOEE 3179	23-Nov-21/K	< 0.001	< 0.001	< 0.001	0.002	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	104	67.7	96.2	31.4	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	0.01	0.62	0.92	0.03	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	27	51	26	10	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05	< 0.05		< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	1.64	0.42	0.64	0.49	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	08-Dec-21/K	0.4	1.7		0.5	
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	443	857	441	319	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	0.0003	< 0.0001	< 0.0001	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.186	0.320	0.174	0.160	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.054	0.550	0.081	0.041	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	0.000057	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	169	296	166	121	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	0.005	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0007	0.0020	0.0005	0.0017	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	0.147	< 0.005	< 0.005	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	< 0.00004	0.00006	< 0.00004	0.00004	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	5.14	28.5	6.51	3.96	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.004	1.40	0.106	0.002	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW3-I	MW3-II	MW4-I	MW4-II
Sample I.D.	B21-37354-21	B21-37354-22	B21-37354-23	B21-37354-24
Date Collected	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3516.2	08-Dec-21/K	0.03	0.09	4.78	1.27
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	5.1	25.1	5.8	2.0
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	59.5	59.2	52.8	26.0
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	< 0.005	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R				
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R				
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	21-Apr-22/R				

- 1 Solids present in metals bottle
- 2 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW9-I	MW8-I	MW8-II	R-4
					Sample I.D.	B21-37354-25	B21-37354-26	B21-37354-27	B21-37354-28
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	239	277	275	338	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	628	778	744	1050	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.82	7.92	8.27	8.21	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	326	408	389	563	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	1.8	2.2	2.7	2.1	
COD	mg/L	5	SM5220C	25-Nov-21/K	35	16	10	8	
Phenolics	mg/L	0.001	MOEE 3179	23-Nov-21/K	0.013	0.001	< 0.001	< 0.001	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	16.2	72.1	67.5	126	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	0.64	0.01	< 0.01	< 0.01	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	46	12	10	10	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O			< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05	0.46	0.41	0.97	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	08-Dec-21/K			0.3	0.2	
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	225	328	316	294	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	0.0003	< 0.0001	0.0002	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.897	0.119	0.168	0.122	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.569	0.063	0.028	0.026	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	53.7	118	119	113	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	< 0.001	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	0.0005	0.0010	0.0962	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	0.885	< 0.005	< 0.005	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	< 0.00002	0.00002	0.00003	0.00260	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	22.1	8.05	4.14	3.20	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.041	0.260	0.002	< 0.001	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW9-I	MW8-I	MW8-II	R-4
<b>Sample I.D.</b>	B21-37354-25	B21-37354-26	B21-37354-27	B21-37354-28
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3516.2	08-Dec-21/K	0.04	0.06	0.11	0.03
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	5.6	2.9	1.8	2.7
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	52.5	49.7	44.0	123
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	< 0.005	0.028
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5	
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5	
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R			< 5	
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5	
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R			< 0.2	
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	21-Apr-22/R			< 0.5	

- 1 Solids present in metals bottle
- 2 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	R-1		
Sample I.D.	B21-37354-29		
Date Collected	11-Nov-21		

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	259		
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	732		
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	8.03		
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	382		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	2.8		
COD	mg/L	5	SM5220C	25-Nov-21/K	82		
Phenolics	mg/L	0.001	MOEE 3179	23-Nov-21/K	< 0.001		
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	70.9		
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	< 0.01		
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	10		
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05		
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	0.39		
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	08-Dec-21/K	2.4		
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002		
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	295		
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0002		
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.144		
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.012		
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	0.000020		
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	112		
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001		
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0008		
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	0.150		
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00026		
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	3.75		
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.726		



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Rev. 1**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	R-1		
<b>Sample I.D.</b>	B21-37354-29		
<b>Date Collected</b>	11-Nov-21		

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Phosphorus-Total	mg/L	0.01	E3516.2	08-Dec-21/K	2.07		
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	1.0		
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	45.2		
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005		
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R			
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R			
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R			
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R			
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R			
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	21-Apr-22/R			

- 1 Solids present in metals bottle
- 2 Revised to include additional parameter



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC2	MW12-I	MW12-II	MW12-III
					Sample I.D.	B21-37354-1	B21-37354-2	B21-37354-3	B21-37354-4
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	270	241	284	263	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	652	647	746	694	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.77	7.91	7.93	7.72	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	339	336	390	361	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	1.9	1.9	1.6	1.6	
COD	mg/L	5	SM5220C	25-Nov-21/K	55	13	98	32	
Phenolics	mg/L	0.002	MOEE 3179	23-Nov-21/K	< 0.002	0.006	< 0.002	< 0.002	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	30.8	39.4	43.2	44.5	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3 H	26-Nov-21/K	0.03	0.16	0.31	0.05	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	10	26	33	23	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05	< 0.05			
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	0.48	< 0.05	< 0.05	< 0.05	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	08-Dec-21/K	0.5	0.2			
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	315	325	331	340	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	< 0.0001	0.0048	< 0.0001	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.161	0.994	0.130	0.030	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.041	0.156	0.175	0.083	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	0.000021	< 0.000015	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	120	106	102	127	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	< 0.001	0.004	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0022	< 0.0001	0.0011	< 0.0001	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	0.917	0.044	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00005	< 0.00002	0.00815	0.00008	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	4.01	14.3	18.8	5.43	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.002	0.003	0.292	0.024	
Phosphorus-Total	mg/L	0.01	E3199A.1	08-Dec-21/K	1.23	0.01	1.01	0.73	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC2	MW12-I	MW12-II	MW12-III
					Sample I.D.	B21-37354-1	B21-37354-2	B21-37354-3	B21-37354-4
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	2.1	3.5	2.0	1.8	
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	26.1	10.6	45.7	16.2	
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	0.007	< 0.005	
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R		< 0.5			
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R		< 0.5			
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R		< 5			
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R		< 0.5			
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R		< 0.2			

1. Solids present in metals bottle



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW13-I	MW13-II	MW10-I	MW10-II
					Sample I.D.	B21-37354-5	B21-37354-6	B21-37354-7	B21-37354-8
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	309	318	236	250	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	998	827	649	675	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.64	7.72	7.80	7.68	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	532	436	337	351	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	2.0	2.7	1.4	2.6	
COD	mg/L	5	SM5220C	25-Nov-21/K	56	10	10	9	
Phenolics	mg/L	0.002	MOEE 3179	23-Nov-21/K	< 0.002	< 0.002	0.002	0.013	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	115	56.7	48.4	56.7	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	< 0.01	0.02	0.18	1.04	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	11	23	20	9	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O		< 0.05		< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	2.55	1.28	< 0.05	< 0.05	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	08-Dec-21/K		0.2		1.1	
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	328	375	317	343	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0001	0.0001	< 0.0001	< 0.0001	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.138	0.168	0.888	0.574	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.023	0.046	0.193	0.125	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	125	143	98.5	119	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	< 0.001	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0038	0.0014	< 0.0001	0.0006	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	0.017	5.28	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00014	0.00003	< 0.00002	< 0.00002	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	3.50	4.39	17.4	11.3	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	< 0.001	< 0.001	0.102	0.042	
Phosphorus-Total	mg/L	0.01	E3199A.1	08-Dec-21/K	0.09	0.02	< 0.01	0.09	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW13-I	MW13-II	MW10-I	MW10-II
					Sample I.D.				
					Date Collected	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O		2.6	4.5	3.7	2.5
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O		87.0	36.5	11.5	6.5
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O		< 0.005	< 0.005	< 0.005	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5		< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5		< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R			< 5		< 5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5		< 0.5
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R			< 0.2		< 0.2

1. Solids present in metals bottle



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW11-I	MW11-II	GW_QAQC3	MW9-11
<b>Sample I.D.</b>	B21-37354-9	B21-37354-10	B21-37354-11	B21-37354-12
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	243	250	254	280
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	693	633	640	780
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.69	7.80	7.78	7.66
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	360	329	332	409
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	2.3	2.2	2.2	2.4
COD	mg/L	5	SM5220C	25-Nov-21/K	58	8	10	11
Phenolics	mg/L	0.002	MOEE 3179	23-Nov-21/K	0.008	< 0.002	< 0.002	< 0.002
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	35.7	41.0	43.1	70.5
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	1.03	0.96	0.98	0.03
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	49	10	10	13
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O		< 0.05	< 0.05	< 0.05
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05	< 0.05	< 0.05	0.73
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	08-Dec-21/K		1.1	1.0	0.2
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	335	329	334	315
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	< 0.0001	< 0.0001	0.0001
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.748	0.528	0.535	0.203
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.442	0.143	0.138	0.045
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	91.9	113	116	119
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	< 0.001	< 0.001
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	0.0003	0.0002	0.0004
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	0.048	2.75	2.79	0.043
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	25.6	11.1	11.1	4.55
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.055	0.033	0.034	0.003



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW11-I	MW11-II	GW_QAQC3	MW9-11
<b>Sample I.D.</b>	B21-37354-9	B21-37354-10	B21-37354-11	B21-37354-12
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3199A.1	08-Dec-21/K	0.17	0.08	0.04	0.02
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	4.5	2.8	2.8	2.7
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	15.8	6.7	6.7	48.2
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	< 0.005	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R				< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R				< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R				< 5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R				< 0.5
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R				< 0.2

1 Solids present in metals bottle



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW1-I	MW5-I	MW5-II	MW7-I
					Sample I.D.	B21-37354-13	B21-37354-14	B21-37354-15	B21-37354-16
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	292	588	700	316	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	1170	1400	1790	822	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.85	7.38	7.56	8.16	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	627	761	983	433	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	1.1	10.6	10.5	2.4	
COD	mg/L	5	SM5220C	25-Nov-21/K	16	80	160	76	
Phenolics	mg/L	0.002	MOEE 3179	23-Nov-21/K	< 0.002	< 0.002	< 0.002	< 0.002	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	153	80.7	149	53.1	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	0.06	13.6	23.2	0.06	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	63	10	9	30	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O			< 0.05		
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	1.85	0.12	0.10	0.19	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	08-Dec-21/K			30.4		
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	0.00004	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	451	620	723	125	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0001	0.0023	0.0042	0.0011	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.245	0.612	0.936	0.024	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.093	0.359	0.477	0.571	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	0.000053	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	156	215	245	34.5	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	0.001	< 0.001	0.001	0.004	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0012	0.001	0.0020	0.0045	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	32.0	42.1	< 0.005	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00009	0.00013	0.00020	0.0149	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	14.9	20.0	26.8	9.39	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	< 0.001	2.31	4.30	0.001	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW1-I	MW5-I	MW5-II	MW7-I
<b>Sample I.D.</b>	B21-37354-13	B21-37354-14	B21-37354-15	B21-37354-16
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3199A.1	08-Dec-21/K	0.88	0.26	0.76	1.05
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	5.6	25.5	40.7	2.9
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	83.8	57.9	83.8	163
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	0.007	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R				
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R				

1 Solids present in metals bottle



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW7-II	GW_QAQC	MW6-I	MW6-II
					Sample I.D.	B21-37354-17	B21-37354-18	B21-37354-19	B21-37354-20
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	474	345	347	876	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	1220	1290	1280	1990	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.80	7.54	7.62	7.64	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	659	697	694	1100	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	6.7	1.7	1.6	17.7	
COD	mg/L	5	SM5220C	25-Nov-21/K	33	70	51	73	
Phenolics	mg/L	0.002	MOEE 3179	23-Nov-21/K	< 0.002	< 0.002	< 0.002	< 0.002	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	80.3	167	167	98.8	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	0.06	3.13	3.19	28.4	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	29	54	47	65	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05			< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	4.96	1.18	1.55	< 0.05	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	08-Dec-21/K	0.7			30.8	
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	511	511	508	817	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0002	0.0002	0.0002	0.0017	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.364	0.264	0.262	0.540	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.294	0.081	0.079	0.833	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	177	191	189	268	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	0.009	0.002	< 0.001	0.008	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0039	0.0006	0.0004	0.0016	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	0.031	1.11	1.10	9.81	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00030	0.00011	0.00008	0.00004	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	16.9	8.47	8.34	35.7	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.007	0.726	0.721	7.25	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW7-II	GW_QAQC	MW6-I	MW6-II
<b>Sample I.D.</b>	B21-37354-17	B21-37354-18	B21-37354-19	B21-37354-20
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3199A.1	08-Dec-21/K	0.05	0.39	0.40	0.03
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	8.2	8.4	8.3	43.7
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	69.9	75.0	74.3	101
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	< 0.005	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R				
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R				

1 Solids present in metals bottle



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW3-I	MW3-II	MW4-I	MW4-II
					Sample I.D.	B21-37354-21	B21-37354-22	B21-37354-23	B21-37354-24
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	347	745	351	270	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	1040	1660	1010	644	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.68	7.53	7.58	7.75	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	558	907	541	334	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	2.5	10.1	2.8	1.7	
COD	mg/L	5	SM5220C	25-Nov-21/K	11	40	157	13	
Phenolics	mg/L	0.002	MOEE 3179	23-Nov-21/K	< 0.002	< 0.002	< 0.002	< 0.002	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	104	67.7	96.2	31.4	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	0.01	0.62	0.92	0.03	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	27	51	26	10	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05	< 0.05		< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	1.64	0.42	0.64	0.49	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	08-Dec-21/K	0.4	1.7		0.5	
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	443	857	441	319	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	0.0003	< 0.0001	< 0.0001	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.186	0.320	0.174	0.160	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.054	0.550	0.081	0.041	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	0.000057	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	169	296	166	121	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	0.005	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0007	0.0020	0.0005	0.0017	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	0.147	< 0.005	< 0.005	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	< 0.00004	0.00006	< 0.00004	0.00004	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	5.14	28.5	6.51	3.96	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.004	1.40	0.106	0.002	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW3-I	MW3-II	MW4-I	MW4-II
<b>Sample I.D.</b>	B21-37354-21	B21-37354-22	B21-37354-23	B21-37354-24
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3199A.1	08-Dec-21/K	0.03	0.09	4.78	1.27
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	5.1	25.1	5.8	2.0
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	59.5	59.2	52.8	26.0
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	< 0.005	< 0.005
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R				
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R				
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R				
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R				

1 Solids present in metals bottle



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (i)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW9-I	MW8-I	MW8-II	R-4
					Sample I.D.	B21-37354-25	B21-37354-26	B21-37354-27	B21-37354-28
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	239	277	275	338	
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	628	778	744	1050	
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	7.82	7.92	8.27	8.21	
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	326	408	389	563	
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	1.8	2.2	2.7	2.1	
COD	mg/L	5	SM5220C	25-Nov-21/K	35	16	10	8	
Phenolics	mg/L	0.002	MOEE 3179	23-Nov-21/K	0.013	< 0.002	< 0.002	< 0.002	
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	16.2	72.1	67.5	126	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	0.64	0.01	< 0.01	< 0.01	
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	46	12	10	10	
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O			< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05	0.46	0.41	0.97	
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	08-Dec-21/K			0.3	0.2	
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002	< 0.00002	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	225	328	316	294	
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	0.0003	< 0.0001	0.0002	
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.897	0.119	0.168	0.122	
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.569	0.063	0.028	0.026	
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	< 0.000015	< 0.000015	< 0.000015	< 0.000015	
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	53.7	118	119	113	
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001	< 0.001	< 0.001	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	< 0.0001	0.0005	0.0010	0.0962	
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	0.885	< 0.005	< 0.005	
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	< 0.00002	0.00002	0.00003	0.00260	
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	22.1	8.05	4.14	3.20	
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.041	0.260	0.002	< 0.001	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	MW9-I	MW8-I	MW8-II	R-4
<b>Sample I.D.</b>	B21-37354-25	B21-37354-26	B21-37354-27	B21-37354-28
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Phosphorus-Total	mg/L	0.01	E3199A.1	08-Dec-21/K	0.04	0.06	0.11	0.03
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	5.6	2.9	1.8	2.7
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	52.5	49.7	44.0	123
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005	< 0.005	< 0.005	0.028
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5	
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5	
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R			< 5	
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R			< 0.5	
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R			< 0.2	

1 Solids present in metals bottle



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	R-1		
<b>Sample I.D.</b>	B21-37354-29		
<b>Date Collected</b>	11-Nov-21		

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	02-Dec-21/O	259		
Conductivity @25°C	µmho/cm	1	SM 2510B	02-Dec-21/O	732		
pH @25°C	pH Units		SM 4500H	02-Dec-21/O	8.03		
Total Dissolved Solids	mg/L	3	SM 2540D	03-Dec-21/O	382		
Dissolved Organic Carbon	mg/L	0.2	EPA 415.2	04-Jan-22/O	2.8		
COD	mg/L	5	SM5220C	25-Nov-21/K	82		
Phenolics	mg/L	0.002	MOEE 3179	23-Nov-21/K	< 0.002		
Chloride	mg/L	0.5	SM4110C	20-Nov-21/O	70.9		
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	26-Nov-21/K	< 0.01		
Sulphate	mg/L	1	SM4110C	20-Nov-21/O	10		
Nitrite (N)	mg/L	0.05	SM4110C	20-Nov-21/O	< 0.05		
Nitrate (N)	mg/L	0.05	SM4110C	20-Nov-21/O	0.39		
Total Kjeldahl Nitrogen	mg/L	0.1	E3199A.1	08-Dec-21/K	2.4		
Mercury	mg/L	0.00002	SM 3112 B	17-Nov-21/O	< 0.00002		
Hardness (as CaCO3)	mg/L	1	SM 3120	17-Nov-21/O	295		
Arsenic	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0002		
Barium	mg/L	0.001	SM 3120	17-Nov-21/O	0.144		
Boron	mg/L	0.005	SM 3120	17-Nov-21/O	0.012		
Cadmium	mg/L	0.000015	EPA 200.8	03-Dec-21/O	0.000020		
Calcium	mg/L	0.02	SM 3120	17-Nov-21/O	112		
Chromium	mg/L	0.001	EPA 200.8	03-Dec-21/O	< 0.001		
Copper	mg/L	0.0001	EPA 200.8	03-Dec-21/O	0.0008		
Iron	mg/L	0.005	SM 3120	17-Nov-21/O	0.150		
Lead	mg/L	0.00002	EPA 200.8	03-Dec-21/O	0.00026		
Magnesium	mg/L	0.02	SM 3120	17-Nov-21/O	3.75		
Manganese	mg/L	0.001	SM 3120	17-Nov-21/O	0.726		



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

**C.O.C.: G101044**

**REPORT No. B21-37354 (i)**

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	R-1		
<b>Sample I.D.</b>	B21-37354-29		
<b>Date Collected</b>	11-Nov-21		

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Phosphorus-Total	mg/L	0.01	E3199A.1	08-Dec-21/K	2.07		
Potassium	mg/L	0.1	SM 3120	17-Nov-21/O	1.0		
Sodium	mg/L	0.2	SM 3120	17-Nov-21/O	45.2		
Zinc	mg/L	0.005	SM 3120	17-Nov-21/O	< 0.005		
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R			
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R			
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R			
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R			
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R			

1 Solids present in metals bottle



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	GW_QAQC2	MW11-I	MW11-II	GW_QAQC3
<b>Sample I.D.</b>	B21-37354-1	B21-37354-9	B21-37354-10	B21-37354-11
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Acetone	µg/L	30	EPA 8260	23-Nov-21/R	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	23-Nov-21/R	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	23-Nov-21/R	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	GW_QAQC2	MW11-I	MW11-II	GW_QAQC3
<b>Sample I.D.</b>	B21-37354-1	B21-37354-9	B21-37354-10	B21-37354-11
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,1-	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2
Ethylbenzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Hexane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5
Methyl Ethyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5
Trimethylbenzene, 1,3,5-	µg/L	0.1	EPA 8260	23-Nov-21/R	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	23-Nov-21/R	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, m,p,o-	µg/L	1.1	EPA 8260	23-Nov-21/R	< 1.1	< 1.1	< 1.1	< 1.1
Xylene, o-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW5-I	MW5-II	MW7-I	MW7-II
					Sample I.D.	B21-37354-14	B21-37354-15	B21-37354-16	B21-37354-17
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Acetone	µg/L	30	EPA 8260	23-Nov-21/R	< 30	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	23-Nov-21/R	< 3	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	23-Nov-21/R	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW5-I	MW5-II	MW7-I	MW7-II
					Sample I.D.	B21-37354-14	B21-37354-15	B21-37354-16	B21-37354-17
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,1-	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Ethylbenzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Hexane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Methyl Ethyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	23-Nov-21/R	0.6	0.8	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Trimethylbenzene, 1,3,5-	µg/L	0.1	EPA 8260	23-Nov-21/R	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	23-Nov-21/R	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, m,p,o-	µg/L	1.1	EPA 8260	23-Nov-21/R	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1
Xylene, o-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW6-I	MW6-II	MW3-I	MW3-II
					Sample I.D.	B21-37354-19	B21-37354-20	B21-37354-21	B21-37354-22
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Acetone	µg/L	30	EPA 8260	23-Nov-21/R	< 30	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	23-Nov-21/R	< 3	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	23-Nov-21/R	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW6-I	MW6-II	MW3-I	MW3-II
					Sample I.D.	B21-37354-19	B21-37354-20	B21-37354-21	B21-37354-22
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,1-	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Ethylbenzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Hexane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Methyl Ethyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Trimethylbenzene, 1,3,5-	µg/L	0.1	EPA 8260	23-Nov-21/R	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	23-Nov-21/R	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, m,p,o-	µg/L	1.1	EPA 8260	23-Nov-21/R	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1
Xylene, o-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW4-I	MW4-II	R-4	R-1
Sample I.D.	B21-37354-23	B21-37354-24	B21-37354-28	B21-37354-29
Date Collected	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Acetone	µg/L	30	EPA 8260	23-Nov-21/R	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	23-Nov-21/R	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	23-Nov-21/R	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

Rev. 1

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW4-I	MW4-II	R-4	R-1
					Sample I.D.	B21-37354-23	B21-37354-24	B21-37354-28	B21-37354-29
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,1-	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Ethylbenzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Hexane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Methyl Ethyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Trimethylbenzene, 1,3,5-	µg/L	0.1	EPA 8260	23-Nov-21/R	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	23-Nov-21/R	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, m,p,o-	µg/L	1.1	EPA 8260	23-Nov-21/R	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1
Xylene, o-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	GW_QAQC2	MW11-I	MW11-II	GW_QAQC3
					Sample I.D.	B21-37354-1	B21-37354-9	B21-37354-10	B21-37354-11
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	
Acetone	µg/L	30	EPA 8260	23-Nov-21/R	< 30	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	23-Nov-21/R	< 3	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	23-Nov-21/R	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

<b>Client I.D.</b>	GW_QAQC2	MW11-I	MW11-II	GW_QAQC3
<b>Sample I.D.</b>	B21-37354-1	B21-37354-9	B21-37354-10	B21-37354-11
<b>Date Collected</b>	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed				
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,1-	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2
Ethylbenzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Hexane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5
Methyl Ethyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5
Trimethylbenzene, 1,3,5-	µg/L	0.1	EPA 8260	23-Nov-21/R	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	23-Nov-21/R	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, m,p,o-	µg/L	1.1	EPA 8260	23-Nov-21/R	< 1.1	< 1.1	< 1.1	< 1.1
Xylene, o-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW5-I	MW5-II	MW7-I	MW7-II
					Sample I.D.	B21-37354-14	B21-37354-15	B21-37354-16	B21-37354-17
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Acetone	µg/L	30	EPA 8260	23-Nov-21/R	< 30	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	23-Nov-21/R	< 3	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	23-Nov-21/R	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW5-I	MW5-II	MW7-I	MW7-II
					Sample I.D.	B21-37354-14	B21-37354-15	B21-37354-16	B21-37354-17
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,1-	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Ethylbenzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Hexane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Methyl Ethyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	23-Nov-21/R	0.6	0.8	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Trimethylbenzene, 1,3,5-	µg/L	0.1	EPA 8260	23-Nov-21/R	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	23-Nov-21/R	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, m,p,o-	µg/L	1.1	EPA 8260	23-Nov-21/R	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1
Xylene, o-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW6-I	MW6-II	MW3-I	MW3-II
					Sample I.D.	B21-37354-19	B21-37354-20	B21-37354-21	B21-37354-22
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Acetone	µg/L	30	EPA 8260	23-Nov-21/R	< 30	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	23-Nov-21/R	< 3	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	23-Nov-21/R	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW6-I	MW6-II	MW3-I	MW3-II
					Sample I.D.	B21-37354-19	B21-37354-20	B21-37354-21	B21-37354-22
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,1-	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Ethylbenzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Hexane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Methyl Ethyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Trimethylbenzene, 1,3,5-	µg/L	0.1	EPA 8260	23-Nov-21/R	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	23-Nov-21/R	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, m,p,o-	µg/L	1.1	EPA 8260	23-Nov-21/R	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1
Xylene, o-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW4-I	MW4-II	R-4	R-1
					Sample I.D.	B21-37354-23	B21-37354-24	B21-37354-28	B21-37354-29
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Acetone	µg/L	30	EPA 8260	23-Nov-21/R	< 30	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Bromoform	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Bromomethane	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane	µg/L	3	EPA 8260	23-Nov-21/R	< 3	< 3	< 3	< 3	< 3
Chloroform	µg/L	1	EPA 8260	23-Nov-21/R	< 1	< 1	< 1	< 1	< 1
Chloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromochloromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorobenzene, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Dichloroethane, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, cis-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethene, trans-1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Dichloropropane, 1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene 1,3- cis+trans	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, cis-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G101044

REPORT No. B21-37354 (ii)

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1

Tel: 613-544-2001

Fax: 613-544-2770

DATE RECEIVED: 12-Nov-21

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 05-Jan-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed	Client I.D.	MW4-I	MW4-II	R-4	R-1
					Sample I.D.	B21-37354-23	B21-37354-24	B21-37354-28	B21-37354-29
Date Collected					11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21	11-Nov-21
Dichloropropene, trans-1,3-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,1-	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Ethylbenzene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Hexane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Methyl Ethyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	EPA 8260	23-Nov-21/R	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2	EPA 8260	23-Nov-21/R	< 2	< 2	< 2	< 2	< 2
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	EPA 8260	23-Nov-21/R	< 5	< 5	< 5	< 5	< 5
Trimethylbenzene, 1,3,5-	µg/L	0.1	EPA 8260	23-Nov-21/R	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	23-Nov-21/R	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	23-Nov-21/R	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, m,p,o-	µg/L	1.1	EPA 8260	23-Nov-21/R	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1
Xylene, o-	µg/L	0.5	EPA 8260	23-Nov-21/R	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



Michelle Dubien  
 Lab Manager

R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G108709

REPORT No. B22-10443

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 14-Apr-22

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

<b>Client I.D.</b>	S1	SW_QAQC	
<b>Sample I.D.</b>	B22-10443-1	B22-10443-2	
<b>Date Collected</b>	12-Apr-22	12-Apr-22	

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed			
Alkalinity(CaCO3) to pH4.5	mg/L	5	SM 2320B	18-Apr-22/O	202	203	
Conductivity @25°C	µmho/cm	1	SM 2510B	18-Apr-22/O	496	499	
pH @25°C	pH Units		SM 4500H	18-Apr-22/O	7.96	7.97	
Total Dissolved Solids	mg/L	3	SM 2540D	19-Apr-22/O	257	258	
Total Suspended Solids	mg/L	3	SM2540D	19-Apr-22/K	14	11	
BOD(5 day)	mg/L	3	SM 5210B	14-Apr-22/K	< 3	< 3	
COD	mg/L	5	SM5220C	18-Apr-22/K	23	18	
Phenolics	mg/L	0.001	MOEE 3179	18-Apr-22/K	0.001	0.001	
Chloride	mg/L	0.5	SM4110C	18-Apr-22/O	38.3	38.5	
Ammonia (N)-Total	mg/L	0.01	SM4500-NH3-H	19-Apr-22/K	< 0.01	< 0.01	
Ammonia (N)-unionized	mg/L	0.01	CALC	19-Apr-22/K	< 0.01	< 0.01	
Sulphate	mg/L	1	SM4110C	18-Apr-22/O	6	5	
Nitrite (N)	mg/L	0.05	SM4110C	18-Apr-22/O	< 0.05	< 0.05	
Nitrate (N)	mg/L	0.05	SM4110C	18-Apr-22/O	< 0.05	< 0.05	
Total Kjeldahl Nitrogen	mg/L	0.1	E3516.2	19-Apr-22/K	0.3	0.3	
Mercury	mg/L	0.00002	SM 3112 B	20-Apr-22/O	< 0.00002	< 0.00002	
Hardness (as CaCO3)	mg/L	1	SM 3120	20-Apr-22/O	211	212	
Arsenic	mg/L	0.0001	EPA 200.8	20-Apr-22/O	0.0001	0.0001	
Barium	mg/L	0.001	SM 3120	20-Apr-22/O	0.067	0.067	
Boron	mg/L	0.005	SM 3120	20-Apr-22/O	< 0.005	0.005	
Cadmium	mg/L	0.000015	EPA 200.8	20-Apr-22/O	< 0.000015	< 0.000015	
Chromium	mg/L	0.001	EPA 200.8	20-Apr-22/O	< 0.001	< 0.001	
Copper	mg/L	0.0001	EPA 200.8	20-Apr-22/O	0.0005	0.0005	
Iron	mg/L	0.005	SM 3120	20-Apr-22/O	0.032	0.044	
Lead	mg/L	0.00002	EPA 200.8	20-Apr-22/O	0.00003	0.00004	
Phosphorus-Total	mg/L	0.01	E3516.2	19-Apr-22/K	0.02	0.02	
Zinc	mg/L	0.005	SM 3120	20-Apr-22/O	< 0.005	< 0.005	



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G108709

REPORT No. B22-10443

**Report To:**

**Cambium Environmental**  
 194 Sophia St.,  
 Peterborough ON K9H 1E5 Canada

**Attention:** Cameron MacDougall

**Caduceon Environmental Laboratories**

285 Dalton Ave  
 Kingston Ontario K7K 6Z1  
 Tel: 613-544-2001  
 Fax: 613-544-2770

DATE RECEIVED: 14-Apr-22

JOB/PROJECT NO.: Halls Glen WDS

DATE REPORTED: 22-Apr-22

P.O. NUMBER: 12987-002

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

Client I.D.	S1	SW_QAQC		
Sample I.D.	B22-10443-1	B22-10443-2		
Date Collected	12-Apr-22	12-Apr-22		

Parameter	Units	R.L.	Reference Method	Date/Site Analyzed
-----------	-------	------	------------------	--------------------



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an \*

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Michelle Dubien  
 Lab Manager

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from



---

## **Appendix E**

### **Photographs**

---

Fully accessible appended items are available upon request.



***Photograph 1: Monitors MW1-I and MW1-II,  
November 2021***



***Photograph 2: Monitors MW2-I and MW2-II, June 2021***



***Photograph 3: Monitors MW3-I and MW3-II,  
November 2021***



***Photograph 4: Monitors MW4-I and MW4-II, June 2021***



***Photograph 5: Monitors MW5-I and MW5-II,  
November 2021***



***Photograph 6: Monitors MW6-I and MW6-II,  
November 2021***



***Photograph 7: Monitors MW7-I and MW7-II,  
November 2021***



***Photograph 8: Monitors MW8-I and MW8-II, June 2021***



***Photograph 9: Monitors MW9-I and MW9-II,  
November 2021***



***Photograph 10: Monitors MW10-I and MW10-II,  
November 2021***



***Photograph 11: Monitors MW11-I and MW11-II,  
November 2021***



***Photograph 12: Monitors MW12-I, MW12-II, and  
MW12-III, November 2021***



***Photograph 13: Monitors MW13-I and MW13-II,  
November 2021***



***Photograph 14: Residential well R-1, June 2021***



***Photograph 15: Dry - Surface water monitoring station  
S-1, June 2021***



***Photograph 16: Surface water monitoring station S-1,  
November 2021***



**Photograph 17: Dry - Surface water monitoring station  
S-2, June 2021**



**Photograph 18: Dry - Surface water monitoring station  
S-2, November 2021**



---

## **Appendix F**

### **Borehole Logs**

---

Fully accessible appended items are available upon request.

TOWNSHIP OF DUMMER  
HALL'S GLEN LANDFILL STUDY

BOREHOLE LOGS

June 27 - July 9, 1991

<u>BOREHOLE</u>	<u>DEPTH INTERVAL (metres below ground)</u>	<u>DRILLER'S DESCRIPTION</u>
1-91	0 - 0.61	Brown CLAY, GRAVEL, hard
	0.61 - 1.98	Grey GRAVEL, dry
	1.98 - 6.10	Grey LIMESTONE
	6.10 - 6.71	Brown SHALE
Water-bearing zone reported at 6.10 metres		
2-91	0 - 1.22	Brown FILL
	1.22 - 3.05	REFUSE
	3.05 - 4.88	Brown SAND, COBBLES
	4.88 - 5.49	Grey GRAVEL
	5.49 - 6.71	Brown SHALE, wet
	6.71 - 8.53	Grey LIMESTONE
8.53 - 9.14	Brown SHALE	
Water-bearing zone reported at 8.53 metres		
3-91	0 - 0.91	Brown SAND, CLAY
	0.91 - 1.52	Brown GRAVEL, COBBLES, CLAY, hard
	1.52 - 4.27	Grey LIMESTONE
Water-bearing zone reported at 3.66 metres		
4-91	0 - 2.74	Grey GRAVEL, BOULDERS
	2.74 - 3.66	Grey LIMESTONE
	3.66 - 4.88	Brown SHALE
Water-bearing zone reported at 3.66 metres		
5-91	0 - 1.83	Brown SAND, CLAY
	1.83 - 3.20	Brown SAND, GRAVEL
	3.20 - 3.66	Brown SAND, CLAY
	3.66 - 7.01	Grey LIMESTONE
Water-bearing zone reported at 6.40 metres		

TOWNSHIP OF DUMMER  
HALL'S GLEN LANDFILL STUDY

BOREHOLE LOGS

June 27 - July 9, 1991

<u>BOREHOLE</u>	<u>DEPTH INTERVAL (metres below ground)</u>	<u>DRILLER'S DESCRIPTION</u>
6-91	0 - 0.61	Brown SAND
	0.61 - 2.74	Brown SAND, GRAVEL
	2.74 - 5.18	Grey LIMESTONE
	5.18 - 5.79	Brown SHALE

Water-bearing zone reported at 5.18 metres

# MONITOR DETAILS

BOREHOLE		MONITOR				SCREENED INTERVAL (mbsg)	SAND FILTER PACK (mbsg)	BENTONITE SEAL (mbsg)	STEEL CASING (mbsg)
NO	Diameter (mm)	NO	Type	Diameter (mm)	Stick-up (m)				
1-91	150	I	P	50	0.98	271.27	6.71 - 5.18 1.98 - 0.46	5.33 - 4.72 0.46 - 0.00	0.91 - 10.88
1-91	150	II	S	38					
2-91	150	I	P	50	1.07	275.79	9.14 - 7.62 5.49 - 3.96	6.70 - 5.79 0.61 - 0.00	0.91 - 11.07
2-91	150	II	S	38					
3-91	150	I	P	50	1.11	269.23	4.27 - 2.74 1.52 - 0.00	2.13 - 1.52 0.31 - 0.00	0.91 - 11.11
3-91	150	II	S	38					
4-91	150	I	P	50	1.04	268.20	4.88 - 3.35 3.05 - 1.52	3.66 - 3.05 0.61 - 0.00	0.91 - 11.04
4-91	150	II	S	38					
5-91	150	I	P	50	1.00	271.32	7.01 - 5.49 3.66 - 2.13	4.27 - 3.66 0.61 - 0.00	0.91 - 11.00
5-91	150	II	S	38					
6-91	150	I	P	50	1.02	269.83	5.79 - 4.26 2.74 - 1.22	3.35 - 2.74 0.61 - 0.00	0.91 - 11.02
6-91	150	II	S	38					

P = Piezometer      MIDOL = metres below

PA INTERNATIONAL

Print only in spaces provided.  
Mark correct box with a checkmark, where applicable.

County or District <b>Peterborough</b>	Township/City/Village <b>Dummer Twp., Mill Glen Landfill</b>	Can block road names, etc. on <b>Con. 4</b>
Owner's business <b>Township of Dummer</b>	Full name <b>C/O Tottan Glas Kubicki Assoc.</b>	Date completed <b>18 03 97</b>
Address <b>300 Geer St., Whitby, Ont. L1K 9J2</b>		

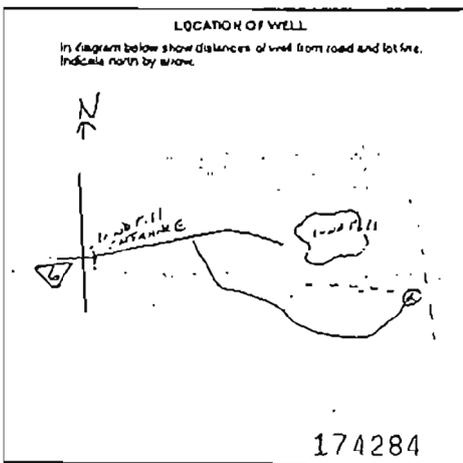
LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)				
General colour	Most common material	Other materials	General description	Depth - feet Top Bottom
Black	Topsoil	stones	soft	0 1
Brown	Gravelly Clay	stones	soft-caving	1 2
Brown	Shale		soft	9 14
Gray	Limestone		hard	14 15
Brown	Limestone		very hard	18 22
* Finished depth @ 21 ft.				

WATER RECORD		CASING & OPEN HOLE RECORD				SCREEN	
Water found at - feet	Kind of water	Head feet	Material	Well Production feet	Depth - feet from top	to	Screen Material and type
9	Clear	6.5	Steel Galvanized Concrete Open hole Pile	-188	+ 2	3	PVC 4 8 16
18	Clear	2	Steel Galvanized Concrete Open hole Pile	Pile	+ 2	16	
	Clear	2	Steel Galvanized Concrete Open hole Pile	Pile	+ 2	4	

Screen Material and type <b>PVC</b>	Depth at top of screen <b>4 8 16</b>
---	---

PLUGGING & SEALING RECORD	
Open end at - feet	Material and type (cement, sand, bentonite, etc.)
11	Gravel

Pumping test method <input checked="" type="checkbox"/> Pump <input type="checkbox"/> Bailer	Approx. rate <b>10 gpm</b>	Duration of pumping <b>30</b> minutes
Stable level	Water level at end of pumping	Water level during pumping
6 feet	11 feet	11 feet 11 feet 11 feet 11 feet



FINAL STATUS OF WELL	
<input type="checkbox"/> Water muddy	<input type="checkbox"/> Abandoned, non-fluent supply
<input type="checkbox"/> Clear water but	<input type="checkbox"/> Abandoned, used supply
<input type="checkbox"/> Full hole	<input type="checkbox"/> Abandoned (Other)
<input type="checkbox"/> Abandoned well	<input type="checkbox"/> Damaged
<input type="checkbox"/> Underused	<input type="checkbox"/> Re-located and

Water use <input type="checkbox"/> Domestic <input type="checkbox"/> Stock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial	<input type="checkbox"/> Commercial <input type="checkbox"/> Municipal <input type="checkbox"/> Public supply <input type="checkbox"/> Cooling & air conditioning	<input type="checkbox"/> Hot water <input checked="" type="checkbox"/> Other (describe)
METHOD OF CONSTRUCTION		
<input checked="" type="checkbox"/> Casing (cast)	<input type="checkbox"/> As per plan or	<input type="checkbox"/> Drilling
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Boring	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Jetting	

Name of Well Contractor <b>C. Hart &amp; Sons Well Drilling Ltd.</b>	Well Contractor's License No. <b>2662</b>
Address <b>Box 850, Fenelon Falls, Ontario</b>	
Name of Well Driller <b>Greg Bullock</b>	Well Driller's License No. <b>T-2108</b>
Signature of Well Contractor <i>[Signature]</i>	Submission date <b>18 03 97</b>

3 - OWNER'S COPY

3162 (07/85) Form 1-4

M.O.E. WATER WELL RECORD

MW-7

Fill only in spaces provided. Mark correct box with a checkmark, where applicable.

County or District <b>Peterborough</b>	Township or Range <b>Dummer Twp., Halls Glen-Landfill</b>	Con. Lic. No. (see instr.) <b>Con. 4</b>	Lot <b>26</b>
Owner's name <b>Municipality of Dummer</b>	Address <b>300 Water St., Whitby, ON L1R 9J2</b>	City <b>Whitby</b>	Prov. <b>ON</b>

General color	Local common name	Other materials	General description	Depth - feet	Depth - meters
Black	Topsoil			0	1
Brown	Gravel	sand		1	9
Brown	Gravel	stones		9	15
Brown	Rock		broken	15	17
Gray	Limestone			17	35

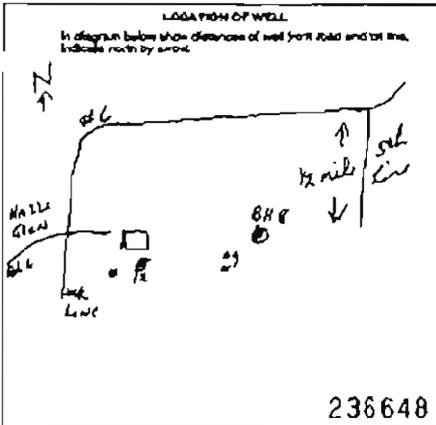
Water found in feet	Kind of water
19	<input checked="" type="checkbox"/> Fresh <input checked="" type="checkbox"/> Salty <input checked="" type="checkbox"/> Brackish <input checked="" type="checkbox"/> Other
28	<input checked="" type="checkbox"/> Fresh <input checked="" type="checkbox"/> Salty <input checked="" type="checkbox"/> Brackish <input checked="" type="checkbox"/> Other

Water depth in feet	Material	Time of day	Depth - feet	Depth - meters
6 1/2	180	+2 1/2	17	
2	Piece	+2 1/2	30	
2	Piece	+2 1/2	17 1/2	

Number of casings (see instr.) <b>10</b>	Number <b>2</b>	Length <b>2 x 5</b>
Material and size <b>PVC</b>	Depth at top of casing <b>30, 17 1/2</b>	

Depth - feet	Material
0	17 Bentonite & Mudlurry

Flowing <input type="checkbox"/> Pump <input checked="" type="checkbox"/> Other	Pressure <b>8-10</b>	Duration of supply <b>from 30 min</b>
Water level <b>15</b>	Water level at 24 hr <b>15</b>	Water level at 48 hr <b>15</b>



Final Status of Well <input type="checkbox"/> Properly installed <input type="checkbox"/> Abandoned, good supply <input type="checkbox"/> Abandoned, poor supply <input type="checkbox"/> Abandoned (Other) <input type="checkbox"/> Damaged	<input type="checkbox"/> Unfinished <input type="checkbox"/> Permanent seal
Water Line <input type="checkbox"/> Domestic <input type="checkbox"/> Public supply <input type="checkbox"/> Other	<input type="checkbox"/> Other
Method of Construction <input checked="" type="checkbox"/> Casing <input type="checkbox"/> Auger <input type="checkbox"/> Rotary (air-lift) <input type="checkbox"/> Rotary (oil)	<input type="checkbox"/> Jet <input type="checkbox"/> Other

Name of Well Contractor <b>C. HART &amp; SONA Well Drilling Ltd</b>	Well Contractor's License No. <b>2662</b>
Address <b>Box 850, Fenelon Falls, Ontario</b>	
Name of Well Inspector <b>JIM LEAD</b>	Well Inspector's License No. <b>7-0546</b>

1 - CONTRACTOR'S COPY

M.O.E. WATER WELL RECORD

MW-8





Print only in spaces provided.  
Use common box with a checkmark when applicable.

County or District <b>Peterborough</b>	Corporation, Township or Village (BK-11) <b>Dummer Twp., Hallo Glen-Tandell</b>	Con. area (see map) No. and Loc. <b>Con. 4</b>	Lot <b>76</b>
Owner name <b>Township of Dummer</b>	Address c/o Tullen Sims Kubicki Assoc. <b>300 Water St., Whitby, ON L1M 9J2</b>	Date completed <b>5</b>	11 03

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)				
Interval (feet)	Material	Other notes	Depth (feet)	
			From	To
Black	Topsoil		0	1
Brown	Gravel		1	5
Brown	Gravel	boulder	5	10
Brown	Broken Rock		10	12
Gray	Limestone		12	30

WATER RECORD	
Month	Kind of water
19	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salt <input type="checkbox"/> Brackish <input type="checkbox"/> Other
29	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salt <input type="checkbox"/> Brackish <input type="checkbox"/> Other
	<input type="checkbox"/> Fresh <input type="checkbox"/> Salt <input type="checkbox"/> Brackish <input type="checkbox"/> Other
	<input type="checkbox"/> Fresh <input type="checkbox"/> Salt <input type="checkbox"/> Brackish <input type="checkbox"/> Other
	<input type="checkbox"/> Fresh <input type="checkbox"/> Salt <input type="checkbox"/> Brackish <input type="checkbox"/> Other

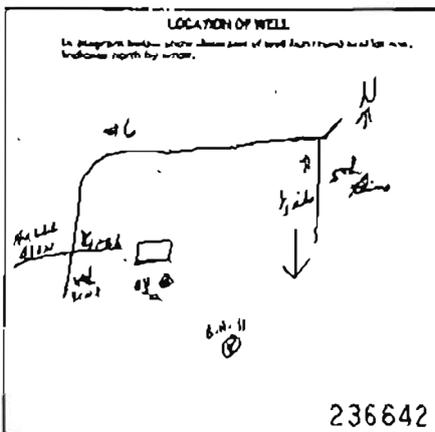
SLUG TEST RECORD				
Time	Material	Flow rate	From	To
6	<input type="checkbox"/> Sand <input type="checkbox"/> Gravel <input type="checkbox"/> Broken rock <input type="checkbox"/> Limestone <input type="checkbox"/> Other	188	+24	12
2	<input type="checkbox"/> Sand <input type="checkbox"/> Gravel <input type="checkbox"/> Broken rock <input type="checkbox"/> Limestone <input type="checkbox"/> Other	Piezo	+21	25
2	<input type="checkbox"/> Sand <input type="checkbox"/> Gravel <input type="checkbox"/> Broken rock <input type="checkbox"/> Limestone <input type="checkbox"/> Other	Piezo	+24	15

Material	Quantity	From	To
PVC	2	2x	5

MUDLOGS & SEALING RECORDS		
Depth (feet)	Material	Notes
0-12	Holeplug (outside area)	
11-20	Sand	
20-22	Holeplug	
22-30	Seal	

Drilling method	Drilling rate	Direction of drilling	Direction of flow
<input type="checkbox"/> Pump <input type="checkbox"/> Other	2-3 rpm	<input type="checkbox"/> Down <input type="checkbox"/> Up	<input type="checkbox"/> Down <input type="checkbox"/> Up



INSTALLATION OF WELL		
<input type="checkbox"/> Standard	<input type="checkbox"/> Special	<input type="checkbox"/> Other
<input type="checkbox"/> Standard	<input type="checkbox"/> Special	<input type="checkbox"/> Other
<input type="checkbox"/> Standard	<input type="checkbox"/> Special	<input type="checkbox"/> Other

METHOD OF CONSTRUCTION		
<input type="checkbox"/> Concrete	<input type="checkbox"/> Steel	<input type="checkbox"/> Other
<input type="checkbox"/> Concrete	<input type="checkbox"/> Steel	<input type="checkbox"/> Other
<input type="checkbox"/> Concrete	<input type="checkbox"/> Steel	<input type="checkbox"/> Other

Name of contractor <b>G. HART &amp; Sons Well Drilling Ltd</b>	Address <b>Box 850, Fenelon Falls, Ontario</b>
Phone number <b>7-0546</b>	

1 - CONTRACTOR'S COPY

M.O.E. WATER WELL RECORD

MW-11

Please only use pages provided.  
Mark correct box with a checkmark, where applicable.

County or District <b>Peterborough</b>	Township or City/Town/Village (RW-12) <b>Dummer Twp., Holly Glen - Londell</b>	Can. Const. Act # (M.E. No.) <b>Can. 4</b>	Lot <b>26</b>
Owner's name <b>Township of Dummer</b>	For Name <b>300 Water St., Whitby, ON L1K 9J2</b>	Date completed <b>7 31 01</b>	Year <b>01</b>

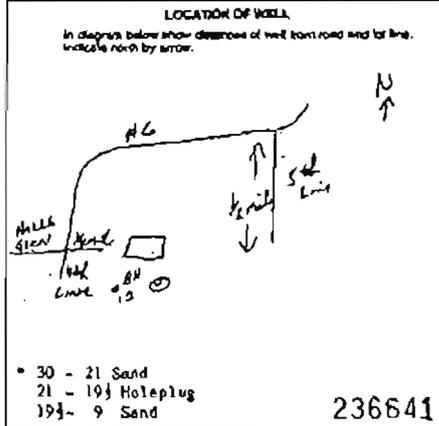
Ground colour	Most common material	Other materials	Ground description	Depth: feet	
				100'	ft
Black	Topsoil			0	1
Brown	Gravel			1	8
Brown	Gravel	broken rock		8	13
Gray	Limestone			13	29
Gray	Limestone		soft	29	30
Gray	Limestone			30	40

Water level at date	Kind of water
13	<input checked="" type="checkbox"/> Artesian <input checked="" type="checkbox"/> Unconfined <input checked="" type="checkbox"/> Other
29	<input checked="" type="checkbox"/> Artesian <input checked="" type="checkbox"/> Unconfined <input checked="" type="checkbox"/> Other

Water depth (feet)	Material	Flow rate (gpm)	Flow rate (lpm)	Flow rate (m <sup>3</sup> /hr)
6 1/2	<input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Other	188	43	3.7
2	<input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Other	Pleco	43	35
2	<input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Other	Pleco	43	25 1/2
2	<input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Other	Pleco	43	14 1/2

Size of opening (inches)	2 inches	Length	3 x 5 feet
Material and type	PVC	Depth of hole (feet)	35, 28, 3
<b>PLUGGING &amp; SEALING RECORD</b>			
Depth of plug (feet)	Y1	Material and type (cement, sand, bentonite, etc.)	
0	13	Bentonite (outside)	
40	31	Sand (inside)	
31	30	Holeplug, at Point'd	

Number of test runs	10 - 15 runs	Duration of pumping	1 hour
Water level at start of test	4 feet	Water level during	10 feet
Flow rate at start of test	188 gpm	Flow rate during	43 lpm



<input checked="" type="checkbox"/> Water supply	<input checked="" type="checkbox"/> Agricultural, residential supply	<input checked="" type="checkbox"/> Unconfined
<input checked="" type="checkbox"/> Domestic	<input checked="" type="checkbox"/> Industrial	<input checked="" type="checkbox"/> Artesian well
<input checked="" type="checkbox"/> Irrigation	<input checked="" type="checkbox"/> Public supply	<input checked="" type="checkbox"/> Other (Specify)
<input checked="" type="checkbox"/> Industrial	<input checked="" type="checkbox"/> Cooling (in equilibrium)	

Name of Well Contractor <b>G. Hart &amp; Sons Well Drilling Ltd.</b>	Well Permit No. (if known) <b>2662</b>
Address <b>Box 850, Fenelon Falls, Ontario</b>	
Name of Well Installer <b>Jim Leach</b>	Well Completion License No. <b>T-0546</b>

1 - CONTRACTOR'S COPY

**M.O.E. WATER WELL RECORD**

MW-12

Please print in spaces provided.  
 Mark correct box with a checkmark, where applicable.

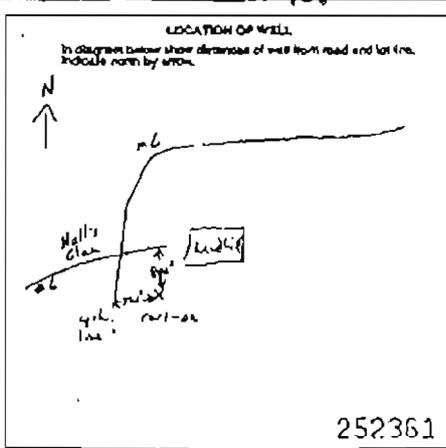
County or District <b>Peterborough</b>	Township <b>Dummer Twp. Halls Glenland (13)</b>	Well No. <b>TW1-02</b>	Can work over survey, no <b>4</b>	Lot <b>26</b>
Owner's address <b>Township of Dummer</b>	Address <b>c/o Totten Stas Hubicki Assoc. 300 WATER ST. WILKIN, ON. L1N 9J2</b>	Date completed <b>29 10 02</b>	Day <b>29</b>	Month <b>10</b>

LOG OF OVERLIEING AND BEDROCK MATERIALS (see instructions)					
Color of material	Name of material	Other materials	Meters description	Depth - meters	
				From	To
Black	Topsoil			0	1.5
Brown	Gravel	boulders		1.5	9
Grey	Limestone			9	17

WATER RECORD		CABLE & OPENING RECORD				PVC RECORD	
Water found at depth <b>15.5</b>	Kind of water <input type="checkbox"/> Sweet <input type="checkbox"/> Salty <input type="checkbox"/> Brackish <input type="checkbox"/> Sour <input type="checkbox"/> Foul <input type="checkbox"/> Other	Initial depth <b>6.4</b>	Interval <input type="checkbox"/> Steel <input type="checkbox"/> Aluminum <input type="checkbox"/> Copper <input type="checkbox"/> Other	Final depth <b>106</b>	Depth - feet From <b>4.3</b> To <b>6</b>	Well No. <b>10</b>	Depth of cap of screen <b>6, 12</b>

PUMPING TEST		PUMPING CAP		SECTION OF PUMP	

POOL STATUS OF WELL		WATER LOG		METHOD OF CONSTRUCTION	



Name of Well Contractor <b>E. Hart &amp; Sons Well Drilling Ltd.</b>	Well Contractor's License No. <b>2662</b>
Address <b>Box 850, Fenelon Falls, ON K0M 1Y0</b>	
Name of the Fabricator <b>Joe Lann</b>	Well Fabricator's License No. <b>7-0546</b>
Signature of the Contractor <i>Plate with</i>	

1 - CONTRACTOR'S COPY

**M.O.E. WELL RECORD**  
 MW-13



---

## **Appendix G**

### **Ministry Well Records**

---

Fully accessible appended items are available upon request.



MINISTRY OF THE ENVIRONMENT  
The Ontario Water Resources Act  
**WATER WELL RECORD**

31D/9E

1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK  CORRECT BOX WHERE APPLICABLE

11 5106571<sup>P</sup> 51008 CON 04

COUNTY OR STORAGE: PETERBORO TOWNSHIP: DUMMER CON. BRIDGE - RACE - SUBURB - ETC.: IV LOT: 026  
DATE COMPLETED: DAY 30 YEAR 07 MONTH 23  
ELEVATION: 0890 BASIN CODE: 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	CLAY	STONES		0	16
GREY	ALTERED	LIMESTONE		16	35



31 001660512 0035215  
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
033 10-13	1 FRESH 3 SULPHUR 10 2 SALTY 4 MINERAL
15-18	1 FRESH 3 SULPHUR 19 2 SALTY 4 MINERAL
20-23	1 FRESH 3 SULPHUR 24 2 SALTY 4 MINERAL
25-28	1 FRESH 3 SULPHUR 29 2 SALTY 4 MINERAL
30-33	1 FRESH 3 SULPHUR 34 2 SALTY 4 MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/4	STEEL	1.88	0	16
06	STEEL		16	35

SCREEN

SIZE (S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET

61 PLUGGING & SEALING RECORD

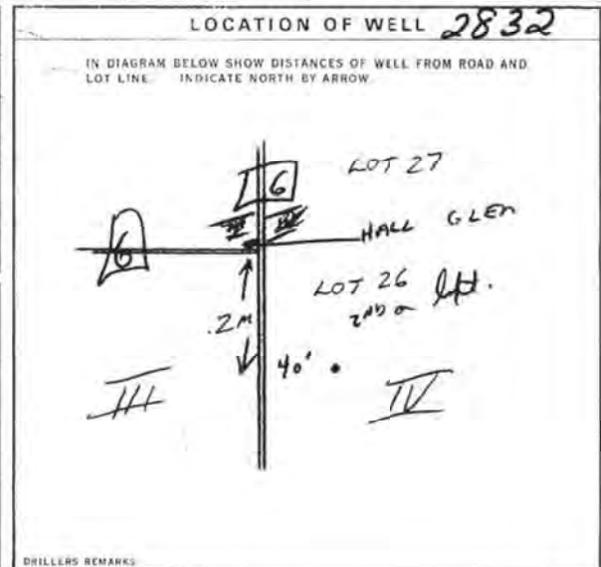
DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT, LEAD PACKER, ETC.)
10-13	14-17	
18-21	22-25	
28-29	30-33	80

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAL. CR. 10 PUMPING RATE: 0008 GPM 11-14 DURATION OF PUMPING: 02 HOURS 15-18 HOURS 17-18 HOURS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	PUMPING
01.8 FEET	0.33 FEET	0.33 FEET 0.33 FEET 0.33 FEET 0.33 FEET	1 PUMPING 2 RECOVERY

RECOMMENDED PUMP TYPE: 1 SHALLOW 2 DEEP 33 GPM 0.30 FEET 20-40 GPM 005 F GPM



54 FINAL STATUS OF WELL: 1 WATER SUPPLY 2 OBSERVATION WELL 3 TEST HOLE 4 RECHARGE WELL 5 ABANDONED, INSUFFICIENT SUPPLY 6 ABANDONED, POOR QUALITY 7 UNFINISHED

55-56 WATER USE: 1 DOMESTIC 2 STOCK 3 IRRIGATION 4 INDUSTRIAL 5 COMMERCIAL 6 MUNICIPAL 7 PUBLIC SUPPLY 8 COOLING OR AIR CONDITIONING 9 NOT USED

57 METHOD OF DRILLING: 1 CABLE TOOL 2 ROTARY (CONVENTIONAL) 3 ROTARY (REVERSE) 4 ROTARY (AIR) 5 AIR PERCUSSION 6 BORING 7 DIAMOND 8 JETTING 9 DRIVING

CONTRACTOR: P.E. ELVIDGE WELL DRILLING 1904 ADDRESS: P.O. Box 98 P.T.B.O. SIGNATURE OF CONTRACTOR: P. Elvidge

LICENCE NUMBER: 1904

OFFICE USE ONLY: DATA SOURCE: 1904 DATE OF INSPECTION: May 21/75 CONTRACTOR: 58-62 DATE RECEIVED: 18 10 73 INSPECTOR: X

# WATER WELL RECORD

1 PRINT ONLY IN SPACES PROVIDED  
2 CHECK  CORRECT BOX WHERE APPLICABLE

11 5110084 51.008 CPM 05

COUNTY OR DISTRICT: [REDACTED] TOWNSHIP, BUROUGH, CITY, TOWN, VILLAGE: DUMFRIES CON. BLOCK TRACT SURVEY ETC.: 5  
DATE COMPLETED: MAY 15 08

33400 5 0850 6 2A

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
DUG	<del>DARKED</del> PREVIOUS			0	27
GREY	LIME STONE			27	5.2
BROWN	"			5.2	5.3

*No casing in well  
owner's mistake*

31 0927 23 0052215 0052215

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0-27	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

DEPTH - FEET	MATERIAL	WALL THICKNESS (INCHES)
0-27	DUG	
27-53	STEEL	

SCREEN

DEPTH - FEET	MATERIAL AND TYPE
0-27	
27-53	

61 PLUGGING & SEALING RECORD

DEPTH - FEET	MATERIAL AND TYPE	ITEMS GROUP (LEAD PACKER ETC.)
0-27		
27-53		

71 PUMPING TEST

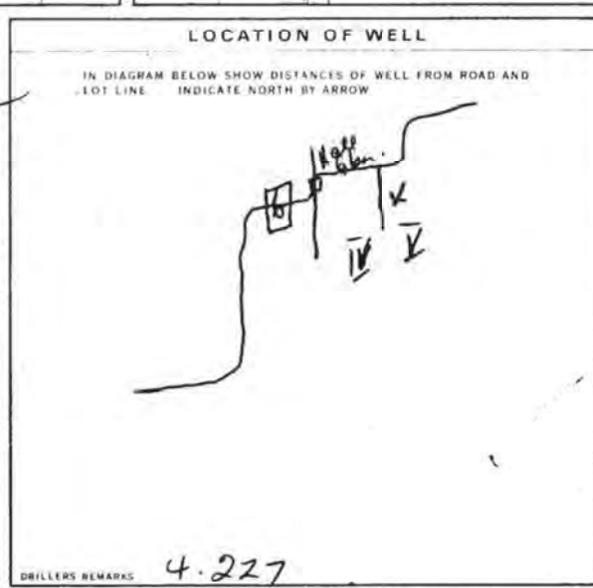
PUMPING TEST METHOD: 1  PUMP 2  BAILEY

PUMPING RATE: 0036 GPM DURATION OF PUMPING: 02 HOURS 00 MIN

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
023 FEET	030 FEET	15 MINUTES: 26-28 FEET 30 MINUTES: 29-31 FEET 45 MINUTES: 32-34 FEET 60 MINUTES: 35-37 FEET

RECOMMENDED PUMP TYPE:  SHALLOW  DEEP

RECOMMENDED PUMP SETTING: 030 FEET



FINAL STATUS OF WELL: 1  WATER SUPPLY 5  ABANDONED, INSUFFICIENT SUPPLY  
2  OBSERVATION WELL 6  ABANDONED POOR QUALITY  
3  TEST HOLE 7  UNFINISHED  
4  RECHARGE WELL

WATER USE: 01 1  DOMESTIC 5  COMMERCIAL  
2  STOCK 6  MUNICIPAL  
3  IRRIGATION 7  PUBLIC SUPPLY  
4  INDUSTRIAL 8  COOLING OR AIR CONDITIONING  
9  OTHER 9  NOT USED

METHOD OF DRILLING: 1  CABLE TOOL 6  BORING  
2  ROTARY (CONVENTIONAL) 7  DIAMOND  
3  ROTARY (REVERSE) 8  JETTING  
4  ROTARY (AIR) 9  DRIVING  
5  AIR PERCUSSION

CONTRACTOR: P.E. EVIDGE WELL DRILLING 1904  
ADDRESS: P.O. Box 93 P.T.B.O.  
NAME OF DRILLER OR BORER: ED LA FONTE  
SIGNATURE OF CONTRACTOR: Russell Evidge

LICENCE NUMBER: 1904  
SUBMISSION DATE: [REDACTED]

OFFICE USE ONLY

DATA SOURCE: 1 1904 090281

DATE OF INSPECTION: [REDACTED] INSPECTOR: [REDACTED]

REMARKS: 8

A197111

Well Location

Address of Well Location (Street Number/Name) 1989 4<sup>th</sup> LINE RD N Township DUMMER Lot 25 Concession 4  
 County/District/Municipality PETERBOROUGH City/Town/Village HALIS GLEN Province Ontario Postal Code K0L 2H0  
 UTM Coordinates Zone Easting Northing NAD 83 17 727921 49 33179 Municipal Plan and Sublot Number Other

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 To
GREY	CLAY	STONES	SOFT	0 8
GREY	LIMESTONE		HARD	8 43

**Annular Space**

Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m <sup>3</sup> /ft <sup>3</sup> )
From To		
0 20	BENTONITE	7 FT <sup>3</sup>

**Method of Construction**

Cable Tool  Diamond  Public  Commercial  Not used  
 Rotary (Conventional)  Jetting  Domestic  Municipal  Dewatering  
 Rotary (Reverse)  Drilling  Livestock  Test Hole  Monitoring  
 Boring  Digging  Irrigation  Cooling & Air Conditioning  
 Air percussion  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)		Status of Well
			From	To	
6 3/8	STEEL	188	0	20	<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify
6 1/8	OPEN HOLE		20	43	

**Construction Record - Screen**

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

**Water Details**

Water found at Depth 40 (m/ft) Kind of Water:  Fresh  Untested  Gas  Other, specify

Water found at Depth (m/ft) Kind of Water:  Fresh  Untested  Gas  Other, specify

Water found at Depth (m/ft) Kind of Water:  Fresh  Untested  Gas  Other, specify

**Well Contractor and Well Technician Information**

Business Name of Well Contractor WENSLEY WATER WELL LTD Well Contractor's Licence No. 6578  
 Business Address (Street Number/Name) RR 2 LAKEFIELD Municipality PETERBOROUGH  
 Province ON Postal Code K0L2H0 Business E-mail Address

Business Telephone No. (inc. area code) 705 652 1629 Name of Well Technician (Last Name, First Name) ERIC WENSLEY  
 Well Technician's Licence No. 0632 Signature of Technician and/or Contractor Date Submitted 20160505

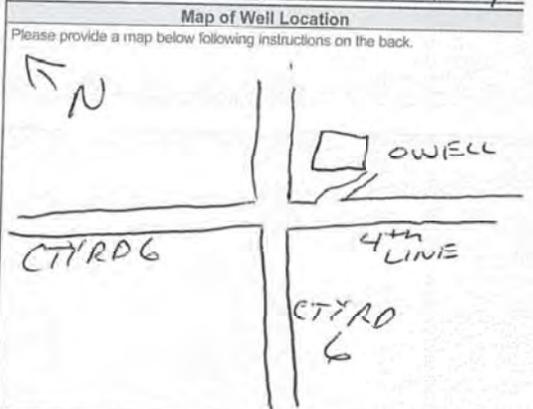
**Results of Well Yield Testing**

After test of well yield, water was:  
 Clear and sand free  
 Other, specify

If pumping discontinued, give reason: Static Level 17

Draw Down	Recovery		
Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
1	17.3	1	18.5
2	17.6	2	18.1
3	17.8	3	17.4
4	18.3	4	17.1
5	18.6	5	17
10	18.9	10	17
15	19	15	17
20	19	20	17
25	19	25	17
30	19	30	17
40	19	40	17
50	19	50	17
60	19	60	17

Pump intake set at (m/ft) 40  
 Pumping rate (l/min / GPM) 10+  
 Duration of pumping 1 hrs + min  
 Final water level end of pumping (m/ft) 19  
 If flowing give rate (l/min / GPM)  
 Recommended pump depth (m/ft) 40  
 Recommended pump rate (l/min / GPM) 6  
 Well production (l/min / GPM) 10+  
 Disinfected?  Yes  No



Comments:

Well owner's information package delivered  Yes  No Date Package Delivered 20160422 Date Work Completed 20160422

**Ministry Use Only**  
 Audit No. 2224203  
 JUL 04 2016



A268544

Measurements recorded in:  Metric  Imperial

Well Owner's Information

First Name: Township of Duro-Dummer, E-mail Address: [blank], Mailing Address: 899 South St., Municipality: Warsaw, Province: ON, Postal Code: K0K3A0, Telephone No.: 795652399

Well Location

Address of Well Location: 1951 County RD #6, Township: Duro-Dummer, County/District/Municipality: Peterborough, City/Town/Village: Mill's Glen, Province: Ontario, Postal Code: K0K3A0

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

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From To. Rows include: Brown Med Sand (0-1.22m), Brown Coarse Sand (1.22-2.74m), Grey Limestone (2.74-3.05m), Grey Limestone (3.05-4.72m).

Annular Space table with 4 columns: Depth Set at (m/ft) From To, Type of Sealant Used (Material and Type), Volume Placed (m³/ft³). Rows include: Bentonite (0-2.13m), Sand (2.13-4.72m).

Results of Well Yield Testing table with 4 columns: Time (min), Water Level (m/ft), Time (min), Water Level (m/ft). Includes sections for Draw Down and Recovery. A large 'X' is drawn over the table.

Method of Construction and Well Use checkboxes. Method of Construction includes Cable Tool, Rotary, Boring, etc. Well Use includes Public, Commercial, Industrial, etc.

Construction Record - Casing table with 5 columns: Inside Diameter (cm/in), Open Hole OR Material, Wall Thickness (cm/in), Depth (m/ft) From To, Status of Well. Rows include: Steel (0.64 to 0.91), Plastic (0.47 to 0.91).

Construction Record - Screen table with 5 columns: Outside Diameter (cm/in), Material, Slot No., Depth (m/ft) From To. Row includes: Plastic (0.10), Depth 2.44 to 4.72.

Water Details and Hole Diameter tables. Water Details includes depth and kind of water. Hole Diameter includes depth and diameter.

Well Contractor and Well Technician Information. Business Name: GET Drilling LTD, Business Address: 273 Duro-Dummer RD, Municipality: Noranee, Business E-mail Address: getdrilling@mycable.ca, Name of Well Technician: Harrison, J. M.

Map of Well Location: Please provide a map below following instructions on the back. Includes a hand-drawn map showing 'County RD #6' and '5th line RD' with dimensions 174m and 39.9m.

UTM 1172 728013E

3109E



WATER RESOURCES DIVISION 51  
AUG 31 1964  
ONTARIO WATER RESOURCES COMMISSION

No. 1116

Co. 9 R 149 32 66 0 N

The Ontario Water Resources Commission Act

Elev. 9 R 0980

# WATER WELL RECORD

Basin 2A Peterborough Township, Village, Town or City *Lanark*

Con. 4 ✓ Lot 26 ✓ Date completed 10 Aug 1964 (day month year)

Owner [redacted] Address RR 2 Lakefield Ont

## Casing and Screen Record

*PER SKETCH & TOPD*

## Pumping Test

Inside diameter of casing 5 inch  
Total length of casing 20 ft.  
Type of screen  
Length of screen  
Depth to top of screen  
Diameter of finished hole 5 inch

Static level 25 ft  
Test-pumping rate  
Pumping level 25 ft.  
Duration of test pumping 2 hr.  
Water clear or cloudy at end of test *clearing*  
Recommended pumping rate 4 G.P.M.  
with pump setting of 26 ft. feet below ground surface

## Well Log

## Water Record

### Overburden and Bedrock Record

*dirt & stones  
hard grey limestone*

From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
0	18	26	fresh
18	28 ft.		

For what purpose(s) is the water to be used? *household*

Is well on upland, in valley, or on hillside? *upland*

Drilling or Boring Firm *Clinton Griffith*

Address *RR 2 Wagsaw Ont*

Licence Number *1282*

Name of Driller or Borer *Clinton Griffith*

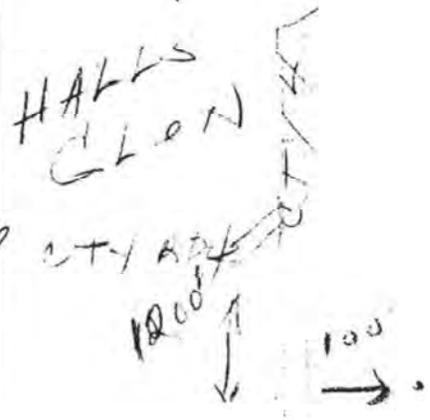
Address *RR 2 Wagsaw Ont*

Date *Aug 12/64*

*Clinton Griffith*  
(Signature of Licensed Drilling or Boring Contractor)

## Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



3109E



GROUND WATER BOARD  
JAN 25 1952  
No. 1118  
ONTARIO WATER RESOURCES COMMISSION

UTM 17Z 728882E

SR 4933748N

Elev. 16R 0875

# WATER WELL RECORD

Basin 24  
County or District

Township, Village, Town or City

Con. 4 ✓ Lot 27 ✓

Date completed 30 Jan 1952  
(day month year)

Address HALL GLEN

### Casing and Screen Record

Inside diameter of casing 6"

Total length of casing 30'

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 6"

### Pumping Test

Static level

Test-pumping rate G.P.M.

Pumping level 2'

Duration of test pumping 3 hrs

Water clear or cloudy at end of test

Recommended pumping rate G.P.M.

with pump setting of 2 feet below ground surface

### Well Log

### Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
soil	0	1		
clay shale	1	30	17.3	
stake + gravel				

For what purpose(s) is the water to be used?

Is well on upland, in valley, or on hillside?

Drilling or Boring Firm

Address

Licence Number

Name of Driller or Borer

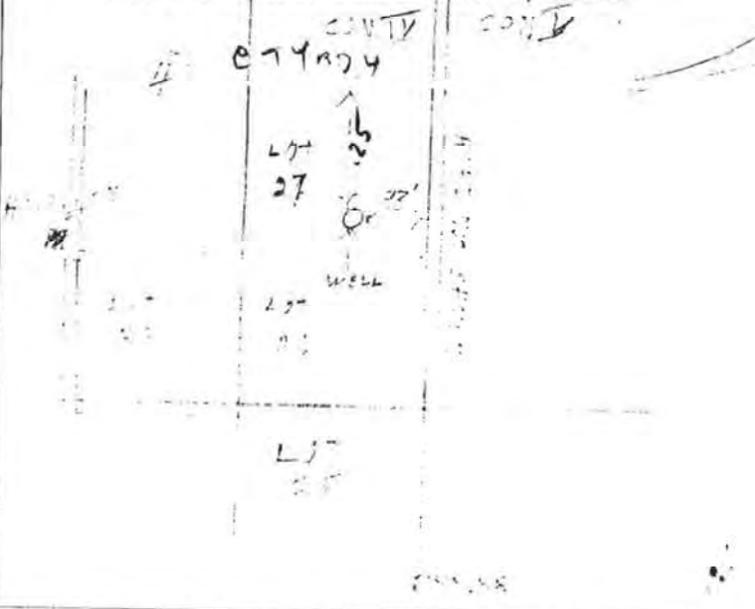
Address

Date

(Signature of Licensed Drilling or Boring Contractor)

### Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.





# The Ontario Water Resources Commission Act

## WATER WELL RECORD

31D/9E

Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK  CORRECT BOX WHERE APPLICABLE

11

5105155

MUNICIP

571908

CON

CDN

03

COUNTY OR DISTRICT: **PETERBOROUGH** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **DUMMER** CON., BLOCK, TRACT, SURVEY, ETC.: **3** LOT: **287**

OWNER (SURNAME, FIRST, LAST): **[REDACTED]** DATE COMPLETED: DAY **16** MO **7** YR **70**

THING: **9.33/40** ELEVATION: **0900** BASIN CODE: **24**

### LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Top Soil.			0	1
Red/Brown	MED. SAND			1	6
		STONES.		6	10
Grey	LIMESTONE			10	16
Brown	LIMESTONE			16	22

31: **0000002** 32: **0000009** 41: **0000012** 51: **0000015** 61: **0000015**

#### 41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
0015	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
15-17	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
0020	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
20-22	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
UNTESTED	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL

#### 51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
06	STEEL		0	0013
6 7/8	GALVANIZED	1.88	0	13.34
	CONCRETE			
	OPEN HOLE			
17-18	STEEL		20-23	
	GALVANIZED			
	CONCRETE			
	OPEN HOLE			
24-25	STEEL		27-30	
	GALVANIZED			
	CONCRETE			
	OPEN HOLE			

#### SCREEN

SIZES(S) OF OPENING (SLOT NO.):

DIAMETER: \_\_\_\_\_ INCHES

LENGTH: \_\_\_\_\_ FEET

MATERIAL AND TYPE: \_\_\_\_\_

DEPTH TO TOP OF SCREEN: \_\_\_\_\_ FEET

#### 61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	14-17	
18-21	22-25	
26-29	30-33	

#### 71 PUMPING TEST

PUMPING TEST METHOD:  PUMP  BAILER

PUMPING RATE: **0004** GPM

DURATION OF PUMPING: **01** HOURS **07** MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING			
004	019	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
FEET	FEET	FEET	FEET	FEET	FEET
		004	004	004	004

IF FLOWING, GIVE RATE: \_\_\_\_\_ GPM

PUMP INTAKE SET AT: **19** FEET

WATER AT END OF TEST:  CLEAR  CLOUDY

RECOMMENDED PUMP TYPE:  SHALLOW  DEEP

RECOMMENDED PUMP SETTING: **017** FEET

RECOMMENDED PUMPING RATE: **0004** GPM

GPM/FT. SPECIFIC CAPACITY: \_\_\_\_\_



#### FINAL STATUS OF WELL

WATER SUPPLY

OBSERVATION WELL

TEST HOLE

RECHARGE WELL

ABANDONED, INSUFFICIENT SUPPLY

ABANDONED, POOR QUALITY

UNFINISHED

#### WATER USE

DOMESTIC

STOCK

IRRIGATION

INDUSTRIAL

OTHER

COMMERCIAL

MUNICIPAL

PUBLIC SUPPLY

COOLING OR AIR CONDITIONING

NOT USED

#### METHOD OF DRILLING

CABLE TOOL

ROTARY (CONVENTIONAL)

ROTARY (REVERSE)

ROTARY (AIR)

AIR PERCUSSION

BORING

DIAMOND

JETTING

DRIVING

#### CONTRACTOR

NAME OF WELL CONTRACTOR: **FAULKNER WELL DRILL CO. LTD** LICENCE NUMBER: **2104**

ADDRESS: **687 WATER ST., PETERBOROUGH, ONT**

NAME OF DRILLER OR BORER: **JAMES A FAULKNER** LICENCE NUMBER: \_\_\_\_\_

SIGNATURE OF CONTRACTOR: **[Signature]** SUBMISSION DATE: DAY **16** MO **7** YR **72**

#### OFFICE USE ONLY

DATA SOURCE: **1** CONTRACTOR: **2104** DATE RECEIVED: **170970**

DATE OF INSPECTION: \_\_\_\_\_ INSPECTOR: **[Signature]**

REMARKS: \_\_\_\_\_



100521  
5104657  
5105527

31 D/9 E

DIVISION OF  
WATER RESOURCES  
JAN 21 1968  
ONTARIO WATER  
RESOURCES COMMISSION  
Dummer

IM 117# 172176510  
49331150  
ev. 6 109160

Water management in Ontario  
The Ontario Water Resources Commission Act

# WATER WELL RECORD

County of District Peterborough Township, Village, Town or City  
Con. H. B. II Lot 27 Date completed 18 Oct. 1968  
(day month year)  
Address R. R. #2 Lakefield, Ontario.

### Casing and Screen Record

Inside diameter of casing 6 1/4" I.D.  
Total length of casing 11'  
Type of screen none  
Length of screen  
Depth to top of screen  
Diameter of finished hole 6 3/4" I.D.

### Pumping Test

Static level 10  
Test-pumping rate 5 G.P.M.  
Pumping level 25'  
Duration of test pumping 3 hrs.  
Water clear or cloudy at end of test Clear  
Recommended pumping rate 5 G.P.M.  
with pump setting of 25' feet below ground surface

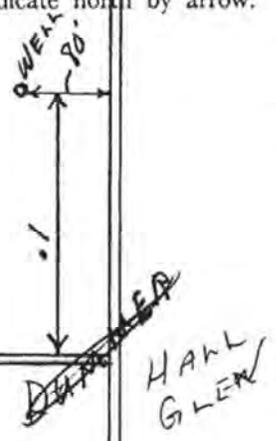
### Well Log

### Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Top soil	0	1		
Brown clay	1	8		
Gray limestone rock	8	30	29-30	Fresh Untested

For what purpose(s) is the water to be used? Domestic  
Is well on upland, in valley, or on hillside? Upland  
Drilling or Boring Firm  
Faulkner Well Drilling Co. Ltd.  
Address 687 Water St. Peterborough, Ont.  
Licence Number 2938  
Name of Driller or Borer Wm. Burgess  
Address R.R. #3 Omemece, Ontario.  
Date Oct. 18 1968  
(Signature of Licensed Drilling or Boring Contractor)

Location of Well  
In diagram below show distances of well from road and lot line. Indicate north by arrow.





Ontario

# WATER WELL RECORD

31096

1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK  CORRECT BOX WHERE APPLICABLE

11

5107698

MUNICIPALITY 51.008

CORPORATION CAN

03

COUNTY OR DISTRICT: Peterborough  
 TOWNSHIP: Dummer  
 CON. BLOCK, TRACT, SURVEY, ETC.: 3  
 DATE COMPLETED: 08 MO 11 YR 75  
 ADDRESS: Cliffcrest Dr., Scarborough, Ont.  
 ELEVATION: 330.50  
 BASIN CODE: 6 24

### LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Black	Top soil		Soft	0	1
Brown	Sand		Loose	1	6
Grey	Shale		Loose	6	24
Grey	Gravel (fine)		Loose	24	26

31 000180285 000662877 002421777 002622977  
 32

41 WATER RECORD

WATER FOUND AT - FEET: 0024  
 KIND OF WATER:  FRESH,  SALTY  
 SULPHUR,  MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAMETER: 6 1/2  
 MATERIAL:  STEEL  
 WALL THICKNESS: .188  
 DEPTH - FEET: 0 TO 26

SCREEN

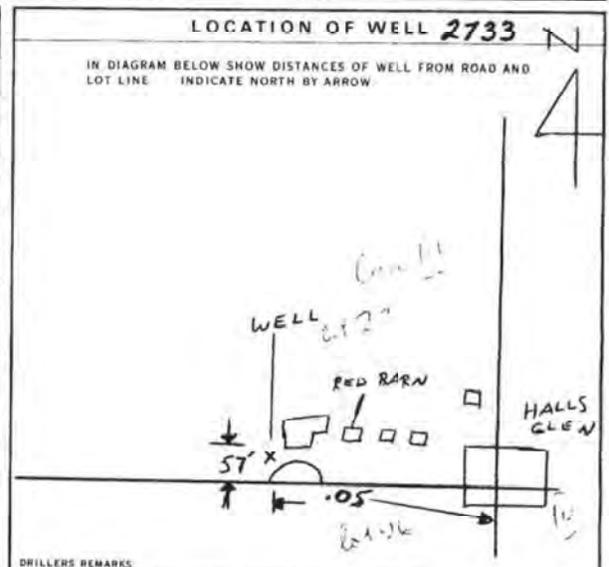
SIZE(S) OF OPENING (SLOT NO.):  
 DIAMETER: 31-33  
 LENGTH: 34-38  
 MATERIAL AND TYPE:  
 DEPTH TO TOP OF SCREEN: 41-44

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET: 10-13 TO 14-17  
 MATERIAL AND TYPE:  CEMENT GROUT,  LEAD PACKER, ETC.

71 PUMPING TEST

PUMPING TEST METHOD:  PUMP,  BAILEY  
 PUMPING RATE: 0005 GPM  
 DURATION OF PUMPING: 06 HOURS, 30 MINUTES  
 STATIC LEVEL: 011 FEET  
 WATER LEVELS DURING PUMPING: 020 FEET (15 MIN), 011 FEET (30 MIN), 011 FEET (45 MIN), 011 FEET (60 MIN)  
 RECOVERY:  RECOVERY  
 PUMP INTAKE SET AT: 24 FEET  
 WATER AT END OF TEST: CLEAR  
 RECOMMENDED PUMP TYPE:  SHALLOW,  DEEP  
 RECOMMENDED PUMP SETTING: 024 FEET  
 RECOMMENDED PUMPING RATE: 0005 GPM



54 FINAL STATUS OF WELL:  WATER SUPPLY

55-56 WATER USE:  DOMESTIC

57 METHOD OF DRILLING:  CABLE TOOL

CONTRACTOR: Faulkner Well Drilling Co. Ltd  
 ADDRESS: 789 Erskine Ave., Peterborough, Ont.  
 NAME OF DRILLER OR BOREH: Robert Verheul  
 SIGNATURE OF CONTRACTOR: [Signature]  
 SUBMISSION DATE: 10 MO 11 YR 75

OFFICE USE ONLY

DATA SOURCE: 1  
 CONTRACTOR: 2104  
 DATE RECEIVED: 09 25 75  
 DATE OF INSPECTION: [Blank]  
 INSPECTOR: [Blank]  
 REMARKS: [Blank]  
 P [Signature]  
 WI



Ontario

# WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK  CORRECT BOX WHERE APPLICABLE

11 5107755 51.008 CAN 03

COUNTY OR DISTRICT: Peterborough  
 TOWNSHIP: Dummer  
 CON. BLOCK, TRACT, SURVEY ETC.: 3  
 DATE COMPLETED: DAY 11 MO 12 YR 75  
 R. 2, Lakefield, Ont.  
 33.950 5 0900 6 24

### LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
		<u>DUG WELL</u>		0	15
Lt. Brown	Limestone		Porous	15	24

31 0015 24 002461580

41 WATER RECORD

DEPTH FOUND AT - FEET	KIND OF WATER
10-15	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
15-18	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
20-22	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
25-26	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL
30-33	<input type="checkbox"/> FRESH <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAMETER INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/2	<input checked="" type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE	.188	0	16
06				0016
17-18	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE			20-22
24-25	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE			27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
31-33	34-38	39-40

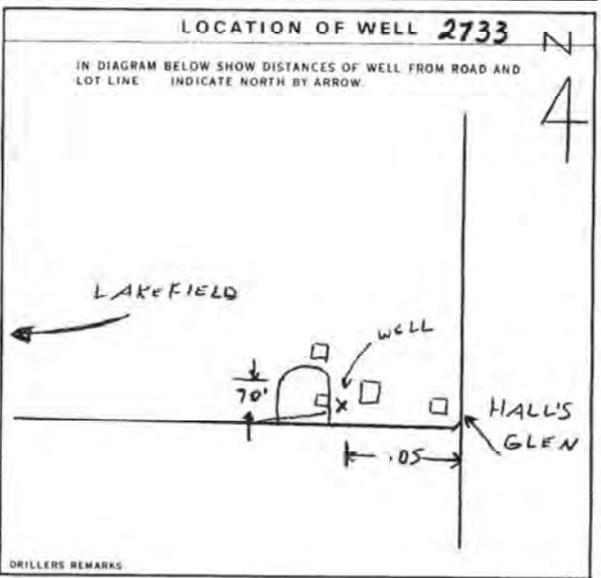
MATERIAL AND TYPE: \_\_\_\_\_  
 DEPTH TO TOP OF SCREEN: 41-44 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	16-17	
18-21	22-23	
24-28	30-33	80

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE GPM	DURATION OF PUMPING	
		15-16 HOURS	30 17-18 MINS
<input type="checkbox"/> PUMP <input checked="" type="checkbox"/> BAILER	0003	05	30
STATIC LEVEL	23	WATER LEVELS DURING	
19-21	013	15 MINUTES	30 MINUTES
22-24	019	45 MINUTES	60 MINUTES
24-26	013	29-31	32-34
26-28	013	35-37	38-40
IF FLOWING, GIVE RATE		PUMP INTAKE SET AT	WATER AT END OF TEST
		23	
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE	
<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	023	0003	



FINAL STATUS OF WELL:  WATER SUPPLY

WATER USE: 01

METHOD OF DRILLING:  CABLE TOOL

CONTRACTOR: Faulkner Well Drilling Co. Ltd  
 789 Erskine Ave., Peterborough, Ont.  
 Robert Verheul  
 DAY 16 MO 12 YR 75

OFFICE USE ONLY

DATE SOURCE: 1 CONTRACTOR: 2104 DATE RECEIVED: 29 12 75

REMARKS: P G.V. WI



Ontario

# WATER WELL RECORD

31002

1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK  CORRECT BOX WHERE APPLICABLE

11 5108125 51008 CAN 03  
 COUNTY OR DISTRICT: PETERBOROUGH TOWNSHIP, BOROUGH CITY, VILLAGE: DURON DUMMER  
 MUNICIPAL BLOCK TRACT SURVEY ETC: \* 32R  
 DATE COMPLETED: DAY 15 MONTH 08 YEAR 25  
 ELEVATION: 33.100 5 0900 6 24

### LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	SAND	STONES		0	8
"	LIME STONE			8	13
GREY	"	"		13	25
BROWN	"	SHALE		25	27

31 000812812 00136115 0025215 002761517  
 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
15-18	1 <input checked="" type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

HOLE DIA. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
8.75	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	1.38	0	0008
06	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		8	27

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER, ETC.
10-13		
18-21		
26-29		

71 PUMPING TEST

PUMPING TEST METHOD: 1  PUMP 2  BAILER

PUMPING RATE: 0008 GPM

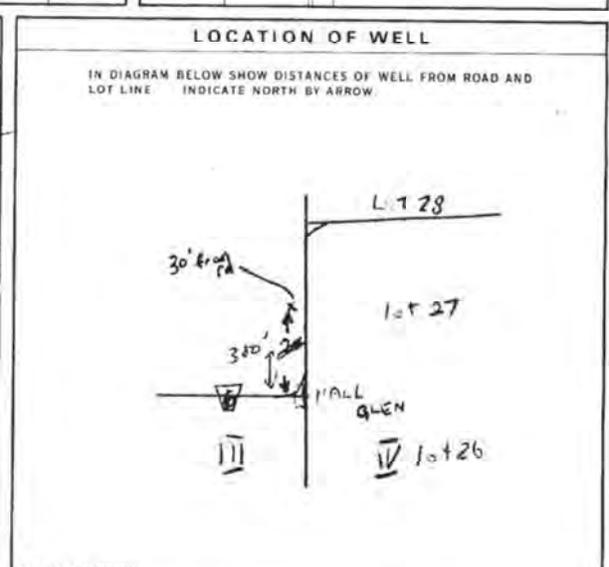
DURATION OF PUMPING: 02 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
017	023	15 MINUTES: 28-28 30 MINUTES: 29-31 45 MINUTES: 32-34 60 MINUTES: 35-37

RECOMMENDED PUMP TYPE:  SHALLOW  DEEP

RECOMMENDED PUMP SETTING: 025 FEET

RECOMMENDED PUMPING RATE: 0005 GPM



FINAL STATUS OF WELL: 1  WATER SUPPLY 2  OBSERVATION WELL 3  TEST HOLE 4  RECHARGE WELL

WATER USE: 1  DOMESTIC 2  STOCK 3  IRRIGATION 4  INDUSTRIAL 5  OTHER

METHOD OF DRILLING: 1  CABLE TOOL 2  ROTARY (CONVENTIONAL) 3  ROTARY (REVERSE) 4  ROTARY (AIR) 5  AIR PERCUSSION 6  BORING 7  DIAMOND 8  JETTING 9  DRIVING

CONTRACTOR: D.E. ELVIDGE WELL DRILLING 1904  
 ADDRESS: P.O. Box 93 NT 30  
 NAME OF DRILLER OR BORER: MIKE ELVIDGE  
 SIGNATURE OF CONTRACTOR: [Signature]  
 SUBMISSION DATE: DAY \_\_\_\_\_ MO. \_\_\_\_\_ YR. \_\_\_\_\_

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 1904 DATE RECEIVED: 16 09 76  
 DATE OF INSPECTION: \_\_\_\_\_ INSPECTOR: \_\_\_\_\_  
 REMARKS: \_\_\_\_\_  
 WI





# WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK  CORRECT BOX WHERE APPLICABLE

11

5113996

MUNICIP 51008

CON 104

COUNTY OR DISTRICT Wes TOWNSHIP Dimmer CON. BLOCK TRACT LOT 4 LOT 27  
RR#2 LAKEFIELD DATE COMPLETED 30 MO 07 89  
 NO. BC. ELEVATION BC. BASIN CODE

### LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<u>Brown</u>	<u>Clay</u>	<u>Boulders</u>		<u>0</u>	<u>8</u>
<u>Green</u>	<u>Limestone</u>			<u>8</u>	<u>45</u>

31  
32

#### 41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER					
<u>41</u>	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	
	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERALS	<input type="checkbox"/> GAS	

#### 51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WELL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
<u>1 1/2</u>	<u>STEEL</u>	<u>1.88</u>	<u>0</u>	<u>20</u>
	<input type="checkbox"/> GALVANIZED			
	<input type="checkbox"/> CONCRETE			
	<input type="checkbox"/> OPEN HOLE			
	<input type="checkbox"/> PLASTIC			

#### SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

#### 61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	PLACEMENT METHOD (CROUT, LEAD PACKER, ETC.)

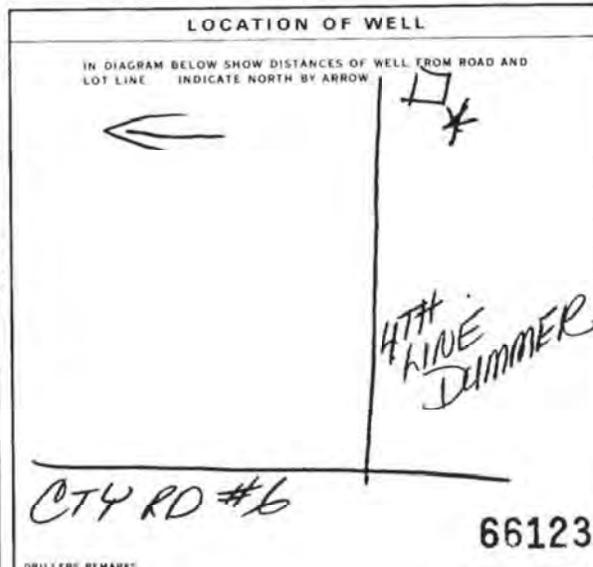
#### 71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE GPM	DURATION OF PUMPING HOURS
<input checked="" type="checkbox"/> AIR	<u>10</u>	<u>1</u>
<input type="checkbox"/> BAILER		

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING				
<u>10</u> FEET	<u>45</u> FEET	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES	
		<u>10</u> FEET	<u>10</u> FEET	<u>10</u> FEET	<u>10</u> FEET	

IF FLOWING GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
<u>45</u> GPM	<u>45</u> FEET	<input checked="" type="checkbox"/> CLEAR <input type="checkbox"/> CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input checked="" type="checkbox"/> SHALLOW <input type="checkbox"/> DEEP	<u>40</u> FEET	<u>5</u> GPM



#### FINAL STATUS OF WELL

WATER SUPPLY  ABANDONED - INSUFFICIENT SUPPLY  
 OBSERVATION WELL  ABANDONED - POOR QUALITY  
 TEST HOLE  UNFINISHED  
 RECHARGE WELL  DEWATERING

#### WATER USE

DOMESTIC  COMMERCIAL  
 STOCK  MUNICIPAL  
 IRRIGATION  PUBLIC SUPPLY  
 INDUSTRIAL  COOLING OR AIR CONDITIONING  
 OTHER  NOT USED

#### METHOD OF CONSTRUCTION

CABLE TOOL  BORING  
 ROTARY (CONVENTIONAL)  DIAMOND  
 ROTARY (REVERSE)  JETTING  
 ROTARY (AIR)  DRIVING  
 AIR PERCUSSION  DIGGING  OTHER

#### CONTRACTOR

NAME OF WELL CONTRACTOR Alvin's Drilling WELL CONTRACTOR'S LICENCE NUMBER 1748  
 ADDRESS RR#2 Ingleton, Ont  
 NAME OF WELL TECHNICIAN Bob Bueck WELL TECHNICIAN'S LICENCE NUMBER 10436  
 SIGNATURE OF TECHNICIAN/CONTRACTOR [Signature] SUBMISSION DATE \_\_\_\_\_

#### OFFICE USE ONLY

DATA SOURCE 1748 CONTRACTOR 1748 DATE RECEIVED AUG 14 1989  
 DATE OF INSPECTION \_\_\_\_\_ INSPECTOR \_\_\_\_\_  
 REMARKS \_\_\_\_\_



1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK  CORRECT BOX WHERE APPLICABLE

11 5115626 MUNICIPAL 51008 CON 104

COUNTY OR DISTRICT <b>Peterborough</b>	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE <b>Dummer</b>	CON. BLOCK, TRACT, SURVEY, ETC. <b>Conc. 4</b>	LOT <b>26</b>
OWNER (SURNAME FIRST) <b>Dummer Twp.</b>	ADDRESS <b>Dummer Twp. Landfill Hole #1</b>	DATE COMPLETED DAY <b>27</b> MO <b>6</b> YR <b>91</b>	

U 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
--------	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Clay	Gravel	Hard	0	2
Grey	Gravel		Dry	2	6 1/2
Grey	Limestone			6 1/2	20
Brown	Shale		Water Bearing	20	22

31	32
----	----

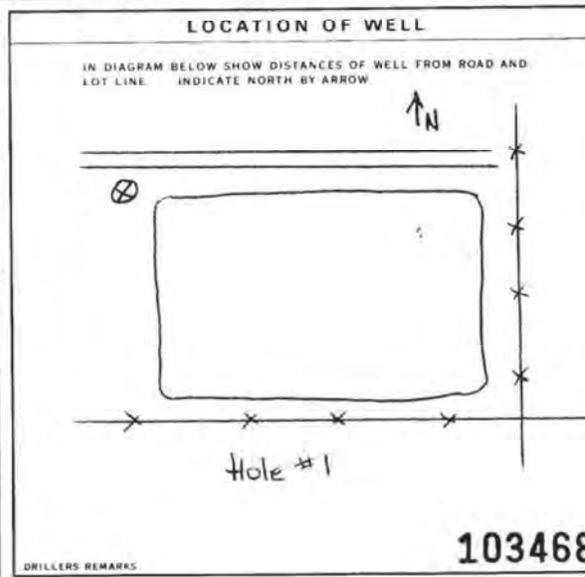
41 WATER RECORD	
WATER FOUND AT - FEET	KIND OF WATER
10-13	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD			
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET
6 1/2"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	.188	+3 3
2"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	PVC	+3 107
1 1/2"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	PVC	+3 1 1/2

SCREEN	SIZE OF OPENING / SLOT NO.	DIAMETER	LENGTH
		2" / 1 1/2" / 5"	5' / 5' FEET
	MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN	
	Plastic PVC	17 / 1 1/2 FEET	

61 PLUGGING & SEALING RECORD			
DEPTH SET AT FEET	MATERIAL AND TYPE	COMPLETION GROUP	LEAD PACKER ETC.
7 1/2	6 1/2	Holeplug	
6"	0	Holeplug	

71 PUMPING TEST	PUMPING TEST METHOD	1 <input type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER
	STATIC LEVEL	19-21 FEET
	WATER LEVEL END OF PUMPING	22-24 FEET
	WATER LEVELS DURING	15 MINUTES: 26-28 FEET 30 MINUTES: 29-31 FEET 45 MINUTES: 32-34 FEET 60 MINUTES: 35-37 FEET
IF FLOWING GIVE RATE	28-31 GPM	PUMP INTAKE SET AT
RECOMMENDED PUMP TYPE	<input type="checkbox"/> SHALLOW <input type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING



FINAL STATUS OF WELL	1 <input type="checkbox"/> WATER SUPPLY 2 <input checked="" type="checkbox"/> OBSERVATION WELL 3 <input type="checkbox"/> TEST HOLE 4 <input type="checkbox"/> RECHARGE WELL	5 <input type="checkbox"/> ABANDONED - INSUFFICIENT SUPPLY 6 <input type="checkbox"/> ABANDONED - POOR QUALITY 7 <input type="checkbox"/> UNFINISHED 8 <input type="checkbox"/> DEWATERING
WATER USE	1 <input type="checkbox"/> DOMESTIC 2 <input type="checkbox"/> STOCK 3 <input type="checkbox"/> IRRIGATION 4 <input type="checkbox"/> INDUSTRIAL 5 <input checked="" type="checkbox"/> OTHER <i>monitoring</i>	6 <input type="checkbox"/> COMMERCIAL 7 <input type="checkbox"/> MUNICIPAL 8 <input type="checkbox"/> PUBLIC SUPPLY 9 <input type="checkbox"/> COOLING OR AIR CONDITIONING 10 <input type="checkbox"/> NOT USED
METHOD OF CONSTRUCTION	1 <input checked="" type="checkbox"/> CABLE TOOL 2 <input type="checkbox"/> ROTARY (CONVENTIONAL) 3 <input type="checkbox"/> ROTARY (REVERSE) 4 <input type="checkbox"/> ROTARY (AIR) 5 <input type="checkbox"/> AIR PERCUSSION	6 <input type="checkbox"/> BORING 7 <input type="checkbox"/> DIAMOND 8 <input type="checkbox"/> JETTING 9 <input type="checkbox"/> DRIVING 10 <input type="checkbox"/> DIGGING <input type="checkbox"/> OTHER

CONTRACTOR	NAME OF WELL CONTRACTOR <b>G. Hart &amp; Sons Well Drilling Ltd.</b>	WELL CONTRACTOR'S LICENCE NUMBER <b>2662</b>
	ADDRESS <b>Box 850, R.R.#1, Fenelon Falls, Ont. K0M 1N0</b>	
	NAME OF WELL TECHNICIAN <b>Dave MacDonald</b>	WELL TECHNICIAN'S LICENCE NUMBER
	SIGNATURE OF TECHNICIAN/CONTRACTOR <i>Dave MacDonald</i>	SUBMISSION DATE

OFFICE USE ONLY	DATE SOURCE	CONTRACTOR	DATE RECEIVED
		<b>2662</b>	<b>JAN 10 1992</b>
	DATE OF INSPECTION	INSPECTOR	
	REMARKS		



1 PRINT ONLY IN SPACES PROVIDED  
2 CHECK  CORRECT BOX WHERE APPLICABLE

11 5115627 MUNICIPAL 51008 CON 104

COUNTY OR DISTRICT <b>Peterborough</b>	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE <b>Dummer</b>	CONC. <b>4</b>	LOT <b>26</b>
OWNER (SU-NAME FIRST) <b>Dummer Twp.</b>	ADDRESS <b>Dummer Twp. Landfill Site Hole #6</b>	DATE COMPLETED DAY <b>9</b> MO <b>7</b> YR <b>91</b>	

21

ZONE EASTING NORTHING BC ELEVATION RC BASIN CODE II III IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Sandy	Soil		0	2
Brown	Sandy	Gravel		2	9
Grey	Limestone			9	17
Brown	Shale		Water	17	19

31

32

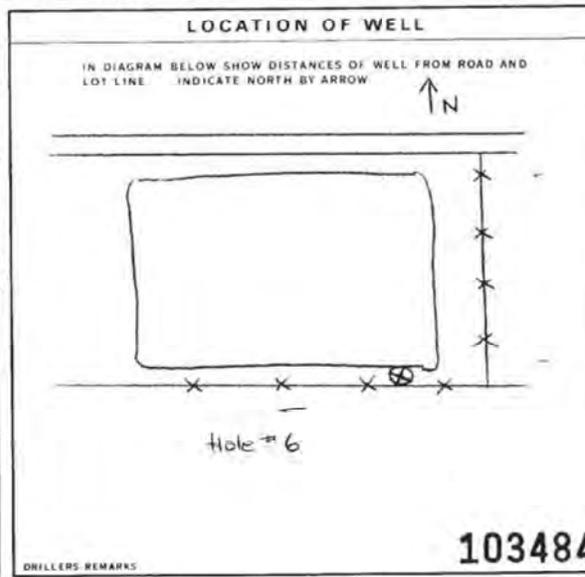
41 WATER RECORD	
WATER FOUND AT - FEET	KIND OF WATER
17	1 FRESH 3 SULPHUR 2 SALTY 4 MINERALS Untested 6 GAS
20-23	1 FRESH 3 SULPHUR 2 SALTY 4 MINERALS 6 GAS
25-24	1 FRESH 3 SULPHUR 2 SALTY 4 MINERALS 6 GAS
30-33	1 FRESH 3 SULPHUR 2 SALTY 4 MINERALS 6 GAS

51 CASING & OPEN HOLE RECORD				
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/2	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC	.188	+3	3
2	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC		+3	16
1 1/2	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC		+3	6

SCREEN	SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
		2" / 1 1/2"	5' / 6' / 1'
	MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN	
	Plastic PVC	16/6	

61 PLUGGING & SEALING RECORD			
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)	
FROM	TO		
10	9	Holeplug	
6	0	Holeplug	

71 PUMPING TEST	PUMPING TEST METHOD	1 PUMP 2 BAILER	PUMPING RATE	15-18 GPM 17-18 MFL
	STATIC LEVEL	19-21 FEET	WATER LEVELS DURING	1 PUMPING 2 RECOVERY
	IF FLOWING GIVE RATE	30-31 GPM	PUMP INTAKE SET AT	FEET
	RECOMMENDED PUMP TYPE	SHALLOW DEEP	RECOMMENDED PUMP SETTING	FEET



FINAL STATUS OF WELL	1 WATER SUPPLY 2 OBSERVATION WELL 3 TEST HOLE 4 RECHARGE WELL	5 ABANDONED INSUFFICIENT SUPPLY 6 ABANDONED POOR QUALITY 7 UNFINISHED 8 DEWATERING
WATER USE	1 DOMESTIC 2 STOCK 3 IRRIGATION 4 INDUSTRIAL 5 OTHER	5 COMMERCIAL 6 MUNICIPAL 7 PUBLIC SUPPLY 8 COOLING OR AIR CONDITIONING 9 NOT USED
METHOD OF CONSTRUCTION	1 CABLE TOOL 2 ROTARY (CONVENTIONAL) 3 ROTARY (REVERSE) 4 ROTARY (AIR) 5 AIR PERCUSSION	6 BORING 7 DIAMOND 8 JETTING 9 DRIVING 10 DIGGING 11 OTHER

CONTRACTOR	NAME OF WELL CONTRACTOR <b>G. Hart &amp; Sons Well Drilling Ltd.</b>	WELL CONTRACTOR'S LICENCE NUMBER <b>2662</b>
	ADDRESS <b>Box 850, R.R.#1, Fenelon Falls, Ont. K0M 1N0</b>	
	NAME OF WELL TECHNICIAN <b>Dave MacDon</b>	WELL TECHNICIAN'S LICENCE NUMBER
	SIGNATURE OF TECHNICIAN/CONTRACTOR <i>Dave MacDon</i>	SUBMISSION DATE DAY _____ MO _____ YR _____

OFFICE USE ONLY	DATA SOURCE	CONTRACTOR <b>2662</b>	DATE RECEIVED <b>JAN 10 1992</b>
	DATE OF INSPECTION	INSPECTOR	
	REMARKS		



# WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK  CORRECT BOX WHERE APPLICABLE

11 5115628 51008 CON 04

COUNTY OR DISTRICT <b>Peterborough</b>	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE <b>Dummer</b>	CON. BLK. TRACT SURVEY ETC. <b>Conc. 4</b>	LOT <b>26</b>
OWNER (SURNAME FIRST) <b>Dummer Twp.</b>	ADDRESS <b>Dummer Twp. Landfill Site Hole #5</b>	DATE COMPLETED DAY <b>3</b> MO <b>7</b> YR <b>91</b>	

21 U ZONE EASTING NORTHING FC ELEVATION MC BASIN CODE II III IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Sandy	Clay		0	6
Brown	Sandy	Gravel		6	10½
Brown	Sandy	Clay		10½	12
Grey	Limestone			12	23

31 32

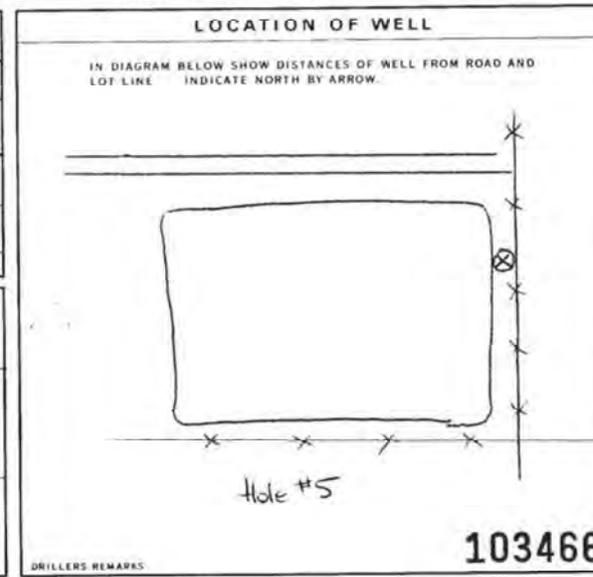
41 WATER RECORD	
WATER FOUND AT - FEET	KIND OF WATER
21	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS <b>untreated</b>
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 6 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD				
INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET	
			FROM	TO
6½"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	.188	+3	3
2"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		+3	18
1½"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		+3	3

SCREEN	SIZE OF OPENING (SLOT NO.)	DIAMETER	LENGTH
		2" / 1½" INCHES	5' / 9' FEET
	MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN	
	Plastic PVC	18/3 FEET	

61 PLUGGING & SEALING RECORD			
DEPTH SET AT FEET		MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)	
FROM	TO		
13	12	Holeplug	
6"	0	Holeplug	

71 PUMPING TEST	
PUMPING TEST METHOD	PUMPING RATE
1 <input type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	GPM
STATIC LEVEL	WATER LEVELS DURING
18-21	15 MINUTES 28-28
22-24	30 MINUTES 29-31
25-28	45 MINUTES 32-34
29-31	60 MINUTES 35-37
IF FLOWING GIVE RATE	PUMP INTAKE SET AT
38-41	FEET
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING
<input type="checkbox"/> SHALLOW <input type="checkbox"/> DEEP	FEET



FINAL STATUS OF WELL	1 <input type="checkbox"/> WATER SUPPLY 2 <input checked="" type="checkbox"/> OBSERVATION WELL 3 <input type="checkbox"/> TEST HOLE 4 <input type="checkbox"/> RECHARGE WELL	5 <input type="checkbox"/> ABANDONED - INSUFFICIENT SUPPLY 6 <input type="checkbox"/> ABANDONED - POOR QUALITY 7 <input type="checkbox"/> UNFINISHED 8 <input type="checkbox"/> DEWATERING
WATER USE	1 <input type="checkbox"/> DOMESTIC 2 <input type="checkbox"/> STOCK 3 <input type="checkbox"/> IRRIGATION 4 <input type="checkbox"/> INDUSTRIAL 5 <input checked="" type="checkbox"/> OTHER <i>monitoring</i>	6 <input type="checkbox"/> COMMERCIAL 7 <input type="checkbox"/> MUNICIPAL 8 <input type="checkbox"/> PUBLIC SUPPLY 9 <input type="checkbox"/> COOLING OR AIR CONDITIONING 10 <input type="checkbox"/> NOT USED
METHOD OF CONSTRUCTION	1 <input checked="" type="checkbox"/> CABLE TOOL 2 <input type="checkbox"/> ROTARY (CONVENTIONAL) 3 <input type="checkbox"/> ROTARY (REVERSE) 4 <input type="checkbox"/> ROTARY (AIR) 5 <input type="checkbox"/> AIR PERCUSSION	6 <input type="checkbox"/> BORING 7 <input type="checkbox"/> DIAMOND 8 <input type="checkbox"/> JETTING 9 <input type="checkbox"/> DRIVING 10 <input type="checkbox"/> DIGGING <input type="checkbox"/> OTHER

CONTRACTOR	NAME OF WELL CONTRACTOR <b>G. Hart &amp; Sons Well Drilling Ltd.</b>	WELL CONTRACTOR'S LICENCE NUMBER <b>2662</b>
	ADDRESS <b>Box 850, R.R.#1, Fenelon Falls, Ont. K0M 1N0</b>	
	NAME OF WELL TECHNICIAN <b>Dave MacDonald</b>	WELL TECHNICIAN'S LICENCE NUMBER
	SIGNATURE OF TECHNICIAN/CONTRACTOR <i>Dave MacDonald</i>	SUBMISSION DATE DAY _____ MO _____ YR _____

OFFICE USE ONLY	DATA SOURCE	CONTRACTOR	DATE RECEIVED
		<b>2662</b>	<b>JAN 10 1992</b>
	DATE OF INSPECTION	INSPECTOR	
	REMARKS		





# WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK  CORRECT BOX WHERE APPLICABLE

11 5115630 MUNICIPAL DISTRICT 51008 CON. 104

COUNTY OR DISTRICT: [REDACTED] TOWNSHIP BOROUGH CITY TOWN VILLAGE: [REDACTED] CONC. 4  
DATE COMPLETED: DAY 8 MO 7 YR 91  
Hole #3

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Sandy	Clay		0	3
Brown	Gravel	Cobble/Clay	Hard	3	5
Grey	Limestone			5	14

31  
32

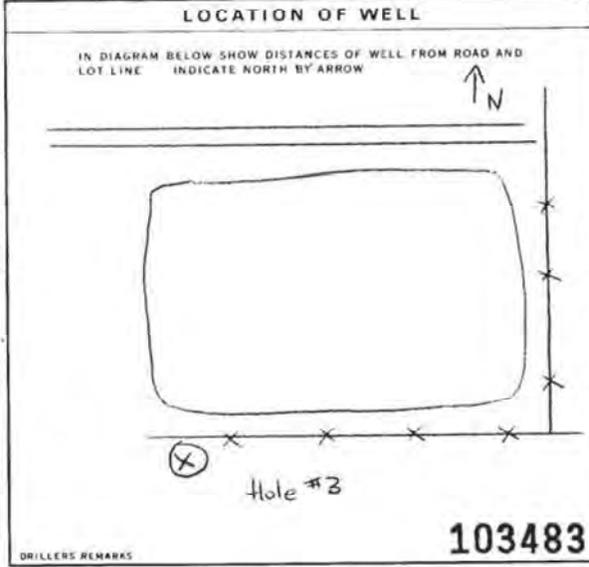
41 WATER RECORD	
WATER FOUND AT - FEET	KIND OF WATER
10-13	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD				
IN-SD. DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/4"	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	.188	+3	3
2"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		+3	9
1 1/2"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC		+3	0

SCREEN	SIZE/NO. OF OPENING (SLOT NO.)	DIAMETER	LENGTH
		2" / 1 1/2" S.S.	5' / 5' S.S.
	MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN
	Plastic PVC		41-88
			9/0 FEET

61 PLUGGING & SEALING RECORD			
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT / GROUT / LEAD PACKER ETC.)	
FROM	TO		
6	5	Holeplug	
6	0	Holeplug	

71 PUMPING TEST	
PUMPING TEST METHOD	PUMPING RATE
1 <input type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	GPM
15-16 HOURS	17-18 MINS.
STATIC LEVEL	WATER LEVELS DURING
19-21 FEET	15 MINUTES 26-28 FEET
	30 MINUTES 29-31 FEET
	45 MINUTES 32-34 FEET
	60 MINUTES 35-37 FEET
IF FLOWING GIVE RATE	PUMP INTAKE SET AT
GPM	FEET
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING
1 <input type="checkbox"/> SHALLOW 2 <input type="checkbox"/> DEEP	FEET
	DATE
	GPM



34 FINAL STATUS OF WELL	
1 <input type="checkbox"/> WATER SUPPLY	5 <input type="checkbox"/> ABANDONED INSUFFICIENT SUPPLY
2 <input checked="" type="checkbox"/> OBSERVATION WELL	6 <input type="checkbox"/> ABANDONED POOR QUALITY
3 <input type="checkbox"/> TEST HOLE	7 <input type="checkbox"/> UNFINISHED
4 <input type="checkbox"/> RECHARGE WELL	8 <input type="checkbox"/> DEWATERING

35-36 WATER USE	
1 <input type="checkbox"/> DOMESTIC	5 <input type="checkbox"/> COMMERCIAL
2 <input type="checkbox"/> STOCK	6 <input type="checkbox"/> MUNICIPAL
3 <input type="checkbox"/> IRRIGATION	7 <input type="checkbox"/> PUBLIC SUPPLY
4 <input type="checkbox"/> INDUSTRIAL	8 <input type="checkbox"/> COOLING OR AIR CONDITIONING
9 <input checked="" type="checkbox"/> OTHER	10 <input type="checkbox"/> NOT USED

37 METHOD OF CONSTRUCTION	
1 <input checked="" type="checkbox"/> CABLE TOOL	4 <input type="checkbox"/> BORING
2 <input type="checkbox"/> ROTARY (CONVENTIONAL)	5 <input type="checkbox"/> DIAMOND
3 <input type="checkbox"/> ROTARY (REVERSE)	6 <input type="checkbox"/> JETTING
4 <input type="checkbox"/> ROTARY (AIR)	7 <input type="checkbox"/> DRIVING
8 <input type="checkbox"/> AIR PERCUSSION	9 <input type="checkbox"/> DIGGING
	10 <input type="checkbox"/> OTHER

CONTRACTOR	
NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENCE NUMBER
G. Hart & Sons Well Drilling Ltd.	2662
ADDRESS	
Box 850, R.R.#1, Fenelon Falls, Ont. K0M 1N0	
NAME OF WELL TECHNICIAN	WELL TECHNICIAN'S LICENCE NUMBER
Dave MacDonald	
SIGNATURE OF TECHNICIAN/CONTRACTOR	SUBMISSION DATE
<i>Dave MacDonald</i>	DAY _____ MO _____ YR _____

OFFICE USE ONLY	
DATE SOURCE	CONTRACTOR
	2662
DATE OF INSPECTION	DATE RECEIVED
	JAN 10 1992
REMARKS	INSPECTOR



1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK  CORRECT BOX WHERE APPLICABLE

11 5115631 MUNICIPAL 51008 CON 104

COUNTY OR DISTRICT <b>Peterborough</b>	TOWNSHIP BOROUGH CITY TOWN VILLAGE <b>Dummer</b>	CONC. BLOCK TRACT SURVEY ETC <b>Conc. 4</b>	LOT <b>26</b>
OWNER (SURNAME FIRST) <b>Dummer Twp.</b>	ADDRESS <b>Dummer Twp. Landfill Site Hole #2</b>	DATE COMPLETED DAY <b>28</b> MO <b>6</b> YR <b>91</b>	

21

ZONE	EASTING	NORTHING	RC	ELEVATION	RC	BASE CODE	II	III	IV
------	---------	----------	----	-----------	----	-----------	----	-----	----

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)				DEPTH - FEET	
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	FROM	TO
Brown	Sand	Cobble	Fill	0	4
	Garbage			4	10
Brown	Sand	Cobble		10	16
Grey	Gravel			16	18
Brown	Shale		Wet	18	22
Grey	Limestone			22	28
Brown	Shale		Water Bearing	28	30

31

32

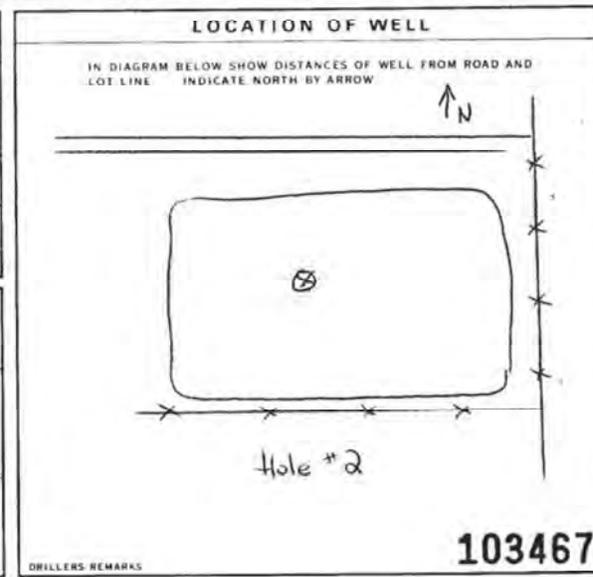
41 WATER RECORD	
WATER FOUND AT - FEET	KIND OF WATER
10-13 <b>28</b>	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
15-18 <b>untested</b>	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
24-24	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERALS 5 <input type="checkbox"/> GAS

51 CASING & OPEN HOLE RECORD			
INSIDE DIAM. INCHES	MATERIAL	WELL THICKNESS INCHES	DEPTH FEET
6 1/2"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	.188	+3 3
2"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	PVC	+3 25
1 1/2"	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE 5 <input type="checkbox"/> PLASTIC	PVC	+3 4

31-32 SIZE/ST. OF OPENING (SLOT NO. 1)	33-34 DIAMETER	35-36 LENGTH
	<b>2" / 1 1/2"</b>	<b>5' / 15'</b>
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN
<b>PVC Plastic</b>		<b>25/4</b>

61 PLUGGING & SEALING RECORD			
DEPTH SET AT - FEET		MATERIAL AND TYPE (TYPICALLY SHOW LEAD PACKER ETC.)	
FROM	TO		
24	23	Holeplug	
6"	0	Holeplug	

71 PUMPING TEST	PUMPING TEST METHOD	10	PUMPING RATE	11-14	DURATION OF PUMPING	15-16	17-18
	1 <input type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER		GPM		HOURS	MIN.	
	STATIC LEVEL	19-21	WATER LEVEL END OF PUMPING	22-24	WATER LEVELS DURING	25-37	1 <input type="checkbox"/> PUMPING 2 <input type="checkbox"/> RECOVERY
	FEET	FEET	FEET	FEET	FEET	FEET	
	IF FLOWING GIVE RATE	38-41	PUMP INTAKE SET AT	42-43	WATER AT END OF TEST	44-45	1 <input type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY
	GPM	FEET	FEET	FEET	FEET		
	RECOMMENDED PUMP TYPE	46-49	RECOMMENDED PUMP SETTING	50-53	RECOMMENDED PUMPING RATE	54-57	GPM
	<input type="checkbox"/> SHALLOW <input type="checkbox"/> DEEP	FEET	FEET	FEET	FEET		



84 FINAL STATUS OF WELL	1 <input checked="" type="checkbox"/> WATER SUPPLY	5 <input type="checkbox"/> ABANDONED INSUFFICIENT SUPPLY
	2 <input type="checkbox"/> OBSERVATION WELL	6 <input type="checkbox"/> ABANDONED POOR QUALITY
	3 <input type="checkbox"/> TEST HOLE	7 <input type="checkbox"/> UNFINISHED
85-86 WATER USE	1 <input type="checkbox"/> DOMESTIC	5 <input type="checkbox"/> COMMERCIAL
	2 <input type="checkbox"/> STOCK	6 <input type="checkbox"/> MUNICIPAL
	3 <input type="checkbox"/> IRRIGATION	7 <input type="checkbox"/> PUBLIC SUPPLY
87 METHOD OF CONSTRUCTION	1 <input checked="" type="checkbox"/> CABLE TOOL	4 <input type="checkbox"/> BORING
	2 <input type="checkbox"/> ROTARY (CONVENTIONAL)	5 <input type="checkbox"/> DIAMOND
	3 <input type="checkbox"/> ROTARY (REVERSE)	6 <input type="checkbox"/> JETTING
	4 <input type="checkbox"/> ROTARY (AIR)	7 <input type="checkbox"/> DRIVING
	5 <input type="checkbox"/> AIR PERCUSSION	8 <input type="checkbox"/> DIGGING <input type="checkbox"/> OTHER

CONTRACTOR	NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENCE NUMBER
	<b>G. Hart &amp; Sons Well Drilling Ltd.</b>	<b>2662</b>
	ADDRESS	
	<b>Box 850, R.R.#1, Fenelon Falls, Ont. K0M 1N0</b>	
	NAME OF WELL TECHNICIAN	WELL TECHNICIAN'S LICENCE NUMBER
	<b>Dave MacDonald</b>	
	SIGNATURE OF TECHNICIAN/CONTRACTOR	SUBMISSION DATE
	<i>Dave MacDonald</i>	DAY _____ MO _____ YR _____

OFFICE USE ONLY	DATE SOURCE	18	CONTRACTOR	42	DATE RECEIVED	43-44	45-46
	<b>2662</b>		<b>JAN 10 1992</b>				
	DATE OF INSPECTION	INSPECTION					
REMARKS							
<b>CSS.ES</b>							

Print only in spaces provided.  
Mark correct box with a checkmark, where applicable.

11

5117608

Municipality 51008 Con 04  
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

County or District <b>Peterborough</b>		Township/Borough/City/Town/Village <b>Dummer Twp., Hall Glen Landfill</b>		Con block tract survey, etc. <b>Con.4</b>	Lot <b>26</b>
Owner's surname <b>Township of Dummer</b>	First name	Address <b>C/O Totten Sims Hubicki Assoc. 300 Water St., Whitby, Ont. L1N 9J2</b>		Date completed <b>18 03 97</b>	day month year

21 Zone Easting Northing RC Elevation RC Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Black	Topsoil	stones	soft	0	1
Brown	Gravelly Clay	stones	soft-caving	1	9
Brown	Shale		soft	9	14
Gray	Limestone		hard	14	18
Brown	Limestone		very hard	18	22½
* Finished depth @ 21 ft.					

31  
32

<b>41 WATER RECORD</b> Water found at - feet <b>9</b> 18PM <b>18</b> 10 8PM Kind of water <input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur Minerals <input type="checkbox"/> Salty <input type="checkbox"/> Gas <input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur Minerals <input type="checkbox"/> Salty <input type="checkbox"/> Gas <input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur Minerals <input type="checkbox"/> Salty <input type="checkbox"/> Gas <input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur Minerals <input type="checkbox"/> Salty <input type="checkbox"/> Gas <input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur Minerals <input type="checkbox"/> Salty <input type="checkbox"/> Gas		<b>51 CASING &amp; OPEN HOLE RECORD</b> <table border="1"> <tr> <th>Inside diam inches</th> <th>Material</th> <th>Wall thickness inches</th> <th colspan="2">Depth - feet</th> </tr> <tr> <td>6½</td> <td>Steel Galvanized Concrete Open hole Plastic</td> <td>.188</td> <td>+ 2</td> <td>3</td> </tr> <tr> <td>2</td> <td>Steel Galvanized Concrete Open hole Plastic</td> <td>Pieso</td> <td>+ 2</td> <td>16</td> </tr> <tr> <td>2</td> <td>Steel Galvanized Concrete Open hole Plastic</td> <td>Pieso</td> <td>+ 2</td> <td>4</td> </tr> </table>		Inside diam inches	Material	Wall thickness inches	Depth - feet		6½	Steel Galvanized Concrete Open hole Plastic	.188	+ 2	3	2	Steel Galvanized Concrete Open hole Plastic	Pieso	+ 2	16	2	Steel Galvanized Concrete Open hole Plastic	Pieso	+ 2	4	<b>SCREEN</b> Sizes of opening (Slot No.) <b>10</b> Diameter <b>2</b> inches Length <b>2@ 5</b> feet Material and type <b>PVC</b> Depth at top of screen <b>4 &amp; 16</b> feet	
Inside diam inches	Material	Wall thickness inches	Depth - feet																						
6½	Steel Galvanized Concrete Open hole Plastic	.188	+ 2	3																					
2	Steel Galvanized Concrete Open hole Plastic	Pieso	+ 2	16																					
2	Steel Galvanized Concrete Open hole Plastic	Pieso	+ 2	4																					
<b>61 PLUGGING &amp; SEALING RECORD</b> <input checked="" type="checkbox"/> Annular space <input type="checkbox"/> Abandonment Depth set at - feet <table border="1"> <tr> <th>From</th> <th>To</th> <th>Material and type (Cement grout, bentonite, etc.)</th> </tr> <tr> <td>0</td> <td>3</td> <td>Mud Slurry</td> </tr> <tr> <td>3</td> <td>4</td> <td>Bentonite</td> </tr> <tr> <td>4</td> <td>11</td> <td>Gravel</td> </tr> <tr> <td>11</td> <td>16</td> <td>Bentonite</td> </tr> <tr> <td>16</td> <td>22</td> <td>Gravel</td> </tr> <tr> <td>22</td> <td>22½</td> <td>Bentonite</td> </tr> </table>		From	To	Material and type (Cement grout, bentonite, etc.)	0	3	Mud Slurry	3	4	Bentonite	4	11	Gravel	11	16	Bentonite	16	22	Gravel	22	22½	Bentonite			
From	To	Material and type (Cement grout, bentonite, etc.)																							
0	3	Mud Slurry																							
3	4	Bentonite																							
4	11	Gravel																							
11	16	Bentonite																							
16	22	Gravel																							
22	22½	Bentonite																							

<b>71 PUMPING TEST</b> Pumping test method <input type="checkbox"/> Pump <input checked="" type="checkbox"/> Bailor Pumping rate <b>10</b> GPM Duration of pumping <b>30</b> minutes Static level <b>6</b> feet Water level end of pumping <b>11</b> feet Water levels during Pumping 15 minutes <b>11</b> feet 30 minutes <b>11</b> feet 45 minutes <b>11</b> feet 60 minutes <b>11</b> feet If flowing give rate <b>6</b> GPM Pump intake set at <b>11</b> feet Water at end of test <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy Recommended pump type <input type="checkbox"/> Shallow <input type="checkbox"/> Deep Recommended pump setting <b>11</b> feet Recommended pump rate <b>10</b> GPM	<b>FINAL STATUS OF WELL</b> <input type="checkbox"/> Water supply <input type="checkbox"/> Abandoned, insufficient supply <input type="checkbox"/> Unfinished <input checked="" type="checkbox"/> Observation well <input type="checkbox"/> Abandoned, poor quality <input type="checkbox"/> Replacement well <input type="checkbox"/> Test hole <input type="checkbox"/> Abandoned (Other) <input type="checkbox"/> Recharge well <input type="checkbox"/> Dewatering
---	--



<b>WATER USE</b> <input type="checkbox"/> Domestic <input type="checkbox"/> Commercial <input type="checkbox"/> Not used <input type="checkbox"/> Stock <input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Other <input type="checkbox"/> Irrigation <input type="checkbox"/> Public supply <input type="checkbox"/> Industrial <input type="checkbox"/> Cooling & air conditioning	<b>METHOD OF CONSTRUCTION</b> <input checked="" type="checkbox"/> Cable tool <input type="checkbox"/> Air percussion <input type="checkbox"/> Driving <input type="checkbox"/> Rotary (conventional) <input type="checkbox"/> Boring <input type="checkbox"/> Digging <input type="checkbox"/> Rotary (reverse) <input type="checkbox"/> Diamond <input type="checkbox"/> Other <input type="checkbox"/> Rotary (air) <input type="checkbox"/> Jetting
---	--

Name of Well Contractor <b>G.Hart &amp; Sons Well Drilling Ltd.</b>		Well Contractor's Licence No. <b>2662</b>		Data source <b>2662</b>		Date received <b>OCT 06 1997</b>	
Address <b>Box 850, Fenelon Falls, Ontario</b>		Name of Well Technician <b>Greg Bullock</b>		Well Technician's Licence No. <b>T-2108</b>		Date of inspection	
Signature of Technician/Contractor <i>Greg Bullock</i>		Submission date		Inspector		Remarks	
day mo yr							

Print only in spaces provided. Mark correct box with a checkmark, where applicable.

11

5118965

Municipality Con 51008 20N 04

County or District <b>Peterborough</b>	Township/Borough/City/Town/Village (BH-8) <b>Dummer Twp., Halls Glen-Landfill</b>	Con block tract survey, etc. <b>Con.4</b>	Lot <b>26</b>
Owner's surname <b>Township of Dummer</b>	First Name	Address <b>C/O TOTTEN SIMS HUBICKI ASSOC. 300 WATER ST., WHITBY, ON L1N 9J2</b>	
Date completed <b>1 11 01</b>		day month year	

21

Zone Easting Northing RC Elevation RC Basin Code II III IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Black	Topsoil			0	1
Brown	Gravel	sand		1	9
Brown	Gravel	stones		9	15
Brown	Rock		broken	15	17
Gray	Limestone			17	35

31

32

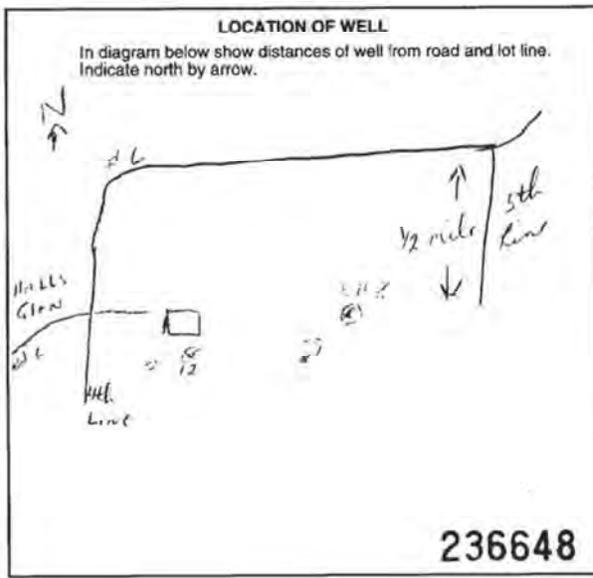
41 WATER RECORD	
Water found at - feet	Kind of water
19	<input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
28	<input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
20-30	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
25-28	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
30-33	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/2	<input checked="" type="checkbox"/> Steel <input checked="" type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic	.188	+2 1/2	17
2	<input type="checkbox"/> Steel <input checked="" type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input checked="" type="checkbox"/> Plastic	Pieso	+2 1/2	30
2	<input type="checkbox"/> Steel <input checked="" type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input checked="" type="checkbox"/> Plastic	Pieso	+2 1/2	17 1/2

Sizes of opening (Slot No.) <b>10</b>	Diameter <b>2</b> inches	Length <b>2 x 5</b> feet
Material and type <b>PVC</b>		Depth of top of screen <b>30, 17 1/2</b> feet

61 PLUGGING & SEALING RECORD		
<input checked="" type="checkbox"/> Annular space <input type="checkbox"/> Abandonment		
Depth set at - feet	Material and type (Cement grout, bentonite, etc.)	
From To		
0 17	<b>Bentonite &amp; Mudslurry</b>	
18-21		
20-29		

71 PUMPING TEST	
Pumping test method <input type="checkbox"/> Pump <input checked="" type="checkbox"/> Bailer	Pumping rate <b>8-10</b> GPM
Duration of pumping <b>30</b> Hours <b>30</b> Mins	
Static level <b>15</b> feet	Water level end of pumping <b>15</b> feet
Water levels during 15 minutes: <b>15</b> feet 30 minutes: <b>15</b> feet 45 minutes: <b>15</b> feet 60 minutes: <b>15</b> feet	
If flowing give rate <b>15</b> GPM	Pump intake set at <b>15</b> feet
Recommended pump type <input type="checkbox"/> Shallow <input type="checkbox"/> Deep	Recommended pump setting <b>15</b> feet
Water at end of test <input type="checkbox"/> Clear <input type="checkbox"/> Cloudy	Recommended pump rate <b>15</b> GPM



FINAL STATUS OF WELL		
<input checked="" type="checkbox"/> Water supply	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Unfinished
<input checked="" type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well
<input type="checkbox"/> Test hole	<input type="checkbox"/> Abandoned (Other)	
<input type="checkbox"/> Recharge well	<input type="checkbox"/> Dewatering	

WATER USE		
<input type="checkbox"/> Domestic	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Stock	<input type="checkbox"/> Municipal	<input checked="" type="checkbox"/> Other
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Public supply	
<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & air conditioning	

METHOD OF CONSTRUCTION		
<input checked="" type="checkbox"/> Cable tool	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Driving
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Boring	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Jetting	

Name of Well Contractor <b>G.Hart &amp; Sons Well Drilling Ltd.</b>	Well Contractor's Licence No. <b>2662</b>
Address <b>Box 850, Fenelon Falls, Ontario</b>	
Name of Well Technician <b>Jim Lean</b>	Well Technician's Licence No. <b>T-0546</b>
Signature of Technician/Contractor <i>Jim Lean</i>	Submission date day mo yr

MINISTRY USE ONLY	Data source <b>2662</b>	Date received <b>MAR 11 2002</b>
	Date of inspection	Inspector
	Remarks <b>033 852</b>	

Print only in spaces provided. Mark correct box with a checkmark, where applicable.

11

5118966

Municipality 51008 Con. 04

County or District Peterborough Township of Dummer Township of Dummer Township/Borough/City/Town/Village (BH-9) Dummer Twp., Halls Glen-Landfill Con block tract survey, etc. Con.4 Lot 26

Owner's surname First Name Address c/o Totten Sims Hubicki Assoc. 300 Water St., Whitby, Ont. L1N 9J2 Date completed 30 10 01 day month year

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions) Table with columns: General colour, Most common material, Other materials, General description, Depth - feet (From, To)

31 32

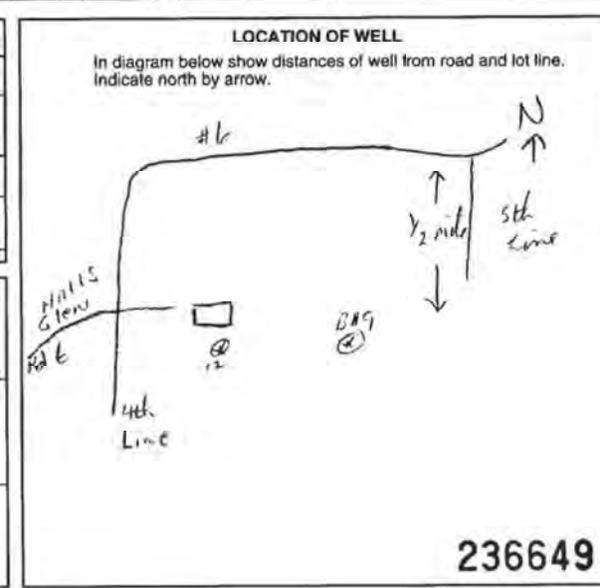
41 WATER RECORD Table with columns: Water found at - feet, Kind of water

51 CASING & OPEN HOLE RECORD Table with columns: Inside diam inches, Material, Wall thickness inches, Depth - feet (From, To)

61 PLUGGING & SEALING RECORD Table with columns: Depth set at - feet (From, To), Material and type

71 PUMPING TEST Form with sections: Pumping test method, Static level, Water level end of pumping, Pumping rate, Duration of pumping, Water levels during, Recommended pump type

FINAL STATUS OF WELL, WATER USE, METHOD OF CONSTRUCTION



Name of Well Contractor: G.Hart & Sons Well Drilling Ltd., Well Contractor's Licence No. 2662, Address: Box 850, Fenelon Falls, Ontario, Name of Well Technician: Jim Lean, Well Technician's Licence No. T-0546

MINISTRY USE ONLY: Data source 2662, Date received MAR 11 2002, Date of inspection, Inspector, Remarks

Print only in spaces provided. Mark correct box with a checkmark, where applicable.

5118967

51008 CON

04

County or District Peterborough	Township/Borough/City/Town/Village (BH-11) Dummer Twp., Halls Glen-Landfill	Con block tract survey, etc. Con.4	Lot 26
Owner's surname Township of Dummer	First Name	Address c/o Totten Sims Hubicki Assoc. 300 Water St., Whitby, ON L1N 9J2	Date completed 5 day 11 month 01 year

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Black	Topsoil			0	1
Brown	Gravel			1	5
Brown	Gravel	boulder		5	10
Brown	Broken Rock			10	12
Gray	Limestone			12	30

WATER RECORD	
Water found at - feet	Kind of water
19	<input checked="" type="checkbox"/> Fresh <input checked="" type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas <i>UNTESTED</i>
29	<input checked="" type="checkbox"/> Fresh <input checked="" type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas <i>UNTESTED</i>
	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas

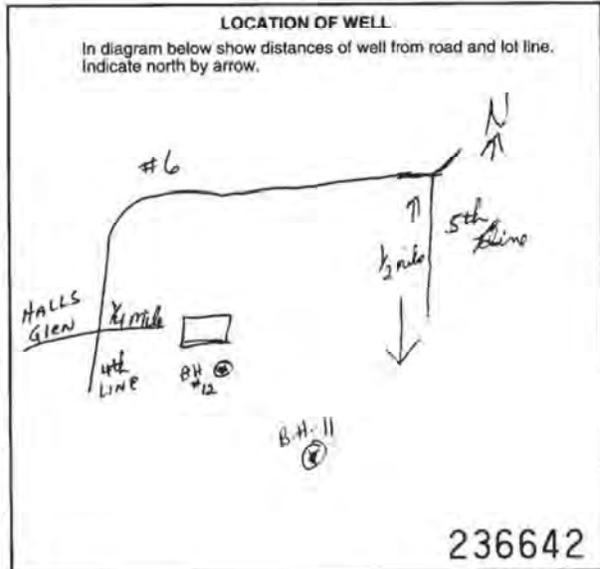
CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/2	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic	.188	+2 1/2	12
2	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input checked="" type="checkbox"/> Plastic	Pieso	+2 1/2	25
2	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input checked="" type="checkbox"/> Plastic	Pieso	+2 1/2	15

Sizes of opening (Slot No.) 10	Diameter 2 inches	Length 2x 5 feet
Material and type PVC	Depth at top of screen 25, 15 feet	

PLUGGING & SEALING RECORD		
<input checked="" type="checkbox"/> Annular space		<input type="checkbox"/> Abandonment
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)
From	To	
0	12	Holeplug (outside steel)
11	20	Sand
20	22	Holeplug
22	30	Sand

Pumping test method <input type="checkbox"/> Pump <input type="checkbox"/> Bailor	Pumping rate 2-3 GPM	Duration of pumping Hours 30 Mins
Static level	Water level end of pumping	Water levels during
9 feet	feet	<input type="checkbox"/> Pumping <input type="checkbox"/> Recovery 15 minutes 30 minutes 45 minutes 60 minutes feet feet feet feet feet feet
If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy
Recommended pump type <input type="checkbox"/> Shallow <input type="checkbox"/> Deep	Recommended pump setting	Recommended pump rate GPM

FINAL STATUS OF WELL		
<input type="checkbox"/> Water supply <input checked="" type="checkbox"/> Observation well <input type="checkbox"/> Test hole <input type="checkbox"/> Recharge well	<input type="checkbox"/> Abandoned, insufficient supply <input type="checkbox"/> Abandoned, poor quality <input type="checkbox"/> Abandoned (Other) <input type="checkbox"/> Dewatering	<input type="checkbox"/> Unfinished <input type="checkbox"/> Replacement well
WATER USE		
<input type="checkbox"/> Domestic <input type="checkbox"/> Stock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial	<input type="checkbox"/> Commercial <input type="checkbox"/> Municipal <input type="checkbox"/> Public supply <input type="checkbox"/> Cooling & air conditioning	<input type="checkbox"/> Not used <input checked="" type="checkbox"/> Other <i>MONITOR</i>
METHOD OF CONSTRUCTION		
<input checked="" type="checkbox"/> Cable tool <input type="checkbox"/> Rotary (conventional) <input type="checkbox"/> Rotary (reverse) <input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Air percussion <input type="checkbox"/> Boring <input type="checkbox"/> Diamond <input type="checkbox"/> Jetting	<input type="checkbox"/> Driving <input type="checkbox"/> Digging <input type="checkbox"/> Other



Name of Well Contractor G.HART & Sons Well Drilling Ltd	Well Contractor's Licence No. 2662
Address Box 850, Fenelon Falls, Ontario	
Name of Well Technician Jim Lean	Well Technician's Licence No. T-0546
Signature of Technician/Contractor <i>Jim Lean</i>	Submission date day mo yr

MINISTRY USE ONLY	2662	MAR 11 2002

0506 (07/00) Front Form 9

Print only in spaces provided. Mark correct box with a checkmark, where applicable.

11

5118968

Municipality: 51008 Con: 04

County or District <b>Peterborough</b>	Township/Borough/City/Town/Village (BH-12) <b>Dummer Twp., Halls Glen - Landfill</b>	Con block tract survey, etc. <b>Con.4</b>	Lot <b>26</b>
Owner's surname <b>Township of Dummer</b>	First Name	Address c/o Totten Sims Hubicki Assoc. <b>300 Water St., Whitby, ON L1N 9J2</b>	
Date completed <b>7 11 01</b>		day month year	

21

Zone Easting Northing RC Elevation RC Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Black	Topsoil			0	1
Brown	Gravel			1	8
Brown	Gravel	broken rock		8	13
Gray	Limestone			13	29
Gray	Limestone		soft	29	30
Gray	limestone			30	40

31

32

41 WATER RECORD	
Water found at - feet	Kind of water
10-13 <b>13</b>	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
15-18 <b>29</b>	<input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
20-23	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
25-28	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
30-33	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/2	Steel Galvanized Concrete Open hole Plastic	.188	+3	13
2	Steel Galvanized Concrete Open hole Plastic	Pieso	+3	35
2	Steel Galvanized Concrete Open hole Plastic	Pieso	+3	25 1/2
2	Steel Galvanized Concrete Open hole Plastic	Pieso	+3	14 1/2

Sizes of opening (Slot No.) <b>10</b>	Diameter <b>2</b> inches	Length <b>3 5</b> feet
Material and type <b>PVC</b>	Depth at top of screen <b>35.25.3</b> feet	
SCREEN		

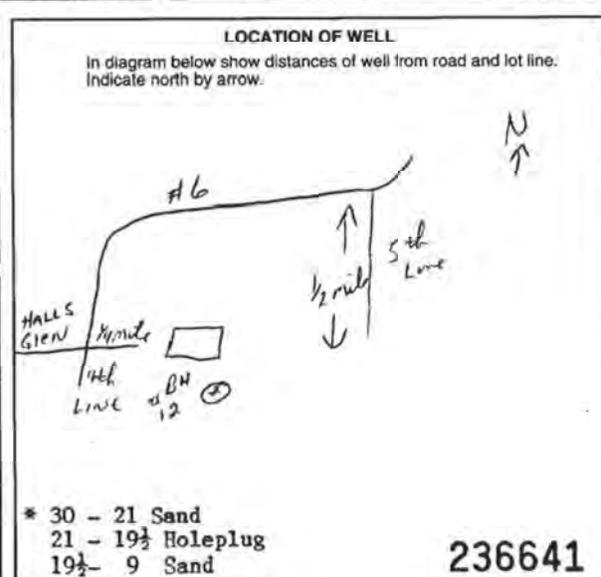
61 PLUGGING & SEALING RECORD		
<input checked="" type="checkbox"/> Annular space <input type="checkbox"/> Abandonment		
Depth set at - feet		Material and type (Concrete grout, bentonite, etc.)
From	To	
0	13	Bentonite (outside)
40	31	Sand (inside)
31	30	Holeplug, <i>Cont'd driller remark</i>

71 PUMPING TEST				
Pumping test method	Pumping rate	Duration of pumping		Static level
<input type="checkbox"/> Pump <input checked="" type="checkbox"/> Bailor	<b>10 - 15</b> GPM	11-14 Hours	12-16 Mins	
Water level end of pumping	Water levels during	<input type="checkbox"/> Pumping	<input type="checkbox"/> Recovery	
4 feet	15 minutes 28-28 30 minutes 29-31 45 minutes 32-34 60 minutes 35-37			
If flowing give rate	Pump intake set at	Water at end of test		
GPM	feet	<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy		
Recommended pump type	Recommended pump setting	Recommended pump rate	GPM	
<input type="checkbox"/> Shallow <input type="checkbox"/> Deep	feet			

FINAL STATUS OF WELL		
<input type="checkbox"/> Water supply	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Unfinished
<input checked="" type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well
<input type="checkbox"/> Test hole	<input type="checkbox"/> Abandoned (Other)	
<input type="checkbox"/> Recharge well	<input type="checkbox"/> Dewatering	

WATER USE		
<input type="checkbox"/> Domestic	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Stock	<input type="checkbox"/> Municipal	<input checked="" type="checkbox"/> Other
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Public supply	
<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & air conditioning	

METHOD OF CONSTRUCTION		
<input checked="" type="checkbox"/> Cable tool	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Driving
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Boring	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Jetting	



Name of Well Contractor <b>C.Hart &amp; Sons Well Drilling Ltd.</b>	Well Contractor's Licence No. <b>2662</b>
Address <b>Box 850, Fenelon Falls, Ontario</b>	
Name of Well Technician <b>Jim Lean</b>	Well Technician's Licence No. <b>T-0546</b>
Signature of Technician/Contractor <i>Jim Lean</i>	Submission date day mo yr

MINISTRY USE ONLY	Date source <b>2662</b>	Contractor <b>2662</b>	Date received <b>MAR 11 2002</b>
Date of inspection	Inspector		
Remarks <b>055.E32</b>			

Print only in spaces provided.  
Mark correct box with a checkmark, where applicable.

11

5118969

Municipality: 51008 Con: 04

County or District <b>Peterborough</b>	Township/Borough/City/Town/Village (BH-10) <b>Dummer Twp., Halls Glen-Landfill</b>	Con block tract survey, etc. <b>Con.4</b>	Lot <b>26</b>
Owner's surname <b>Township of Dummer</b>	First Name	Address <b>c/o Totten Sims Hubicki Assoc. 300 Water St., Whitby, ON L1N 9J2</b>	
Date completed <b>2 11 01</b>		day	month year

Zone: 21 Easting: 11 Northing: 18 Elevation: 25 RC: 30 Basin Code: II

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Black	Topsoil			0	1
Brown	Gravel			1	9
Brown	Gravel	broken rock		9	15
Gray	Limestone			15	30

31 11 32 11

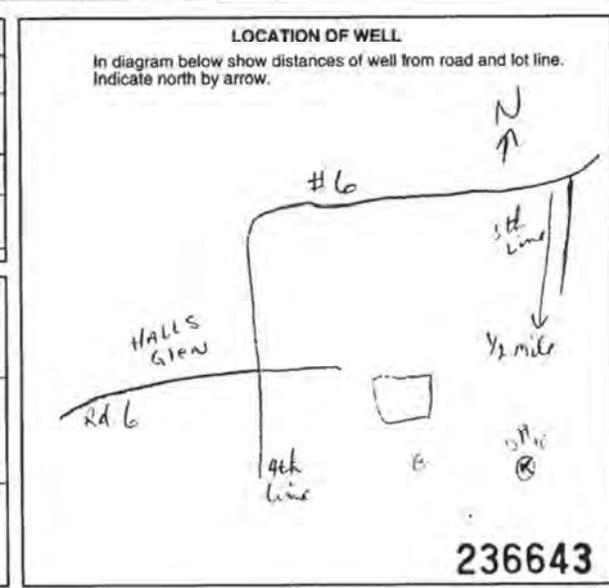
Water found at - feet	Kind of water
13	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
26	<input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/2	<input checked="" type="checkbox"/> Steel <input checked="" type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic	.188	+2 1/2	13
2	<input type="checkbox"/> Steel <input checked="" type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input checked="" type="checkbox"/> Plastic	Pieso	+2 1/2	25
2	<input type="checkbox"/> Steel <input checked="" type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input checked="" type="checkbox"/> Plastic	Pieso	+2 1/2	14.3

Sizes of opening (Slot No.)	Diameter	Length
10	2 inches	2x 5 feet
Material and type	Depth at top of screen	
PVC	25, 14, 3 feet	

<input checked="" type="checkbox"/> Annular space	<input type="checkbox"/> Abandonment
Depth set at - feet	Material and type (Gement grout, bentonite, etc.)
From To	
0 13	Holeplug (outside 6")
13 20 1/2	Sand
20 22	Holeplug
22 30	Sand

Pumping test method <input type="checkbox"/> Pump <input checked="" type="checkbox"/> Bailor	Pumping rate <b>5-6</b> GPM	Duration of pumping <b>30</b> Hours <b>30</b> Mins
Static level <b>8.5</b> feet	Water level end of pumping <b>8.5</b> feet	Water levels during 15 minutes: <b>8.5</b> feet 30 minutes: <b>8.5</b> feet 45 minutes: <b>8.5</b> feet 60 minutes: <b>8.5</b> feet
Recommended pump type <input type="checkbox"/> Shallow <input type="checkbox"/> Deep	Recommended pump setting feet	Recommended pump rate GPM



<input checked="" type="checkbox"/> Water supply	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Unfinished
<input type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well
<input type="checkbox"/> Test hole	<input type="checkbox"/> Abandoned (Other)	
<input type="checkbox"/> Recharge well	<input type="checkbox"/> Dewatering	

<input type="checkbox"/> Domestic	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not use
<input type="checkbox"/> Stock	<input type="checkbox"/> Municipal	<input checked="" type="checkbox"/> Other <b>Residential</b>
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Public supply	
<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & air conditioning	

<input checked="" type="checkbox"/> Cable tool	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Driving
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Boring	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Jetting	

Name of Well Contractor <b>G.Hart &amp; Sons Well Drilling Ltd.</b>	Well Contractor's Licence No. <b>2662</b>
Address <b>Box 850, Fenelon Falls, Ontario</b>	
Name of Well Technician <b>Jim Lean</b>	Well Technician's Licence No. <b>T-0546</b>
Signature of Technician/Contractor <i>Jim Lean</i>	Submission date day mo yr

MINISTRY USE ONLY	Date sou/06 <b>2662</b>	Date received <b>MAR 11 2002</b>
	Date of inspection	Inspector
	Remarks <b>CO-8702</b>	

Print only in spaces provided.  
Mark correct box with a checkmark, where applicable.

5119156

Municipality: **51008 FON** Con: **04**

County or District: **PETERBOROUGH**  
 Township/Borough/City/Town/Village: **DUMMICK**  
 Con block tract survey, etc.: **4** Lot: **25**  
 Address: **RR#2 LAKEFIELD COL 2HO**  
 Date completed: **31 7 02**  
day month year

Northing: **11** Elevation: **RC** Basin Code: **RC**

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
<b>BLACK</b>	<b>TOPSOIL</b>		<b>SOFT</b>	<b>0</b>	<b>1</b>
<b>BROWN</b>	<b>CLAY &amp; STONES</b>	<b>BOULDERS</b>	<b>HARD PACKED</b>	<b>1</b>	<b>16</b>
<b>GREY</b>	<b>LIMESTONE</b>		<b>BEDROCK</b>	<b>16</b>	<b>55</b>

31: \_\_\_\_\_  
 32: \_\_\_\_\_

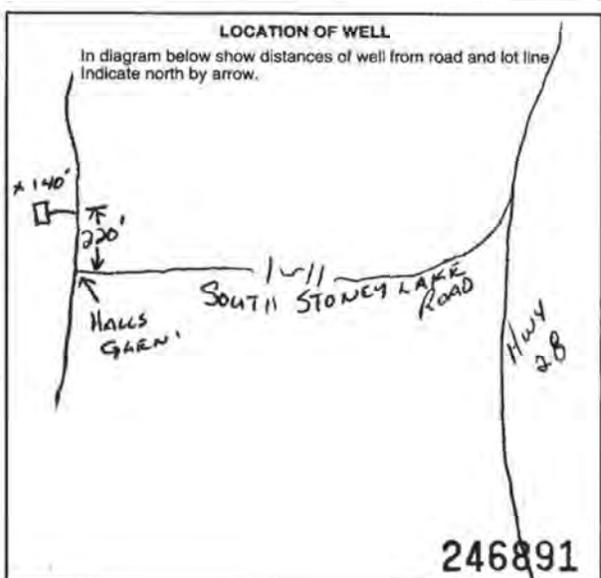
41 WATER RECORD	
Water found at - feet	Kind of water
<b>35</b>	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
<b>51</b>	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
<b>6 1/4</b>	<input type="checkbox"/> Steel <input checked="" type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic	<b>.188</b>	<b>0</b>	<b>20</b>
<b>6</b>	<input type="checkbox"/> Steel <input checked="" type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic		<b>20</b>	<b>55</b>

SCREEN	Sizes of opening (Slot No.)		Diameter inches	Length feet
	From	To		

61 PLUGGING & SEALING RECORD		
<input checked="" type="checkbox"/> Annular space <input type="checkbox"/> Abandonment		
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)
From	To	
<b>3</b>	<b>20</b>	<b>PORTLAND CEMENT</b>

71 PUMPING TEST	
Pumping test method: <input checked="" type="checkbox"/> Pump <input type="checkbox"/> Bailor	Pumping rate: <b>8.0</b> GPM
Duration of pumping: <b>0</b> Hours <b>0</b> Mins	
Static level: <b>16</b> feet	Water level end of pumping: <b>55</b> feet
Water levels during pumping:	
15 minutes: <b>16</b> feet	30 minutes: <b>16</b> feet
45 minutes: <b>16</b> feet	60 minutes: <b>16</b> feet
Recommended pump type: <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	Recommended pump setting: <b>50</b> feet
Water at end of test: <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy	Recommended pump rate: <b>8</b> GPM



**FINAL STATUS OF WELL**

1  Water supply  
 2  Observation well  
 3  Test hole  
 4  Recharge well  
 5  Abandoned, insufficient supply  
 6  Abandoned, poor quality  
 7  Abandoned (Other)  
 8  Dewatering  
 9  Unfinished  
 10  Replacement well

**WATER USE**

1  Domestic  
 2  Stock  
 3  Irrigation  
 4  Industrial  
 5  Commercial  
 6  Municipal  
 7  Public supply  
 8  Cooling & air conditioning  
 9  Not use  
 10  Other

**METHOD OF CONSTRUCTION**

1  Cable tool  
 2  Rotary (conventional)  
 3  Rotary (reverse)  
 4  Rotary (air)  
 5  Air percussion  
 6  Boring  
 7  Diamond  
 8  Jetting  
 9  Driving  
 10  Digging  
 11  Other

Name of Well Contractor: **JOE LEGGE & SONS Drilling** Well Contractor's Licence No.: **7052**  
 Address: **RR#3 BAUCROFT COL 1CO**  
 Name of Well Technician: **JOE LEGGE** Well Technician's Licence No.: **1879**  
 Signature of Technician/Contractor: *Joe Legge* Submission date: \_\_\_\_\_

**MINISTRY USE ONLY**

Data source: **7052** Date received: **AUG 19 2002**  
 Date of inspection: \_\_\_\_\_ Inspector: \_\_\_\_\_  
 Remarks: **CSS.ES2**

Print only in spaces provided. Mark correct box with a checkmark, where applicable.

5119268

Municipality: 51008 Con: CON OS

County or District <b>PETERBORO</b>	Township/Borough/City/Town/Village <b>DOURO / DUMMER</b>	Con. block tract survey, etc. <b>CON 5</b>	Lot <b>27</b>
Address <b>2069 5<sup>th</sup> ROAD NORTH</b>		Date completed <b>31 12 02</b>	

21

Zone Easting Northing RC Elevation RC Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
BLACK	TOPSOIL		SOFT	0	1
GREY	CLAY	BOULDERS		1	6
GREY	LIMESTONE		HARD	6	18
RED	LIMESTONE		POUROUS	18	19
GREY	LIMESTONE		HARD	19	138
GREY	GRANITE		HARD	138	147

31

32

41 WATER RECORD			
Water found at - feet	Kind of water		
18-19	<input checked="" type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	
15-18	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	
20-23	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	
25-28	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	
28-33	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur	<input type="checkbox"/> Minerals
	<input type="checkbox"/> Salty	<input type="checkbox"/> Gas	

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 5/8	Steel	188	0	10
6 1/8	Steel		10	147

SIZES OF OPENING (Slot No.)	Diameter inches	Length feet	Material and type	Depth at top of screen feet

61 PLUGGING & SEALING RECORD			
Annular space		Abandonment	
Depth set at - feet	Material and type (Cement grout, bentonite, etc.)	From	To
0-10	HOLEPLUG & BEUSEAL	0	10

71 PUMPING TEST		Pumping rate		Duration of pumping	
<input type="checkbox"/> Pump	<input checked="" type="checkbox"/> Baker	1/4	GPM	6	Hours
Static level	Water level and of pumping	Water levels during pumping			
12 feet	147 feet	15 minutes: 70 feet	30 minutes: 95 feet	45 minutes: 130 feet	60 minutes: 147 feet
If flowing gives rate	Pump intake set at	Water at end of test			
	140 feet	<input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy			
Recommended pump type	Recommended pump setting	Recommended pump rate			
<input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	140 feet	1/4 GPM			



FINAL STATUS OF WELL			
<input checked="" type="checkbox"/> Water supply	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Unrefreshed	
<input type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well	
<input type="checkbox"/> Test hole	<input type="checkbox"/> Abandoned (Other)		
<input type="checkbox"/> Recharge well	<input type="checkbox"/> Dewatering		

WATER USE			
<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not use	
<input type="checkbox"/> Stock	<input type="checkbox"/> Municipal	<input type="checkbox"/> Other	
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Public supply		
<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & air conditioning		

METHOD OF CONSTRUCTION			
<input checked="" type="checkbox"/> Cable tool	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Driving	
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Other	
<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Jetting		

Name of Well Contractor <b>WENSLEY WATER WELL</b>	Well Contractor's Licence No. <b>6578</b>
Address <b>RR 2 LAKEFIELD</b>	
Name of Well Technician <b>ERIC WENSLEY</b>	Well Technician's Licence No. <b>632</b>
Signature of Technician/Contractor <i>[Signature]</i>	Submission date <b>16 01 03</b>

MINISTRY USE ONLY		Contractor		Date received	
Data source	<b>6578</b>	<b>JAN 24 2003</b>			
Date of inspection		Inspector			
Remarks					
<b>CSS.ES3</b>					

Print only in spaces provided. Mark correct box with a checkmark, where applicable.

11

5119301

Municipality 51008 Con 04

County or District: Peterborough; Township/Borough/City/Town/Village: Dummer Twp. Halls Glen-Landfill; Con block tract survey, etc.: 4; Lot: 26; Owner's surname: Township of Dummer; First Name: ; Address: c/o Totten Sims Hubicki Assoc. 300 Water St., Whitby, ON L1N 9J2; Date completed: 29 10 02

Zone, Easting, Northing, RC, Elevation, RC, Basin Code

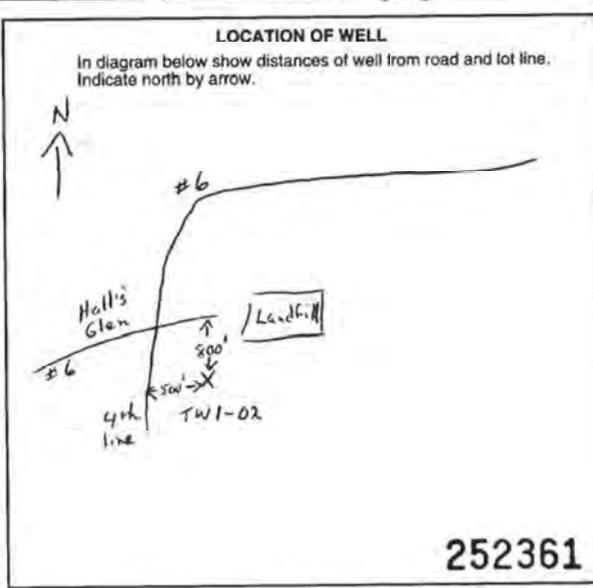
LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions). Table with columns: General colour, Most common material, Other materials, General description, Depth - feet (From, To). Rows include Topsoil, Gravel, Limestone.

31, 32

41 WATER RECORD; 51 CASING & OPEN HOLE RECORD; 61 PLUGGING & SEALING RECORD. Includes details on water found, casing materials, and plug depths.

71 PUMPING TEST. Table with columns: Pumping test method, Pumping rate, Duration of pumping, Static level, Water level end of pumping, Water levels during, etc.

FINAL STATUS OF WELL; WATER USE; METHOD OF CONSTRUCTION. Includes checkboxes for well status, water use, and construction methods.



Name of Well Contractor: G.Hart & Sons Well Drilling Ltd.; Well Contractor's Licence No.: 2662; Address: Box 850, Fenelon Falls, ON K6M 1N0; Name of Well Technician: Jim Lean; Well Technician's Licence No.: T-0546.

MINISTRY USE ONLY. Date source: 2662; Date received: FEB 19 2003; Date of inspection; Inspector; Remarks: CSS.ES3



Measurements recorded in:  Metric  Imperial

A 123083

Well Owner's Information

First Name, Last Name / Organization, E-mail Address, Mailing Address (Street Number/Name), Municipality, Province, Postal Code, Telephone No. (inc. area code)

Well Location

Address of Well Location (Street Number/Name), Township, Lot, Concession, County/District/Municipality, City/Town/Village, Province, Postal Code, UTM Coordinates, Zone, Easting, Northing, Municipal Plan and Sublot Number

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

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To. Rows include BROWN CLAY, GREY LIMESTONE, SAND & GRAVEL, SOFT, HARD, FRACTURED, HARD.

Annular Space: Depth Set at (m/ft) From, To; Type of Sealant Used (Material and Type); Volume Placed (m³/ft³)

Results of Well Yield Testing: After test of well yield, water was; Draw Down (Time, Water Level); Recovery (Time, Water Level); Pump intake set at; Pumping rate; Duration of pumping; Final water level end of pumping; If flowing give rate; Recommended pump depth; Recommended pump rate; Well production; Disinfected?

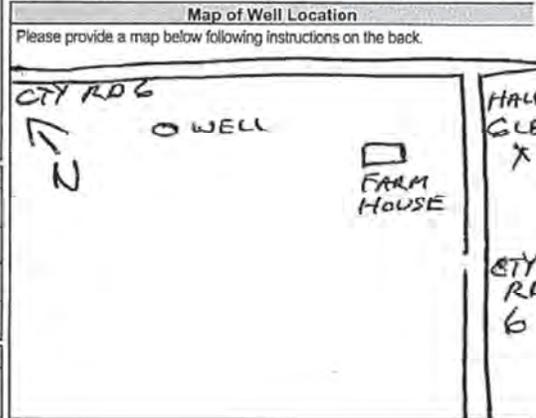
Method of Construction: Cable Tool, Rotary (Conventional), Rotary (Reverse), Bored, Air percussion, Other, specify; Well Use: Public, Domestic, Livestock, Irrigation, Industrial, Other, specify; Commercial, Municipal, Test Hole, Cooling & Air Conditioning, Not used, Dewatering, Monitoring

Construction Record - Casing: Inside Diameter, Open Hole OR Material, Wall Thickness, Depth (m/ft) From, 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

Construction Record - Screen: Outside Diameter, Material, Slot No., Depth (m/ft) From, To

Water Details: Water found at Depth, Kind of Water (Fresh, Untested, Gas, Other, specify); Hole Diameter: Depth (m/ft) From, To, Diameter (cm/in)

Well Contractor and Well Technician Information: Business Name of Well Contractor, Well Contractor's Licence No., Business Address, Municipality, Province, Postal Code, Business E-mail Address, Bus. Telephone No. (inc. area code), Name of Well Technician (Last Name, First Name), Well Technician's Licence No., Signature of Technician and/or Contractor, Date Submitted



Comments: TEST WELL #3; Well owner's information package delivered: Yes/No; Date Package Delivered; Date Work Completed; Ministry Use Only: Audit No. 2140029, Received JAN 03 2012



Measurements recorded in:  Metric  Imperial

Page 1 of 1

A123084

Well Owner's Information

First Name, Last Name / Organization, E-mail Address, Mailing Address, Municipality, Province, Postal Code, Telephone No.

Well Location

Address of Well Location, Township, Lot, Concession, City/Town/Village, Municipal Plan and Sublot Number, UTM Coordinates

Overburden and Bedrock Materials/Abandonment Sealing Record

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To

Annular Space table with columns: Depth Set at (m/ft) From, To, Type of Sealant Used, Volume Placed (m³/ft³)

Results of Well Yield Testing table with columns: Draw Down, Recovery, Time, Water Level, Static Level

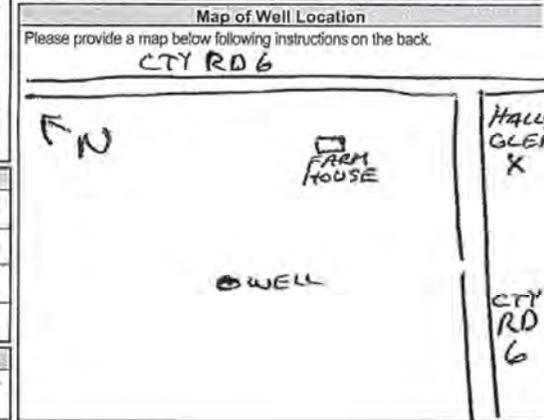
Method of Construction and Well Use checkboxes

Construction Record - Casing table with columns: Inside Diameter, Open Hole OR Material, Wall Thickness, Depth, Status of Well

Construction Record - Screen table with columns: Outside Diameter, Material, Slot No., Depth

Water Details and Hole Diameter tables

Well Contractor and Well Technician Information



Business Name, Business Address, Province, Postal Code, Business E-mail Address, Bus. Telephone No., Name of Well Technician, Well Technician's Licence No., Signature, Date Submitted

Comments, Well owner's information package delivered, Date Package Delivered, Date Work Completed, Ministry Use Only, Audit No., Received