



June 17, 2022

Joey Theberge
 McCormick Park Developments Incorporated
 1600 Laperriere Avenue, Suite 205
 Ottawa, Ontario K1Z 1B7

Via Email:
 JoeyTheberge@thebergehomes.com

**Re: OTT-22009213-B0 Post Remediation Groundwater Sampling
 177 Armstrong Street and 268 Carruthers Avenue, Ottawa, Ontario**

1. Introduction

EXP Services Inc. (EXP) was retained by McCormick Park Developments Incorporated to conduct a Post Remediation Groundwater Sampling for the property at 177 Armstrong Street and 268 Carruthers Avenue in Ottawa, Ontario, herein referred to as “the Phase Two property”.

It is understood that the work is required in support of a Record of Site Condition (RSC) under Ontario Regulation (O. Reg.) 153/04.

2. Background

The Phase Two property is located near the northwest corner of Armstrong Street and Carruthers Avenue in Ottawa. The property at 177 Armstrong Street was previously improved with a residential building and a commercial building. The property at 268 Carruthers Avenue also had a residential building. The property has footprint area of 0.12 hectares. As of April 12, 2022, the three buildings had been removed and the soil was mostly excavated to bedrock surface at a depth of 1.5 m below surface grade (bsg). The previously installed monitoring wells were also removed during this excavation work. The site location is shown on Figure 1 in Appendix A.

Since there will be a change in land use from residential & commercial to residential, a Ministry of the Environment, Conservation and Parks (MECP) Record of Site Condition will be required. The findings of a Phase One Environmental Site Assessment (ESA) were presented in a report entitled *Phase One Environmental Site Assessment, 177 Armstrong Street and 268 Carruthers Avenue, Ottawa, Ontario* dated September 3, 2019. The Phase One ESA identified the following Areas of Potential Environmental Concern (APECs):

Table 2.1: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
#1. AST Fuel storage tanks in basement 177 Armstrong Street	Southwest part of the RSC property	#28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), Petroleum Hydrocarbons (PHC)	Soil and groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
#2. AST Fuel storage tanks in basement 179 Armstrong Street	Southeast part of the RSC property	#28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX, PHC	Soil and groundwater
#3. Former UST shown north of the commercial building in the 1956 FIP	Southeast part of the RSC property	#28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX, PHC	Soil and groundwater
#4. AST Fuel storage tanks in basement 268 Carruthers Avenue	Northeast part of the RSC property	#28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX, PHC	Soil and groundwater
#5. Fill material on the RSC property	Entire RSC property	#34 – Importation of Fill Material of Unknown Quality	On-Site	PHC, Volatile Organic Compounds (VOC), Polycyclic Aromatic Hydrocarbons (PAH), Metals	Soil
#6. Former automotive repair garage at 180 Armstrong Street	South part of the RSC property	#10 – Commercial Autobody Shop	Off-site	PHC, VOC, Metals	Soil and groundwater
#7. Active automotive repair garage at 1 Grant Street	South part of the RSC property	#10 – Commercial Autobody Shop	Off-site	PHC, VOC, Metals	Soil and groundwater

Based on the Phase One ESA findings, EXP recommended conducting a Phase Two ESA. The Phase Two ESA was conducted in September 2019 and consisted of advancing boreholes and completing them as groundwater monitoring wells. Soil and groundwater samples were collected and submitted for laboratory analysis of one or more of the following parameters: BTEX and PHC, VOC, PAH, and metals

During the Phase Two ESA, a sand and gravel fill material was observed under the asphalt parking surface and granular fill to a maximum depth of 1.2 m bsg. A layer of medium sand was observed below the sand and gravel fill in BH-4 at a depth of 0.8 m to 1.2 m bsg. Limestone bedrock was encountered from 0.4 m to 1.2 m bsg. Groundwater was encountered at a depth of 4.18 m bsg in BH-1 to 5.66 m bsg in MW-7. Based on the results of the investigation, there were multiple soil samples collected from the fill material above the limestone bedrock that had one or more MECP Table 7 site condition standards (SCS) exceedances of PHC F3, PHC F4, PAHs, antimony, cadmium, and lead. The estimated volume of impacted soil was estimated at 1,350 m³. All of the groundwater samples collected had concentrations of VOC and PHC that were less than the 2011 MECP Table 7 SCS.

On April 12 and 13, 2022, 195.4 tonnes of impacted soil was removed from the Phase Two property and disposed of at the GLF licensed landfill in Moose Creek, Ontario. The site plan is presented as Figure 2 in Appendix A. The landfill waybills are presented in Appendix E.

Since all of the soil has been removed to the bedrock surface at the site, confirmatory soil samples cannot be collected from the excavation walls and floor. Therefore, monitoring wells must be installed to verify that the groundwater has not been impacted due to the former presence of this impacted soil. It is assumed that the contaminants of concern in groundwater are: BTEX, PHC, metals, and PAHs. The following report presents the results of the groundwater sampling program.

3. Objective

The objective of the Post Remediation Groundwater Sampling program was to show that the groundwater beneath the site has not been impacted due to the presence of impacted soil that has been removed.

4. Scope of Investigation

The Post Remediation Groundwater Sampling scope of work consisted of the following activities:

- Refresh underground service clearances;
- Advance four (4) boreholes at the site to approximately 6 m bsg or 1.5 m below the groundwater table, whichever came first;
- No soil samples were collected as part of this investigation;
- The instrumentation of monitoring wells in each of the boreholes;
- Collect groundwater samples from the new monitoring wells for chemical analysis of BTEX, PHC, metals, and PAH;
- Complete an elevation survey of the new monitoring wells;
- Review the analytical data and comparing to provincial site condition standards; and,
- Prepare a report summarizing the findings.

5. Applicable Site Conditions Standards

The assessment criteria, Site Condition Standards (SCS), applicable to a given site in Ontario are established under subsection 168.4(1) of the Environmental Protection Act. Tabulated generic criteria are provided in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, MOECC, July 2011. These criteria are based on site sensitivity (sensitive or non-sensitive), groundwater use (potable or non-potable), property use (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil type (coarse or medium to fine textured) and restoration depth (full or stratified restoration). In addition, site specific criteria may be established on the basis of the findings of a Risk Assessment carried out in accordance with Part IX and Schedule C of Ontario Regulation 153/09 (O. Reg. 153/09).

For assessment purposes, EXP selected the MECP (2011) Table 7: Full Depth Generic Site Condition Standards (SCS) in a non-potable groundwater condition for a residential/parkland/institutional property use and coarse textured soil. The selection of this category was based on the following factors:

- The predominant soil type on the Phase Two property was considered to be coarse textured (refer to the results of the Grain Size Analysis as provided in the Certificates of Analysis presented in Appendix E);
- There was no intention to carry out a stratified restoration at the Phase Two property;
- More than two-thirds of the Phase Two property had an overburden thickness less than 2 m;
- The Phase Two property is not located within 30 m of a surface water body or an area of natural significance;
- The soil at the Phase Two property has a pH value between 5 and 9 for surficial soils;
- The property is not within an area of natural significance; does not include, nor is it adjacent to an area of natural significance, nor is it part of such an area; and, it does not include land that is within 30 m of an area of natural significance, nor is it part of such an area;
- The Phase Two property is serviced by the City of Ottawa's water distribution system and the surrounding properties are municipally serviced; and,
- The Phase Two property is planned for residential use.

6. Methodology

Services Clearances

Prior to the commencement of drilling, the locations of underground public utilities including telephone, fibre optic, natural gas, and electrical lines were marked at the site by locating companies. A private utility locating contractor was also retained to clear the individual borehole locations.

The site investigative activities consisted of drilling boreholes to install monitoring wells for hydrogeological property characterization and the collection of groundwater samples for chemical analysis.

Monitoring Well Installation

On May 11, 2022, four (4) boreholes (MW22-01 to MW22-04) were advanced at the site by Strata Soil Drilling, a licensed well contractor, under the full-time supervision of EXP staff. A track mount Geomachine drill rig was used to air hammer the bedrock to the required depth. No petroleum-based greases or solvents were used during drilling activities.

Monitoring wells were installed in all of the boreholes to facilitate groundwater sampling. The monitoring wells consisted of a 51-millimetre diameter Schedule 40 PVC screen that was 3.0 m long and a Schedule 40 PVC riser pipe. The annular space around the monitoring wells was backfilled with sand to a height of approximately 0.3 m above the top of the screen. A bentonite seal was added from the top of the sand pack to approximately 0.3 m below bedrock surface (wells were installed within the excavation which was on the limestone bedrock). Details of the installations are shown on the borehole logs provided in Appendix B.

The locations of the monitoring wells are shown on Figure 2 in Appendix A.

Groundwater Monitoring and Sampling

Groundwater sampling activities were conducted on May 30, 2022. The monitoring activities consisted of measuring the depth to groundwater in each of the monitoring wells. The water level meter probe was decontaminated

between monitoring well locations with a spray bottle of water andalconox solution, dried with a paper towel, and then rinsed with potable water.

Groundwater samples were collected from three (3) of the monitoring wells. On May 30, 2022, groundwater samples were collected from MW22-3 and MW22-4 (as well as a blind duplicate MW22-5). On June 8, 2022 groundwater samples were collected from MW22-2; MW22-1 had insufficient groundwater to allow for a viable sample to be collected.

All groundwater samples from the monitoring wells were obtained using a low-flow sampling technique with a YSI multiparameter water quality meter. This technique involves pumping groundwater at low rates, typically less than 500 mL per minute, to minimize drawdown. Prior to collecting the groundwater samples, the monitoring wells were purged with the low-flow sampling equipment and field parameters (turbidity, dissolved oxygen, conductivity, temperature, pH, and oxidation reduction potential) were monitored until stable readings were achieved. These parameters are considered to be stable when three consecutive readings meet the following conditions:

- Turbidity: within 10% for values greater than 5 nephelometric turbidity units (NTU), or three values less than 5 NTU;
- Dissolved oxygen: within 10% for values greater than 0.5 mg/L, or three values less than 0.5 mg/L;
- Conductivity: within 3%;
- Temperature: $\pm 1^{\circ}\text{C}$;
- pH: ± 0.1 unit; and,
- Oxidation reduction potential: ± 10 millivolts.

When stabilization occurs, equilibrium between groundwater within a monitor and the surrounding formation water is attained. As such, samples were collected when stabilization was observed. The groundwater samples were transported to Caduceon Laboratories of Ottawa under Chain of Custody protocol on the same day they were sampled.

Field Observations

Groundwater elevations and water levels were measured at the site on May 30, 2022 and June 6, 2022. The groundwater elevations are shown on Figure 2A and 2B in Appendix A. A summary of the elevation survey and groundwater levels for each well are shown on Table 6.1.

Based on the water levels measured on May 30 and June 6, 2022, the depth to groundwater ranged from 1.79 m below surface grade in MW22-2 to 7.39 m below surface grade in MW22-3. The groundwater flow direction was to the north.

Table 6.1 Groundwater Elevations

Monitoring Well ID	TOC Elevation (metres)	May 30, 2022		June 6, 2022	
		Water Level (mbtoc)	Water Level (MASL)	Water Level (mbtoc)	Water Level (MASL)
MW22-1	65.00	7.63	57.37	7.57	57.43
MW22-2	61.99	NA	NA	2.62	59.37
MW22-3	63.46	8.17	55.29	8.46	55.00
MW22-4	63.91	4.31	59.60	4.50	59.41

Note: Elevations were referenced using a benchmark (storm catch basin on Armstrong Street across from Site) with a geodetic elevation of 64.14 m relative to mean sea level.
mbtoc – metres below top of well casing
MASL – metres above sea level
NM – not measured

7. Analytical Results

The groundwater analytical results for the new monitoring wells as well as the previous monitoring wells are presented in Tables 1 to 4 in Appendix B. The groundwater analytical results are also shown in plan view on Figures 3 to 5 and on cross-sections on Figures 6 to 9 in Appendix A.

There were no exceedances of the MECP Table 7 SCS for any of the parameters analysed in the groundwater samples.

8. Conclusions

Based on the Post Remediation Groundwater Sampling results, the following conclusions are provided:

- Groundwater was encountered at a depth of 1.79 m in MW22-2 below surface grade to 7.39 m below surface grade on June 6, 2022. Groundwater flow direction calculations show overburden groundwater to be flowing towards the north;
- Based on the results obtained, the VOC, BTEX, metals and PHC concentrations in the three (3) groundwater samples were found to meet the MECP Table 7 site condition standards; and,
- No groundwater impact was observed at the Phase Two property.

9. Recommendations

Since all of the soil has been removed from the site, post remediation groundwater was completed at the Phase Two property. The pre-remediation groundwater concentrations of the analyzed parameters in the groundwater samples met the MECP Table 7 SCS, and the post remediation groundwater sampling showed that the groundwater concentrations met the MECP Table 7 SCS, therefore no further environmental work is required at the Phase Two property.



10. Limitation of Liability, Scope of Report, and Third Party Reliance

This report ("Report") is based on site conditions known or inferred by the investigation undertaken as of the date of the Report. Should changes occur which potentially impact the condition of the site the recommendations of EXP may require re-evaluation. Where special concerns exist, or McCormick Park Developments Incorporated ("the Client") has special considerations or requirements, these should be disclosed to EXP to allow for additional or special investigations to be undertaken not otherwise within the scope of investigation conducted for the purpose of the Report.

Where applicable, recommended field services are the minimum necessary to ascertain that construction is being carried out in general conformity with building code guidelines, generally accepted practices and EXP's recommendations. Any reduction in the level of services recommended will result in EXP providing qualified opinions regarding the adequacy of the work. EXP can assist design professionals or contractors retained by the Client to review applicable plans, drawings, and specifications as they relate to the Report or to conduct field reviews during construction.

The evaluation and conclusions contained in the Report are based on conditions in evidence at the time of site inspections and information provided to EXP by the Client and others. The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose as communicated by the Client. EXP has relied in good faith upon such representations, information and instructions and accepts no responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of any misstatements, omissions, misrepresentation or fraudulent acts of persons providing information. Unless specifically stated otherwise, the applicability and reliability of the findings, recommendations, suggestions or opinions expressed in the Report are only valid to the extent that there has been no material alteration to or variation from any of the information provided to EXP. If new information about the environmental conditions at the Site is found, the information should be provided to EXP so that it can be reviewed and revisions to the conclusions and/or recommendations can be made, if warranted.

The Report has been prepared in a manner consistent with the degree of care and skill exercised by engineering consultants currently practicing under similar circumstances and locale. No other warranty, expressed or implied, is made. Unless specifically stated otherwise, the Report does not contain environmental consulting advice.

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment form part of the Report. This material includes, but is not limited to, the terms of reference given to EXP by the Client, communications between EXP and the Client, other reports, proposals or documents prepared by EXP for the Client in connection with the site described in the Report. In order to properly understand the suggestions, recommendations and opinions expressed in the Report, reference must be made to the Report in its entirety. EXP is not responsible for use by any party of portions of the Report.

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client and their lending institution. No other party may use or rely upon the Report in whole or in part without the written consent of EXP. Any use of the Report, or any portion of the Report, by a third party are the sole responsibility of such third party. EXP is not responsible for damages suffered by any third party resulting from unauthorised use of the Report.

Where EXP has submitted both electronic file and a hard copy of the Report, or any document forming part of the Report, only the signed and sealed hard copy shall be the original documents for record and working purposes. In the event of a dispute or discrepancy, the hard copy shall govern. Electronic files transmitted by EXP utilize specific

*McCormick Park Developments Incorporated
Post Remediation Groundwater Sampling
177 Armstrong Street and 268 Carruthers Avenue, Ottawa, Ontario
OTT-22009213-B0
June 17, 2022*

software and hardware systems. EXP makes no representation about the compatibility of these files with the Client's current or future software and hardware systems. Regardless of format, the documents described herein are EXP's instruments of professional service and shall not be altered without the written consent of EXP. Should you have any questions, please do not hesitate to contact this office.

Yours truly,



Mark McCalla, P.Geol.
Senior Geoscientist
Earth & Environment
EXP Services Inc.



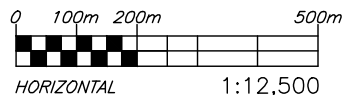
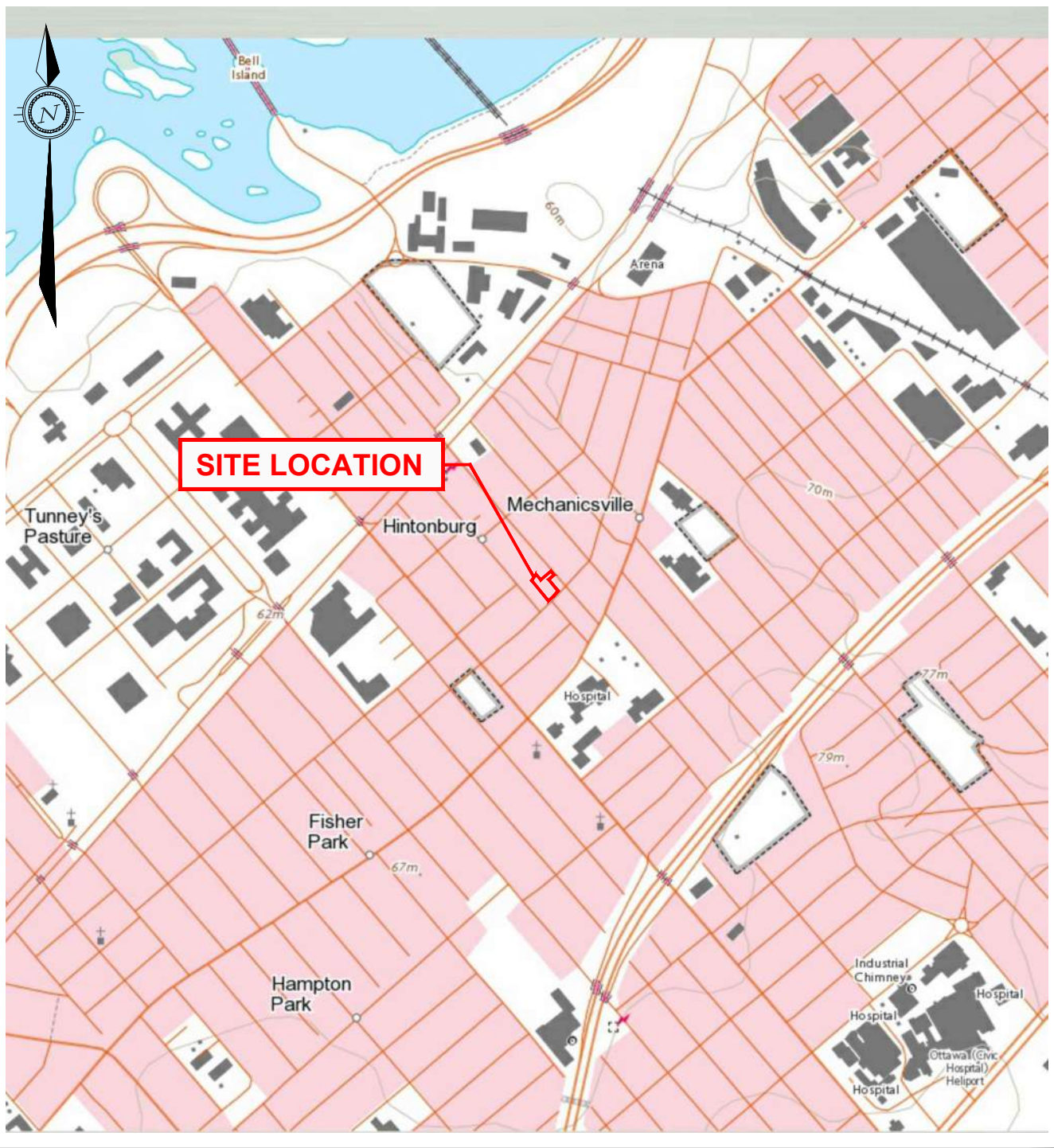
Carl Hentschel, P.Eng. PMP
Environmental Engineer
Earth & Environment
EXP Services Inc.

MM/CH:kmr

Attachments: Appendix A – Figures
Appendix B – Borehole Logs
Appendix C – Analytical Summary Tables
Appendix D – Laboratory Certificates of Analysis
Appendix E – Landfill Waybills



Appendix A – Figures



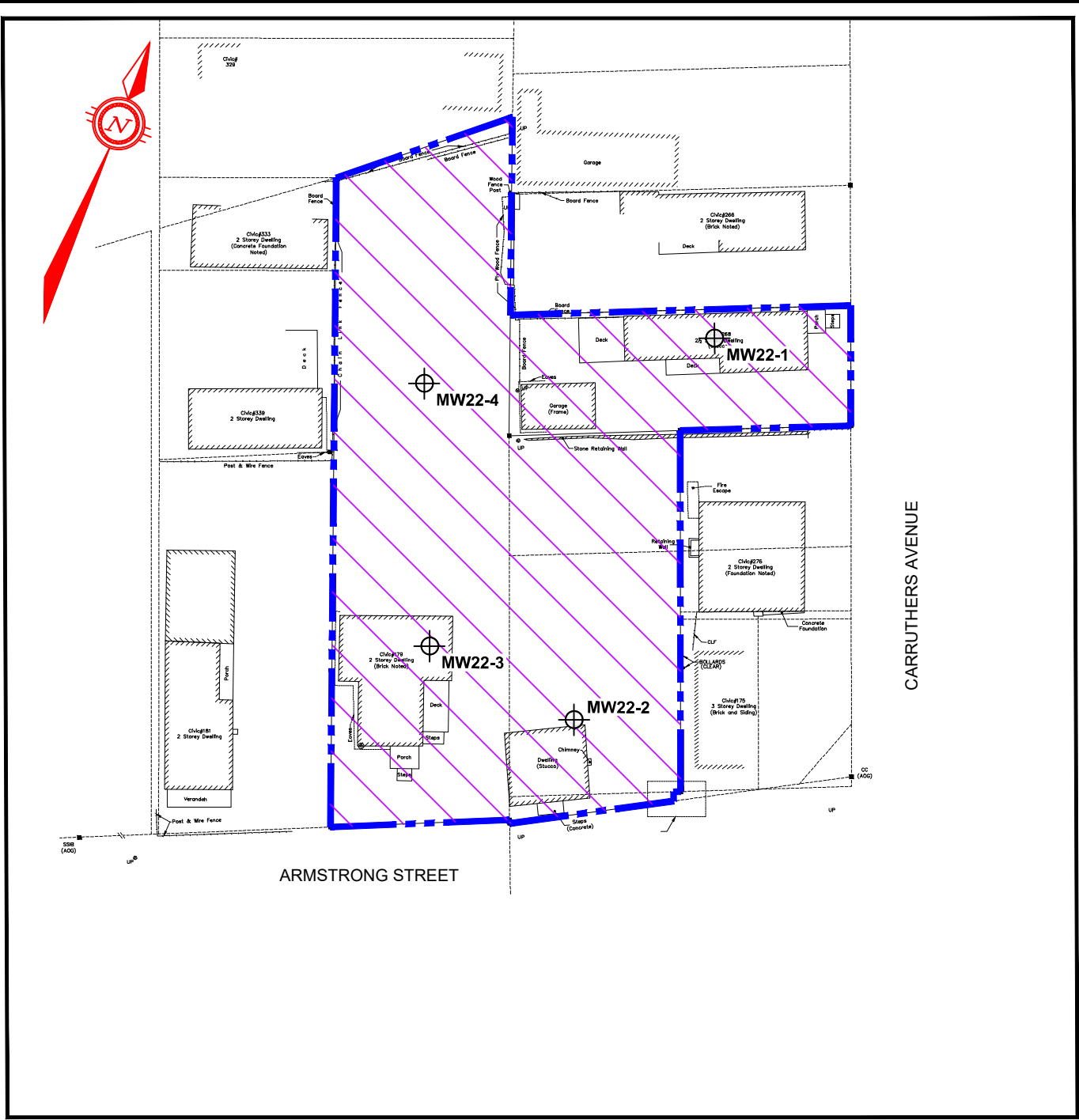
Filename: e:\ott\ott-22009213-b0\60 execution\65 drawings\remediation drawings\22009213-b0_remediation_fig 1.dwg
 Last Saved: 7/25/2022 2:56:46 PM
 Last Plotted: 7/25/2022 2:57:02 PM
 Pen Table: exp-64.ctb
 Plotted by: SeverA






EXP Services Inc. www.exp.com
 t: +1.613.688.1899 | f: +1.613.225.7337
 2650 Queensview Drive, Suite 100
 Ottawa, ON K2B 8H6, Canada

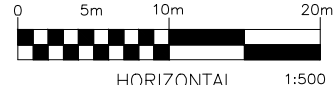
DATE JULY 2022		CLIENT: Mc CORMICK PARK DEVELOPMENTS INC.		project no. OTT-22009213-B0
DESIGN M.M.	CHECKED C.H.	TITLE: SITE LOCATION PLAN – POST-REMEDATION		scale 1:12,500
DRAWN BY A.S.		177 ARMSTRONG ST. & 268 CARRUTHERS AVE., OTTAWA, ON		FIG 1

Filename: e:\lott\ott-22009213-b0\60 execution\65 drawings\remediation drawings\22009213-b0_remediation_fig 2-8-3.dwg
 Last Saved: 7/25/2022 2:58:12 PM
 Last Plotted: 7/25/2022 2:58:19 PM
 Plotted by: Severa
 Pen Table: exp-64.ctb



LEGEND

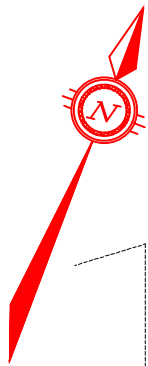
-  MW22-1 POST-REMEDIATION MONITORING WELL NUMBER AND LOCATION (NO DATA COLLECTED)
-  PROPERTY BOUNDARIES
-  SOIL REMOVED BY REMEDIAL EXCAVATION



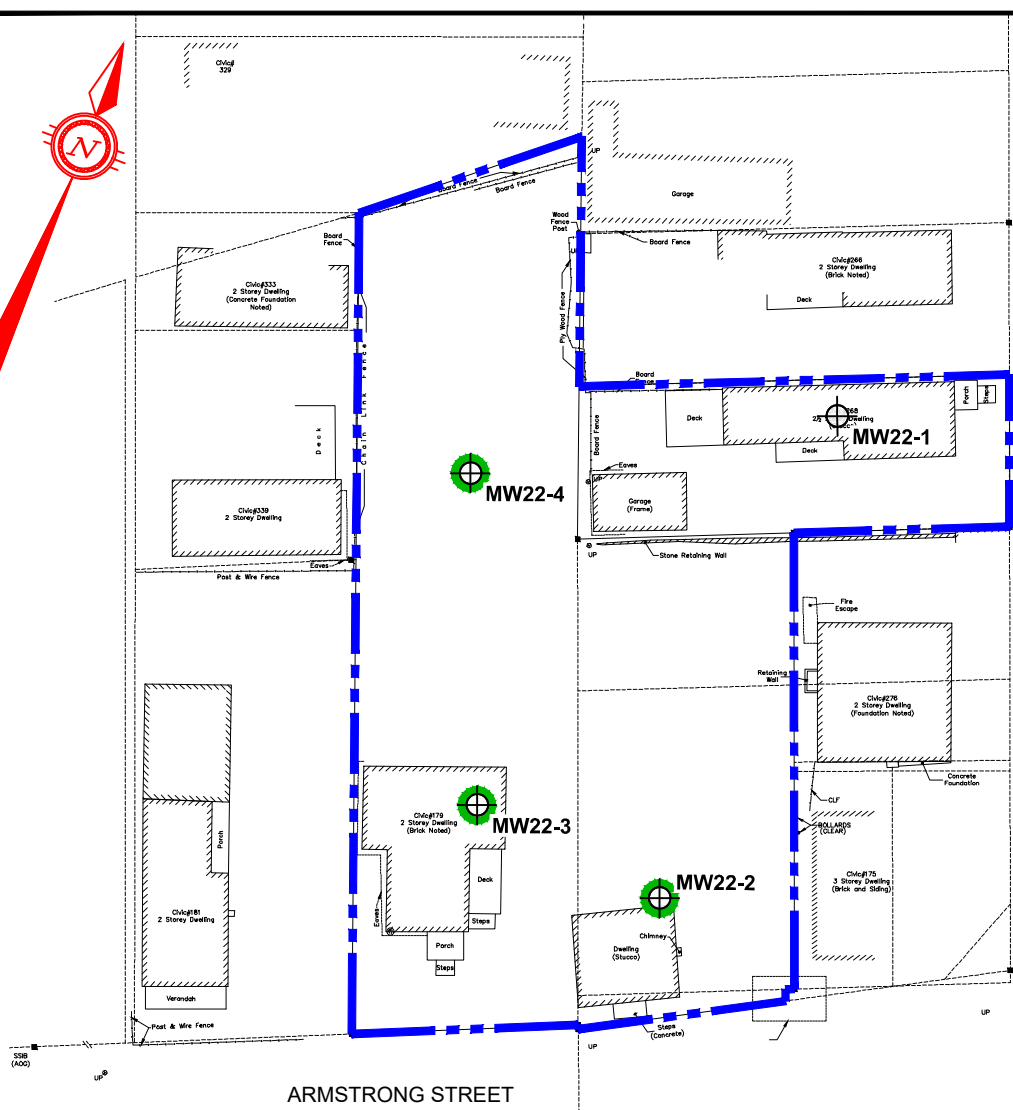
EXP Services Inc. www.exp.com
 t: +1.613.688.1899 | f: +1.613.225.7337
 2650 Queensview Drive, Suite 100
 Ottawa, ON K2B 8H6, Canada

DATE JULY 2022		CLIENT: Mc CORMICK PARK DEVELOPMENTS INC.	project no. OTT-22009213-B0
DESIGN M.M.	CHECKED C.H.	TITLE: SITE PLAN – SOIL REMOVED, POST-REMEDIATION 177 ARMSTRONG ST. & 268 CARRUTHERS AVE., OTTAWA, ON	scale 1:500
DRAWN BY J.A. / A.S.			FIG 2

Filename: e:\lott\ott-22009213-b0\60 execution\65 drawings\remediation drawings\22009213-b0_remediation_fig 2-8-3.dwg
 Last Saved: 7/25/2022 2:58:33 PM
 Last Plotted: 7/25/2022 2:58:40 PM
 Plotted by: Severa
 Pen Table: exp-64.ctb



PARAMETERS	ABBREVIATION	REG 153/04 TABLE 7 STANDARDS
Benzene	B	0.5
Toluene	T	320
Ethylbenzene	E	54
Total Xylenes	X	72
F1	F1 (C6-C10)	420
F2	F2 (C10-C16)	150
F3	F3 (C16-C34)	500
F4	F4 (C34-C50)	500
Chloroform	CF	2
1,1-Dichloroethane	1,1-DCA	11
1,2-Dichloroethane	1,2-DCA	0.5
1,1-Dichloroethylene	1,1-DCE	0.5
Cis-1,2-Dichloroethylene	c-1,2-DCE	1.6
Trans-1,2-Dichloroethylene	t-1,2-DCE	1.6
Tetrachloroethylene	PCE	0.5
Trichloroethylene	TCE	0.5
Vinyl Chloride	VC	0.5



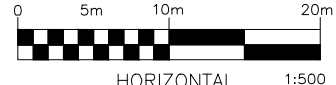
MW22-2		Screen Interval 2.1 to 5.8 mbgs															
DATE	B	T	E	X	F1	F2	F3	F4	CF	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
8-Jun-22	< 0.5	< 0.5	< 0.5	< 1.1	67	< 50	< 400	< 400	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2

MW22-3		Screen Interval 5.2 to 8.3 mbgs															
DATE	B	T	E	X	F1	F2	F3	F4	CF	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
30-May-22	< 0.5	< 0.5	< 0.5	< 1.1	< 25	< 50	< 400	< 400	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2

MW22-4		Screen Interval 1.5 to 4.6 mbgs															
DATE	B	T	E	X	F1	F2	F3	F4	CF	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
30-May-22	< 0.5	< 0.5	< 0.5	< 1.1	< 25	< 50	< 400	< 400	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2
30-May-22 (DUP)	< 0.5	< 0.5	< 0.5	< 1.1	< 25	< 50	< 400	< 400	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.2

LEGEND

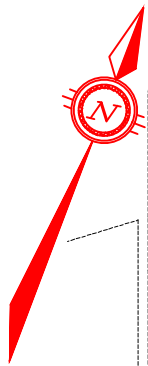
- PROPERTY BOUNDARIES
- GROUNDWATER QUALITY MEETS MECP TABLE 7 CS
- MW22-1 POST-REMEDIATION MONITORING WELL NUMBER AND LOCATION



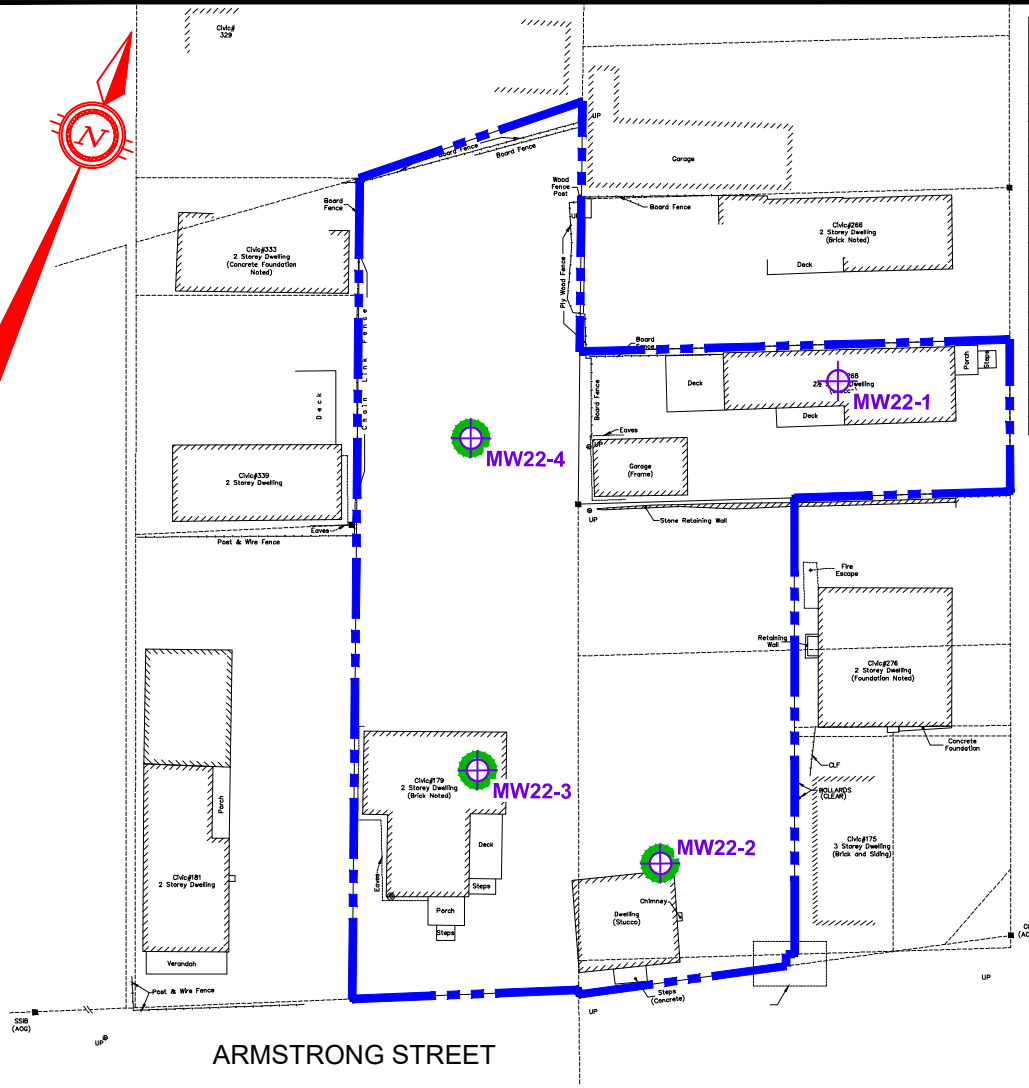
EXP Services Inc. www.exp.com
 t: +1.613.688.1899 | f: +1.613.225.7337
 2650 Queensview Drive, Suite 100
 Ottawa, ON K2B 8H6, Canada

DATE JULY 2022	CLIENT: Mc CORMICK PARK DEVELOPMENTS INC.	project no. OTT-22009213-B0
DESIGN M.M.	CHECKED C.H.	scale 1:500
DRAWN BY J.A. / A.S.	TITLE: GROUNDWATER ANALYTICAL RESULTS - POST-REMEDIATION PHC 177 ARMSTRONG ST. & 268 CARRUTHERS AVE., OTTAWA, ON	FIG 3

Filename: e:\lott\ott-22009213-b0\60 execution\65 drawings\remediation drawings\22009213-b0_remediation_fig 4.dwg
 Last Saved: 7/25/2022 2:59:41 PM
 Last Plotted: 7/25/2022 3:02:10 PM
 Plotted by: SeverA
 Pen Table: exp-64.ctb



PARAMETERS	ABBREVIATION	REG 153/04 TABLE 7 STANDARDS
Antimony	Sb	16000
Arsenic	As	1500
Barium	Ba	23000
Beryllium	Be	53
Boron	B	36000
Cadmium	Cd	2.1
Chromium	Cr	640
Chromium (VI)	Cr IV	110
Cobalt	Co	52
Copper	Cu	69
Lead	Pb	20
Mercury	Hg	0.1
Molybdenum	Mo	7300
Nickel	Ni	390
Selenium	Se	50
Silver	Ag	1.2
Sodium	Na	1800000
Thallium	Tl	400
Uranium	U	330
Vanadium	V	200
Zinc	Zn	690



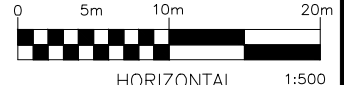
MW22-2																				Screen Interval 2.1 to 5.8 mbgs				
DATE	Sb	As	Ba	Be	B	Cd	Cr	Cr IV	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn			
8-Jun-22	1.0	0.4	101	<0.1	44	0.017	<2	<10	<0.1	2	0.06	0.07	10.2	1.0	1	<0.1	75,500	<0.05	0.52	0.4				

MW22-3																				Screen Interval 5.2 to 8.3 mbgs				
DATE	Sb	As	Ba	Be	B	Cd	Cr	Cr IV	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn			
30-May-22	2.7	0.5	206	<0.2	158	<0.028	<2	<10	0.3	<2	0.18	<0.02	9.7	2.7	2	<0.1	127000	<0.1	1.27	0.4	5			

MW22-4																				Screen Interval 1.5 to 4.6 mbgs				
DATE	Sb	As	Ba	Be	B	Cd	Cr	Cr IV	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn			
30-May-22	1.5	0.4	92	<0.1	117	<0.015	<2	<10	0.3	4	0.06	0.06	6.1	4.8	4	<0.1	78,800	0.07	2.61	0.4	5			
30-May-22 (DUP)	1.6	0.4	94	<0.1	119	0.015	<2	<10	0.3	3	0.05	0.05	6.1	4.8	4	<0.1	80,400	0.07	2.66	0.4	<5			

LEGEND

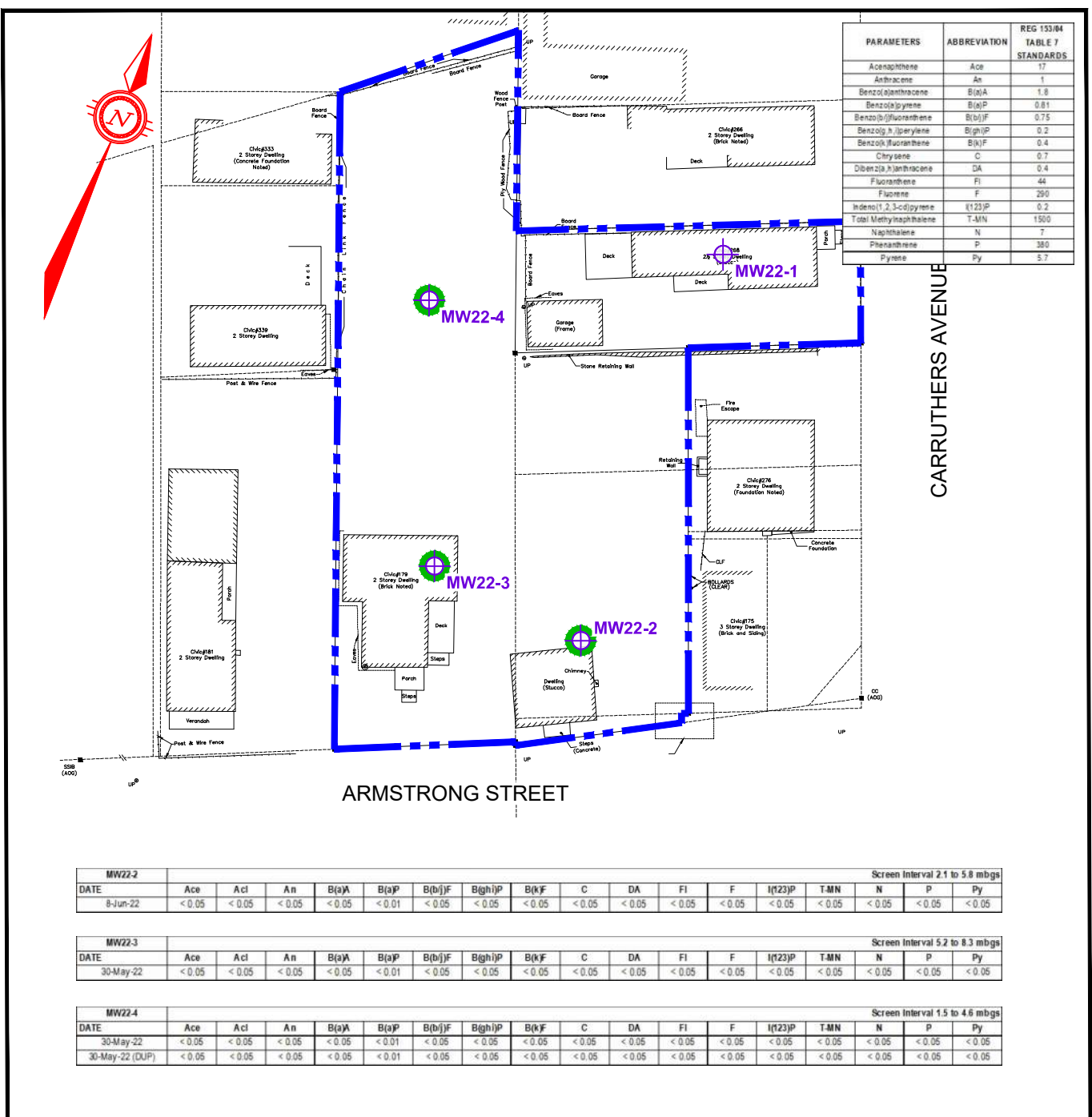
- PROPERTY BOUNDARIES
- GROUNDWATER QUALITY MEETS MECP TABLE 7 SCS
- MW22-1 POST-REMEDIATION MONITORING WELL NUMBER AND LOCATION



EXP Services Inc. www.exp.com
 t: +1.613.688.1899 | f: +1.613.225.7337
 2650 Queensview Drive, Suite 100
 Ottawa, ON K2B 8H6, Canada

DATE: JULY 2022		CLIENT: Mc CORMICK PARK DEVELOPMENTS INC.		project no. OTT-22009213-B0	
DESIGN: M.M.	CHECKED: C.H.	TITLE: GROUNDWATER ANALYTICAL RESULTS - POST-REMEDIATION METALS 177 ARMSTRONG ST. & 268 CARRUTHERS AVE., OTTAWA, ON			scale: 1:500
DRAWN BY: J.A. / A.S.					FIG 4

Filename: e:\lott-22009213-b0\60 execution\65 drawings\remediation drawings\22009213-b0_remediation_fig 5.dwg
 Last Saved: 7/25/2022 3:04:16 PM
 Last Plotted: 7/25/2022 3:04:25 PM
 Pen Table: exp-64.ctb
 Plotted by: Severa



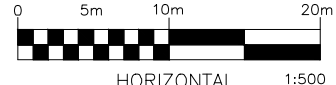
MW22-2																	Screen Interval 2.1 to 5.8 mbgs
DATE	Ace	AcI	An	B(a)A	B(a)P	B(b)F	B(g)P	B(h)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
8-Jun-22	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

MW22-3																	Screen Interval 5.2 to 8.3 mbgs
DATE	Ace	AcI	An	B(a)A	B(a)P	B(b)F	B(g)P	B(h)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
30-May-22	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

MW22-4																	Screen Interval 1.5 to 4.6 mbgs
DATE	Ace	AcI	An	B(a)A	B(a)P	B(b)F	B(g)P	B(h)F	C	DA	FI	F	I(123)P	T-MN	N	P	Py
30-May-22	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
30-May-22 (DUP)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

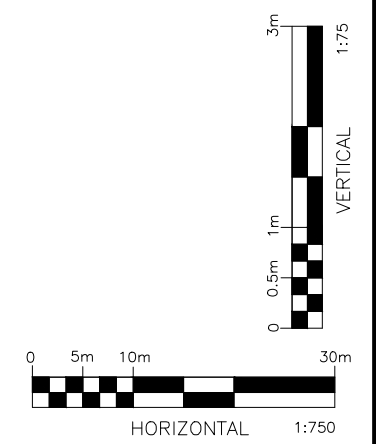
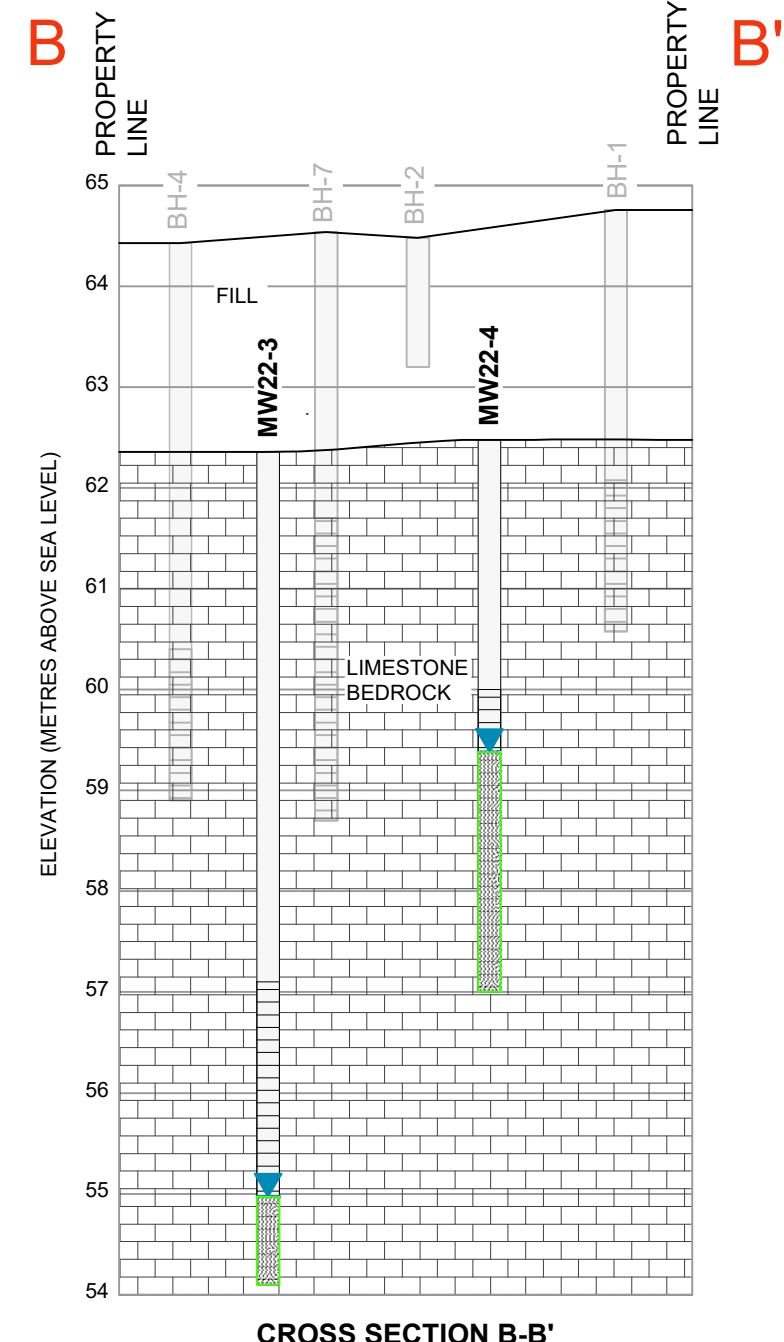
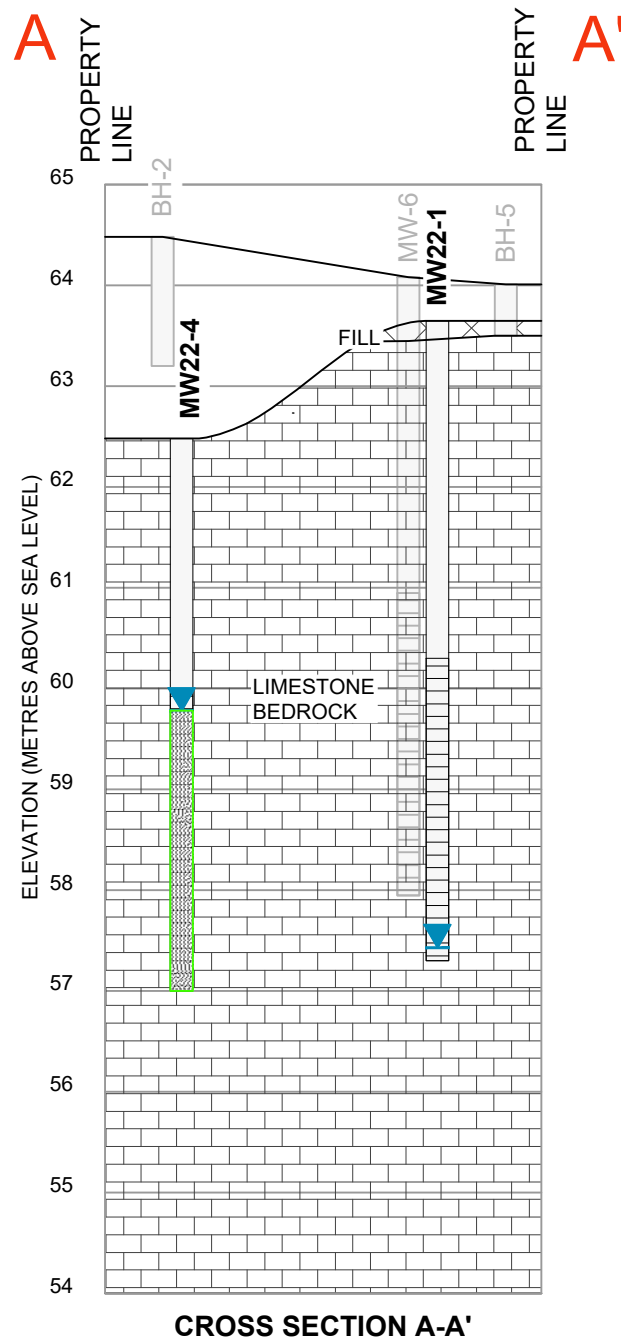
LEGEND

- PROPERTY BOUNDARIES
- GROUNDWATER QUALITY MEETS MECP TABLE 7 CS
- MW22-1 POST-REMEDIATION MONITORING WELL NUMBER AND LOCATION



EXP Services Inc. www.exp.com
 t: +1.613.688.1899 | f: +1.613.225.7337
 2650 Queensview Drive, Suite 100
 Ottawa, ON K2B 8H6, Canada

DATE JULY 2022	CLIENT: Mc CORMICK PARK DEVELOPMENTS INC.	project no. OTT-22009213-B0
DESIGN M.M.	CHECKED C.H.	scale 1:500
DRAWN BY J.A. / A.S.	TITLE: GROUNDWATER ANALYTICAL RESULTS - POST-REMEDIATION PAH 177 ARMSTRONG ST. & 268 CARRUTHERS AVE., OTTAWA, ON	
		FIG 5



PARAMETERS	ABBREVIATION	REG 153/04 TABLE 7 STANDARDS
Benzene	B	0.5
Toluene	T	320
Ethylbenzene	E	54
Total Xylenes	X	72
F1	F1 (C8-C10)	420
F2	F2 (C10-C16)	150
F3	F3 (C16-C34)	500
F4	F4 (C34-C50)	500
Chlorobm	CF	2
1,1-Dichloroethane	1,1-DCA	11
1,2-Dichloroethane	1,2-DCA	0.5
1,1-Dichloroethylene	1,1-DCE	0.5
Cis-1,2-Dichloroethylene	c-1,2-DCE	1.6
Trans-1,2-Dichloroethylene	t-1,2-DCE	1.6
Tetrachloroethylene	PCE	0.5
Trichloroethylene	TCE	0.5
Vinyl Chloride	VC	0.5

MW22-2									
Screen Interval 2.1 to 5.8 mbgs									
DATE	B	T	E	X	F1	F2	F3	F4	CF
8-Jun-22	< 0.5	< 0.5	< 0.5	< 1.1	67	< 50	< 400	< 400	< 1

MW22-3													
Screen Interval 5.2 to 8.3 mbgs													
DATE	B	T	E	X	F1	F2	F3	F4	CF	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE
30-May-22	< 0.5	< 0.5	< 0.5	< 1.1	< 25	< 50	< 400	< 400	< 1	< 0.5	< 0.5	< 0.5	< 0.5

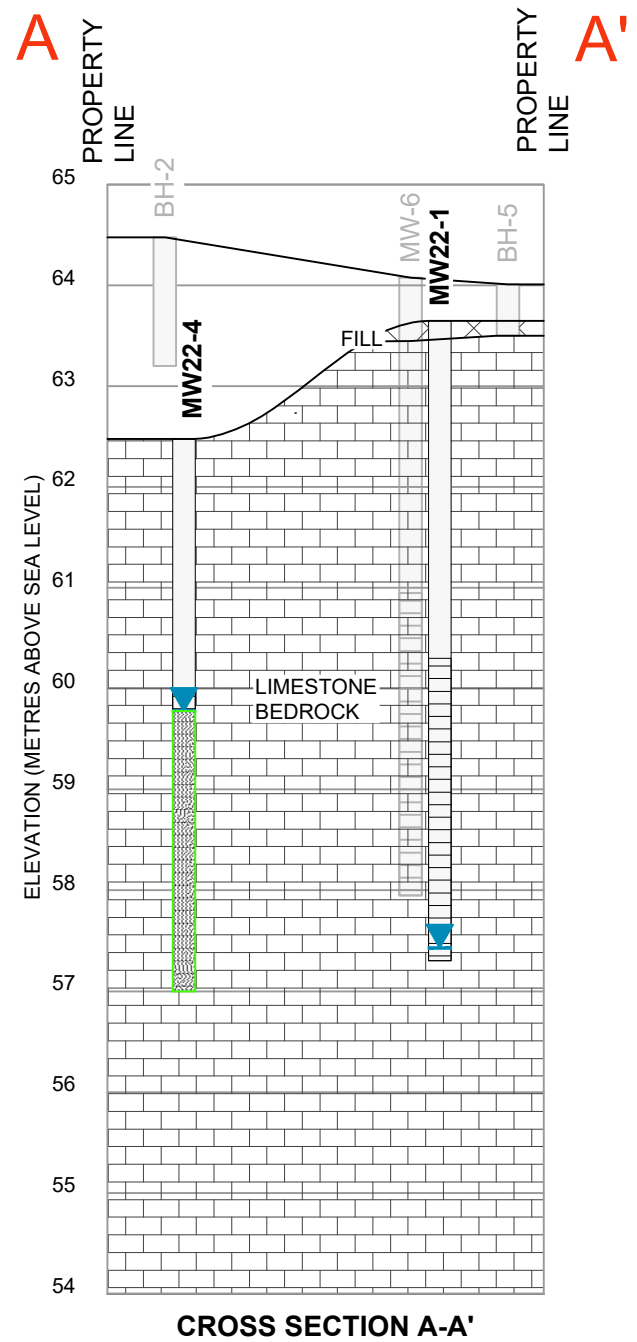
MW22-4													
Screen Interval 1.5 to 4.6 mbgs													
DATE	B	T	E	X	F1	F2	F3	F4	CF	1,1-DCA	1,2-DCA	1,1-DCE	c-1,2-DCE
30-May-22	< 0.5	< 0.5	< 0.5	< 1.1	< 25	< 50	< 400	< 400	< 1	< 0.5	< 0.5	< 0.5	< 0.5
30-May-22 (DUP)	< 0.5	< 0.5	< 0.5	< 1.1	< 25	< 50	< 400	< 400	< 1	< 0.5	< 0.5	< 0.5	< 0.5



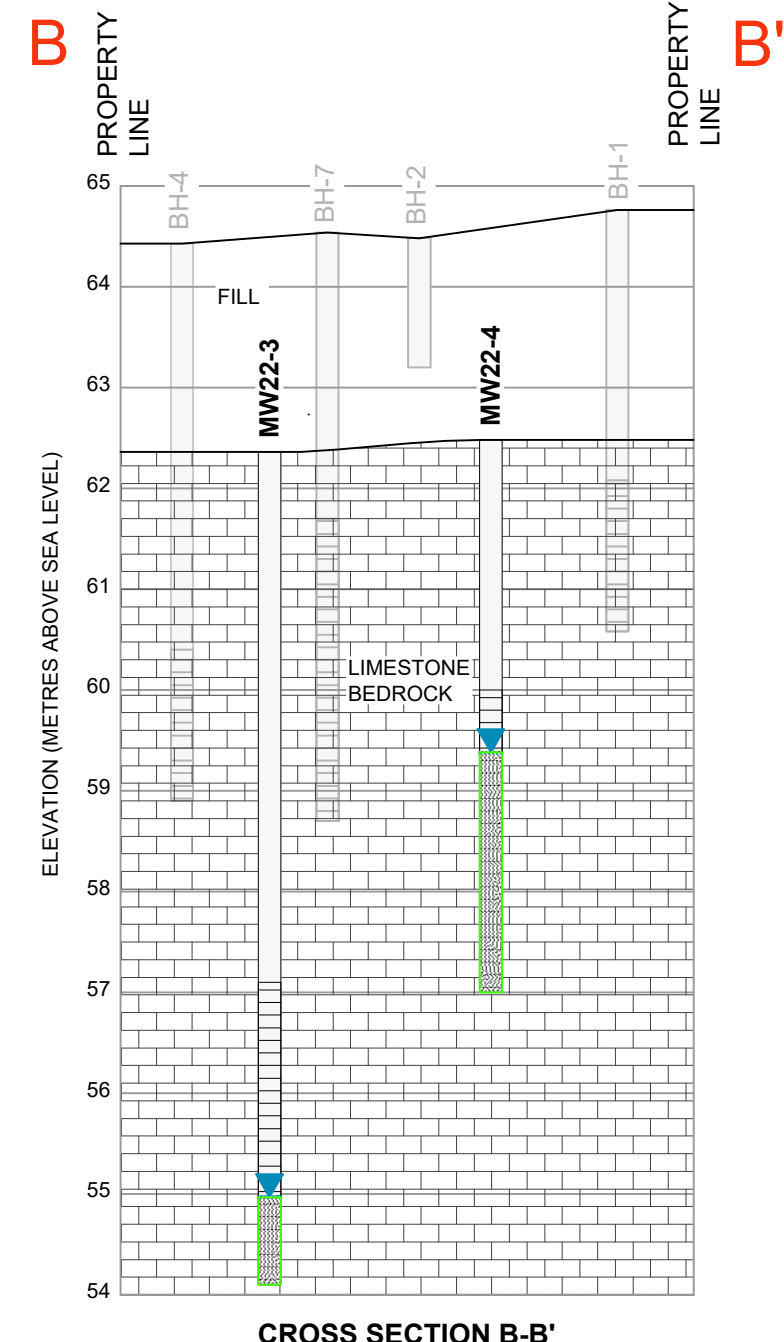
EXP Services Inc. www.exp.com
 t: +1.613.688.1899 | f: +1.613.225.7337
 2650 Queensview Drive, Suite 100
 Ottawa, ON K2B 8H6, Canada

DATE	JULY 2022	CLIENT:	Mc CORMICK PARK DEVELOPMENTS INC. 177 ARMSTRONG ST. & 268 CARRUTHERS AVE., OTTAWA, ON
DESIGN	M.M.	CHECKED	C.H.
DRAWN BY	J.A. / A.S.		TITLE:
			CROSS-SECTIONS A-A' & B-B': GROUNDWATER ANALYTICAL RESULTS - POST-REMEDATION PHC
			project no. OTT-22009213-B0 scale HORZ. 1:750 / VERT. 1:75 FIG 6

File name: e:\ott\ott-22009213-b0\60 execution\65 drawings\remediation drawings\22009213-b0_remediation_fig 6-7-8.dwg
 Last Saved: SeverA

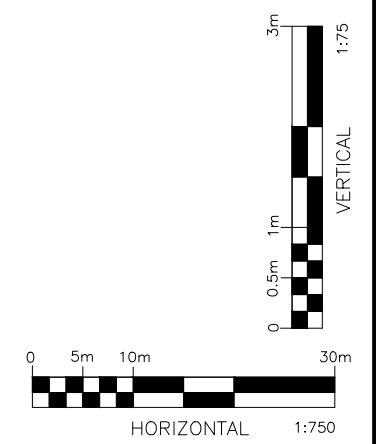


CROSS SECTION A-A'



CROSS SECTION B-B'

LEGEND
 GROUNDWATER LEVEL JUNE 6, 2022
 GROUNDWATER QUALITY MEETS MECP TABLE 7 SCS



PARAMETERS	ABBREVIATION	REG 153/94 TABLE 7 STANDARDS	PARAMETERS	ABBREVIATION	REG 153/94 TABLE 7 STANDARDS
Antimony	Sb	16000	Lead	Pb	20
Arsenic	As	1500	Mercury	Hg	0.1
Barium	Ba	23000	Molybdenum	Mo	7300
Beryllium	Be	53	Nickel	Ni	390
Boron	B	36000	Selenium	Se	50
Cadmium	Cd	2.1	Silver	Ag	1.2
Chromium	Cr	640	Sodium	Na	1800000
Chromium (VI)	Cr IV	110	Thallium	Tl	400
Cobalt	Co	52	Uranium	U	330
Copper	Cu	69	Vanadium	V	200
Lead	Pb	20	Zinc	Zn	890

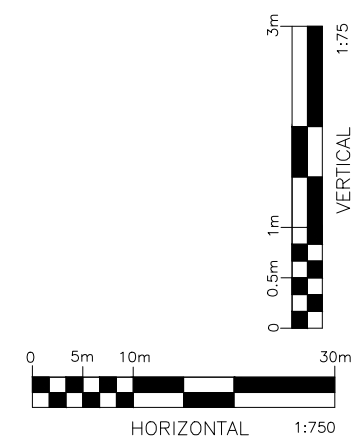
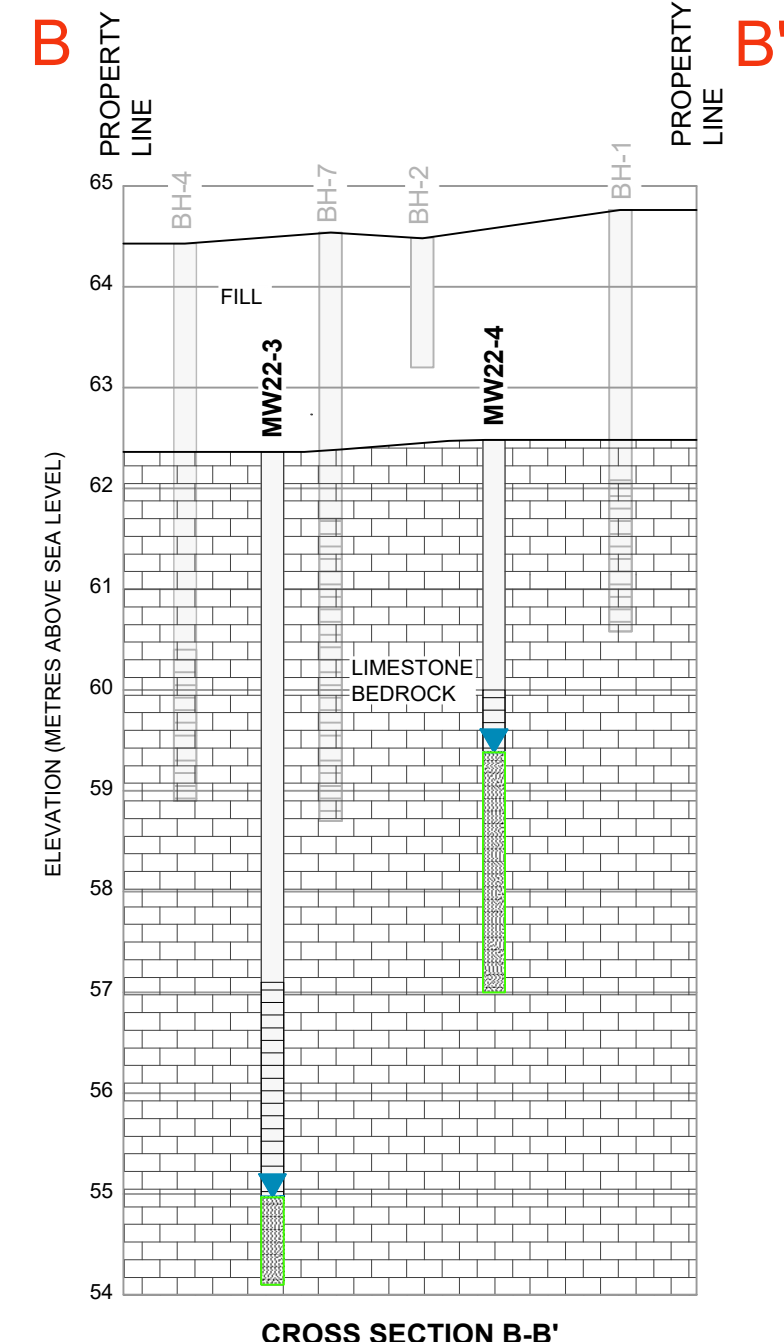
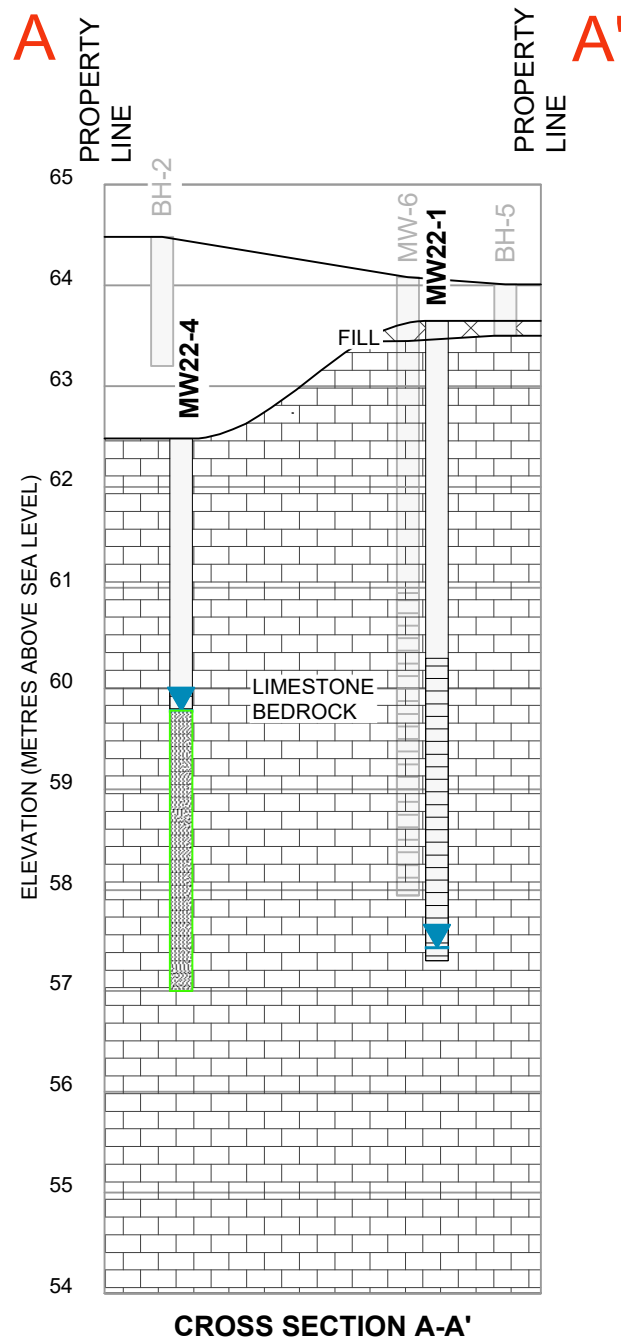
MW22-2		Screen Interval 2.1 to 5.8 mbgs																					
DATE		Sb	As	Ba	Be	B	Cd	Cr	Cr IV	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn	
9-Jun-22		1.0	0.4	101	<0.1	44	0.017	<2	<10	<0.1	2	0.06	0.07	10.2	1.0	1	<0.1	75,500	<0.05	0.52	0.4		
MW22-3		Screen Interval 5.2 to 9.3 mbgs																					
DATE		Sb	As	Ba	Be	B	Cd	Cr	Cr IV	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn	
30-May-22		2.7	0.5	206	+0.2	158	+0.028	+2	+10	0.3	+2	0.18	+0.02	9.7	2.7	2	<0.1	127000	<0.1	1.27	0.4	5	
MW22-4		Screen Interval 1.5 to 4.6 mbgs																					
DATE		Sb	As	Ba	Be	B	Cd	Cr	Cr IV	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn	
30-May-22		1.5	0.4	92	+0.1	117	+0.015	+2	+10	0.3	4	0.06	0.05	5.1	4.8	4	<0.1	78,800	0.07	2.51	0.4	5	
30-May-22 (DUP)		1.5	0.4	94	+0.1	119	0.015	+2	+10	0.3	3	0.05	0.05	5.1	4.8	4	<0.1	80,400	0.07	2.66	0.4	+5	



EXP Services Inc. www.exp.com
 t: +1.613.688.1899 | f: +1.613.225.7337
 2650 Queensview Drive, Suite 100
 Ottawa, ON K2B 8H6, Canada

DATE	JULY 2022	CLIENT:	Mc CORMICK PARK DEVELOPMENTS INC. 177 ARMSTRONG ST. & 268 CARRUTHERS AVE., OTTAWA, ON	project no.	OTT-22009213-B0
DESIGN	M.M.	CHECKED	C.H.	scale	HORZ. 1:750 / VERT. 1:75
DRAWN BY	J.A. / A.S.	TITLE:	CROSS-SECTIONS A-A' & B-B': GROUNDWATER ANALYTICAL RESULTS - POST-REMEDATION METALS	FIG 7	

File name: e:\01\01-22009213-b0\60 execution\65 drawings\remediation drawings\22009213-b0_remediation_fig 6-7-8.dwg
 Last Saved: SeverA



LEGEND

▲ GROUNDWATER LEVEL
JUNE 6, 2022

■ GROUNDWATER QUALITY
MEETS MECP TABLE 7 SCS

PARAMETERS	ABBREVIATION	REQ 153/04 TABLE 7 STANDARDS
Acenaphthene	Acn	17
Anthracene	An	1
Benzo(a)anthracene	B(a)A	1.8
Benzo(a)pyrene	B(a)P	0.81
Benzo(b)fluoranthene	B(b)F	0.75
Benzo(k)fluoranthene	B(k)F	0.2
Benzo(e)fluoranthene	B(e)F	0.4
Chrysene	C	0.7
Dibenz(a,h)anthracene	DA	0.4
Fluoranthene	Fl	44
Fluorene	F	290
Indeno(1,2,3-cd)pyrene	I(123)P	0.2
Total Methyl(naphthalene)	T-MN	1500
Naphthalene	N	7
Phenanthrene	P	380
Pyrene	Py	5.7

MW22-2														Screen Interval 2.1 to 5.8 mbgs					
DATE	Acn	AcI	An	B(a)A	B(a)P	B(b)F	B(k)F	B(e)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py		
8-Jun-22	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		

MW22-3														Screen Interval 5.2 to 8.3 mbgs					
DATE	Acn	AcI	An	B(a)A	B(a)P	B(b)F	B(k)F	B(e)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py		
30-May-22	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		

MW22-4														Screen Interval 1.5 to 4.8 mbgs					
DATE	Acn	AcI	An	B(a)A	B(a)P	B(b)F	B(k)F	B(e)F	C	DA	Fl	F	I(123)P	T-MN	N	P	Py		
30-May-22 (DUP)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		

EXP Services Inc. www.exp.com

t: +1.613.688.1899 | f: +1.613.225.7337
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE	JULY 2022	CLIENT:	Mc CORMICK PARK DEVELOPMENTS INC. 177 ARMSTRONG ST. & 268 CARRUTHERS AVE., OTTAWA, ON	project no.	OTT-22009213-B0
DESIGN	M.M.	CHECKED	C.H.	scale	HORZ. 1:750 / VERT. 1:75
DRAWN BY	J.A. / A.S.			TITLE:	CROSS-SECTIONS A-A' & B-B': GROUNDWATER ANALYTICAL RESULTS - POST-REMEDATION PAH
					FIG 8

File name: e:\ott\22009213-b0\60 execution\65 drawings\remediation drawings\22009213-b0_remediation_fig 6-7-8.dwg
 Last Saved: SeverA

EXP Services Inc.

*McCormick Park Developments Incorporated
Post Remediation Groundwater Sampling
177 Armstrong Street and 268 Carruthers Avenue, Ottawa, Ontario
OTT-22009213-B0
June 17, 2022*

Appendix B – Borehole Logs

Explanation of Terms Used on Borehole Records

SOIL DESCRIPTION

Terminology describing common soil genesis:

Topsoil: mixture of soil and humus capable of supporting good vegetative growth.

Peat: fibrous fragments of visible and invisible decayed organic matter.

Fill: where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc.; none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional geotechnical site investigation.

Till: the term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

Terminology describing soil structure:

Desiccated: having visible signs of weathering by oxidization of clay minerals, shrinkage cracks, etc.

Stratified: alternating layers of varying material or color with the layers greater than 6 mm thick.

Laminated: alternating layers of varying material or color with the layers less than 6 mm thick.

Fissured: material breaks along plane of fracture.

Varved: composed of regular alternating layers of silt and clay.

Slickensided: fracture planes appear polished or glossy, sometimes striated.

Blocky: cohesive soil that can be broken down into small angular lumps which resist further breakdown.

Lensed: inclusion of small pockets of different soil, such as small lenses of sand scattered through a mass of clay; not thickness.

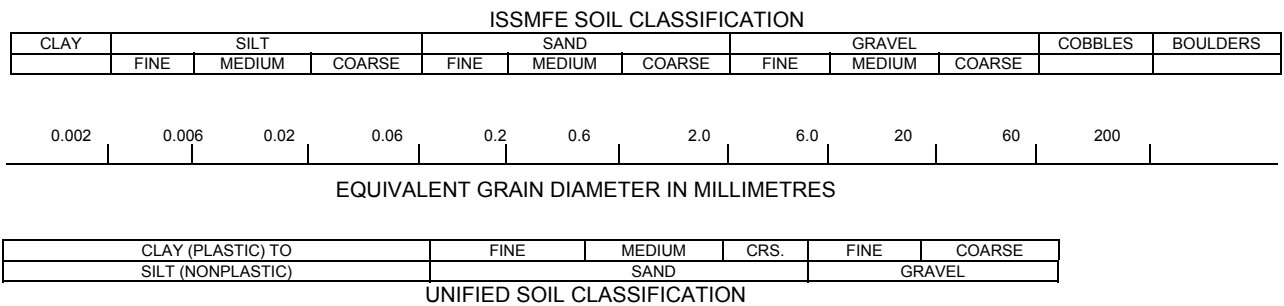
Seam: a thin, confined layer of soil having different particle size, texture, or color from materials above and below.

Homogeneous: same color and appearance throughout.

Well Graded: having wide range in grain sized and substantial amounts of all predominantly on grain size.

Uniformly Graded: predominantly on grain size.

All soil sample descriptions included in this report follow the ASTM D2487-11 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System). The system divides soils into three major categories: (1) coarse grained, (2) fine-grained, and (3) highly organic. The soil is then subdivided based on either gradation or plasticity characteristics. The system provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification. The classification excludes particles larger than 76 mm. Please note that, with the exception of those samples where a grain size analysis has been made, all samples are classified visually in accordance with ASTM D2488-09a Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems. Others may use different classification systems; one such system is the ISSMFE Soil Classification.



Terminology describing materials outside the USCS, (e.g. particles larger than 76 mm, visible organic matter, construction debris) is based upon the proportion of these materials present and as described below in accordance with Note 16 in ASTM D2488-09a:

Table a: Percent or Proportion of Soil, Pp

	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	$5 \leq Pp \leq 10\%$
Little	$15 \leq Pp \leq 25\%$
Some	$30 \leq Pp \leq 45\%$
Mostly	$50 \leq Pp \leq 100\%$

The standard terminology to describe cohesionless soils includes the compactness as determined by the Standard Penetration Test 'N' value:

Table b: Apparent Density of Cohesionless Soil

	'N' Value (blows/0.3 m)
Very Loose	$N < 5$
Loose	$5 \leq N < 10$
Compact	$10 \leq N < 30$
Dense	$30 \leq N < 50$
Very Dense	$50 \leq N$

The standard terminology to describe cohesive soils includes consistency, which is based on undrained shear strength as measured by insitu vane tests, penetrometer tests, unconfined compression tests or similar field and laboratory analysis, Standard Penetration Test 'N' values can also be used to provide an approximate indication of the consistency and shear strength of fine grained, cohesive soils:

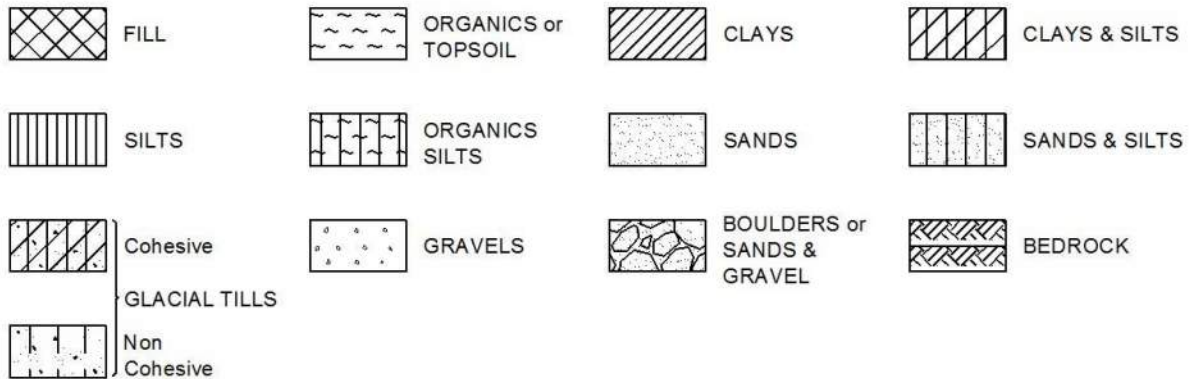
Table c: Consistency of Cohesive Soil

Consistency	Vane Shear Measurement (kPa)	'N' Value
Very Soft	<12.5	<2
Soft	12.5-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

Note: 'N' Value - The Standard Penetration Test records the number of blows of a 140 pound (64kg) hammer falling 30 inches (760mm), required to drive a 2 inch (50.8mm) O.D. split spoon sampler 1 foot (305mm). For split spoon samples where full penetration is not achieved, the number of blows is reported over the sampler penetration in meters (e.g. 50/0.15).

STRATA PLOT

Strata plots symbolize the soil or bedrock description. They are combinations of the following basic symbols:



WATER LEVEL MEASUREMENT



Open Borehole or Test Pit



Monitoring Well, Piezometer or Standpipe

Log of Borehole MW22-2



Project No: OTT-22009213-B0

Figure No. 2

Project: Post Remediation Groundwater Sampling Program

Page. 1 of 1

Location: 177 Armstrong Street and 268 Carruthers Avenue, Ottawa, Ontario

Date Drilled: May 11, 2022

Split Spoon Sample

Combustible Vapour Reading

Drill Type: Geomachine Drill Rig

Auger Sample

Natural Moisture Content

SPT (N) Value

Atterberg Limits

Datum: Geodetic Elevation

Dynamic Cone Test

Undrained Triaxial at % Strain at Failure

Shelby Tube

Shear Strength by Penetrometer Test

Logged by: P.O. Checked by: M.M.

Shear Strength by Vane Test

G W L	S Y M B O L	SOIL DESCRIPTION	Geodetic Elevation m	D e p t h m	Standard Penetration Test N Value				Combustible Vapour Reading (ppm)			NATURAL UNIT WT. kN/m ³
					Shear Strength kPa				250	500	750	
					20	40	60	80	Natural Moisture Content % Atterberg Limits (% Dry Weight)			
50	100	150	200	20	40	60						
		LIMESTONE BEDROCK Grey	61.16	0								
				1								
			59.37	2								
				3								
				4								
			56.0	5								
		Borehole Terminated at 5.18 m Depth										

LOG OF BOREHOLE BOREHOLE LOGS 22009213.GPJ TROW OTTAWA.GDT 6/9/22

- NOTES:
- Borehole data requires interpretation by EXP before use by others
 - A 37 mm diameter monitoring well was installed as shown.
 - Field work supervised by an EXP representative.
 - See Notes on Sample Descriptions
 - Log to be read with EXP Report OTT-22009213-B0

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)
25 days	1.8	

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole MW22-3



Project No: OTT-22009213-B0

Figure No. 3

Project: Post Remediation Groundwater Sampling Program

Page. 1 of 2

Location: 177 Armstrong Street and 268 Carruthers Avenue, Ottawa, Ontario

Date Drilled: May 11, 2022

Split Spoon Sample

Combustible Vapour Reading

Drill Type: Geomachine Drill Rig

Auger Sample

Natural Moisture Content

SPT (N) Value

Atterberg Limits

Datum: Geodetic Elevation

Dynamic Cone Test

Undrained Triaxial at % Strain at Failure

Shelby Tube

Shear Strength by Penetrometer Test

Logged by: P.O. Checked by: M.M.

Shear Strength by Vane Test

G W L	S Y M B O L	SOIL DESCRIPTION	Geodetic Elevation m	D e p t h m	Standard Penetration Test N Value				Combustible Vapour Reading (ppm)			NATURAL UNIT WT. kN/m ³
					20	40	60	80	250	500	750	
					Shear Strength kPa				Natural Moisture Content % Atterberg Limits (% Dry Weight)			
					50	100	150	200	20	40	60	
		LIMESTONE BEDROCK Grey	62.36	0								
				1								
				2								
				3								
				4								
				5								
				6								
				7								

Continued Next Page

NOTES:

- Borehole data requires interpretation by EXP before use by others
- A 37 mm diameter monitoring well was installed as shown.
- Field work supervised by an EXP representative.
- See Notes on Sample Descriptions
- Log to be read with EXP Report OTT-22009213-B0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
25 days	7.4	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	0.6 - 1.3	93	83
2	1.3 - 2.5	100	65

LOG OF BOREHOLE BOREHOLE LOGS 22009213.GPJ TROW OTTAWA GDT 6/9/22

Log of Borehole MW22-3



Project No: OTT-22009213-B0

Figure No. 3

Project: Post Remediation Groundwater Sampling Program

Page. 2 of 2

SOIL LOG	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value				Combustible Vapour Reading (ppm)			Natural Unit Wt. kN/m ³
				20	40	60	80	250	500	750	
				Shear Strength kPa				Natural Moisture Content % Atterberg Limits (% Dry Weight)			
	LIMESTONE BEDROCK Grey (continued)	55.36	7	50	100	150	200	20	40	60	
		54.97									
		54.1	8								
	Borehole Terminated at 8.23 m Depth										

LOG OF BOREHOLE BOREHOLE LOGS 22009213.GPJ TROW/OTTAWA.GDT 6/9/22

NOTES:

- Borehole data requires interpretation by EXP before use by others
- A 37 mm diameter monitoring well was installed as shown.
- Field work supervised by an EXP representative.
- See Notes on Sample Descriptions
- Log to be read with EXP Report OTT-22009213-B0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
25 days	7.4	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	0.6 - 1.3	93	83
2	1.3 - 2.5	100	65

Log of Borehole MW22-4



Project No: OTT-22009213-B0

Figure No. 4

Project: Post Remediation Groundwater Sampling Program

Page. 1 of 1

Location: 177 Armstrong Street and 268 Carruthers Avenue, Ottawa, Ontario

Date Drilled: May 11, 2022

Split Spoon Sample

Combustible Vapour Reading

Drill Type: Geomachine Drill Rig

Auger Sample

Natural Moisture Content

SPT (N) Value

Atterberg Limits

Datum: Geodetic Elevation

Dynamic Cone Test

Undrained Triaxial at % Strain at Failure

Shelby Tube

Shear Strength by Penetrometer Test

Logged by: P.O. Checked by: M.M.

Shear Strength by Vane Test

G W L	S O I L	SOIL DESCRIPTION	Geodetic Elevation m	D e p t h m	Standard Penetration Test N Value				Combustible Vapour Reading (ppm)			Natural Unit Wt. kN/m ³
					20	40	60	80	250	500	750	
					Shear Strength kPa				Natural Moisture Content % Atterberg Limits (% Dry Weight)			
		LIMESTONE BEDROCK Grey	62.48	0	50	100	150	200	20	40	60	
				1								
				2								
				3								
			59.38	4								
				57.9								
		Borehole Terminated at 4.57 m Depth										

LOG OF BOREHOLE BOREHOLE LOGS 22009213.GPJ TROW OTTAWA GDT 6/9/22

- NOTES:
- Borehole data requires interpretation by EXP before use by others
 - A 37 mm diameter monitoring well was installed as shown.
 - Field work supervised by an EXP representative.
 - See Notes on Sample Descriptions
 - Log to be read with EXP Report OTT-22009213-B0

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)
25 days	3.1	

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %
1	1.6 - 2.3	85	0
2	2.3 - 4	97	65
3	4 - 5.5	100	71



Appendix C – Analytical Summary Tables

**TABLE 1 GROUNDWATER ANALYTICAL RESULTS ($\mu\text{g/L}$)
PETROLEUM HYDROCARBONS and BTEX
177 Armstrong Street and 268 Carruthers Avenue, Ottawa**

Parameter	MECP Table 7 ¹	BH-4	MW-10	MW-6	MW-7	MW-8	MW22-2	MW22-3	MW22-4	MW22-5
Sample Date (d/m/y)		19-Sep-19	Duplicate of	19-Sep-19	19-Sep-19	19-Sep-19	8-Jun-22	30-May-22	30-May-22	Duplicate
Screened Interval (mbsg)		4.0 - 5.5	BH-4	3.1 - 6.1	2.8 - 5.8	2.8 - 5.8	2.2 - 5.2	5.2 - 8.2	1.5 - 3.5	
BV Labs ID		KVG986	KVG985	KVG982	KVG983	KVG984	B22-17640-1	B22-16103-2	B22-16103-1	B22-16103-3
Date of Analysis		24-Sep-2019	24-Apr-2019	24-Apr-2019	24-Apr-2019	24-Apr-2019	10-Jun-2022	1-Jun-2022	1-Jun-2022	
Maxxam Certificate of Analysis		B9Q3808	B9Q3808	B9Q3808	B9Q3808	B9Q3808	B22-17640	B22-16103	B22-16103	B22-16103
Benzene	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.5	<0.5	<0.5	<0.5
Toluene	320	<0.20	<0.20	<0.20	<0.20	<0.20	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	54	<0.20	<0.20	<0.20	<0.20	<0.20	<0.5	<0.5	<0.5	<0.5
Total Xylenes	72	<0.20	<0.20	<0.20	<0.20	<0.20	<1.1	<1.1	<1.1	<1.1
PHC F1	420	<25	<25	<25	<25	<25	67	<25	<25	<25
PHC F2	150	<100	<100	<100	<100	<100	<50	<50	<50	<50
PHC F3	500	<200	<200	<200	<200	<200	<400	<400	<400	<400
PHC F4	500	<200	<200	<200	<200	<200	<400	<400	<400	<400

NOTES:

¹ MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 7 Non-Potable Residential SCS, coarse grained soil.

Shaded Concentration exceeds MECP Table 7 Residential SCS.

NA Not Analyzed

NV No Value

mbsg Metres below surface grade

TABLE 2 GROUNDWATER ANALYTICAL RESULTS ($\mu\text{g/L}$)
VOLATILE ORGANIC COMPOUNDS
177 Armstrong Street and 268 Carruthers Avenue, Ottawa

Parameter	MECP Table 7 ¹	BH-4	MW-10	MW-6	MW-7	MW-8	TRIP BLANK	MW22-3	MW22-4	MW22-5
Sample Date (d/m/y)		19-Sep-19	Duplicate of	19-Sep-19	19-Sep-19	19-Sep-19	19-Sep-19	30-May-22	30-May-22	Duplicate
Screened Interval		4.0 - 5.5	BH-4	3.1 - 6.1	2.8 - 5.8	2.8 - 5.8	NA	5.2 - 8.2	1.5 - 3.5	
BV Labs ID		KVG986	KVG985	KVG982	KVG983	KVG984	KVG987	B22-16103-2	B22-16103-1	B22-16103-3
Date of Analysis		25-Sep-2019	25-Apr-2019	25-Apr-2019	25-Apr-2019	25-Apr-2019	25-Apr-2019	2-Jun-2022	2-Jun-2022	
Maxxam Certificate of Analysis		B9Q3808	B9Q3808	B9Q3808	B9Q3808	B9Q3808	B9Q3808	B22-16103	B22-16103	B22-16103
Acetone	100000	<10	<10	<10	11	<10	<10	< 30	< 30	< 30
Benzene	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
Bromodichloromethane	67000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 2	< 2	< 2
Bromoform	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5	< 5	< 5
Bromomethane	0.89	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2
Chlorobenzene	140	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
Chloroform	2	<0.20	<0.20	<0.20	<0.20	0.27	<0.20	< 1	< 1	< 1
Dibromochloromethane	65000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 2	< 2	< 2
1,2-Dichlorobenzene	150	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	7600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	3500	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	< 2	< 2
1,1-Dichloroethane	11	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
Trans-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	0.58	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
Cis-1,3-Dichloropropylene	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
Trans-1,3-Dichloropropylene										
Ethylbenzene	54	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
Ethylene Dibromide	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2
Hexane	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 5	< 5	< 5
Methylene Chloride	26	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 5	< 5	< 5
Methyl Ethyl Ketone	21000	<10	<10	<10	<10	<10	<10	< 20	< 20	< 20
Methyl Isobutyl Ketone	5200	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 20	< 20	< 20
Methyl-t-Butyl Ether	15	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 2	< 2	< 2
Styrene	43	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
Toluene	320	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	23	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5
Trichloroethylene	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	2000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 5	< 5	< 5
Vinyl Chloride	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2
Total Xylenes	72	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 1.1	< 1.1	< 1.1

NOTES:

¹ MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 7 Non-Potable Residential SCS, coarse grained soil.

Shaded Concentration exceeds MECP Table 7 Residential SCS.

mbsg Metres below surface grade

**TABLE 3 GROUNDWATER ANALYTICAL RESULTS ($\mu\text{g/L}$)
METALS
177 Armstrong Street and 268 Carruthers Avenue, Ottawa**

Parameter	MECP Table 7 ¹	MW22-2	MW22-3	MW22-4	MW22-5
Sample Date (d/m/y)		8-Jun-22	30-May-22	30-May-22	Duplicate
Screened Interval		2.2 - 5.2	5.2 - 8.2	1.5 - 3.5	
Laboratory ID		B22-17640-1	B22-16103-2	B22-16103-1	B22-16103-3
Date of Analysis		14-Jun-2022	2-Jun-2022	2-Jun-2022	
Certificate of Analysis		B22-17640	B22-16103	B22-16103	B22-16103
Antimony	16000	1	2.7	1.5	1.6
Arsenic	1500	0.4	0.5	0.4	0.4
Barium	23000	101	206	92	94
Beryllium	53	< 0.1	< 0.2	< 0.1	< 0.1
Boron	36000	44	158	117	119
Cadmium	2.1	0.017	< 0.028	< 0.015	0.015
Chromium	640	< 2	< 2	< 2	< 2
Chromium VI	110	< 10	< 10	< 10	< 10
Cobalt	52	< 0.1	0.3	0.3	0.3
Copper	69	2	< 2	4	3
Lead	20	0.06	0.18	0.06	0.05
Mercury	0.1	0.07	< 0.02	0.05	0.05
Molybdenum	7300	10.2	9.7	6.1	6.1
Nickel	390	1	2.7	4.8	4.8
Selenium	50	1	2	4	4
Silver	1.2	< 0.1	< 0.1	< 0.1	< 0.1
Sodium	1800000	75500	127000	78800	80400
Thallium	400	< 0.05	< 0.1	0.07	0.07
Uranium	330	0.52	1.27	2.61	2.66
Vanadium	200	0.4	0.4	0.4	0.4
Zinc	890	< 5	5	5	< 5

NOTES:

1 MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 7 Non-Potable Residential SCS, coarse grained soil.

Shaded Concentration exceeds MECP Table 7 Residential SCS.

mbsg Metres below surface grade

**TABLE 4 GROUNDWATER ANALYTICAL RESULTS ($\mu\text{g/L}$)
POLYCYCLIC AROMATIC HYDROCARBONS
177 Armstrong Street and 268 Carruthers Avenue, Ottawa**

Parameter	MECP Table 7 ¹	MW22-2	MW22-3	MW22-4	MW22-5
Sample Date (d/m/y)		8-Jun-22	30-May-22	30-May-22	Duplicate
Screened Interval		2.2 - 5.2	5.2 - 8.2	1.5 - 3.5	
Laboratory ID		B22-17640-1	B22-16103-2	B22-16103-1	B22-16103-3
Date of Analysis		13-Jun-2022	2-Jun-2022	2-Jun-2022	
Maxxam Certificate of Analysis		B22-17640	B22-16103	B22-16103	B22-16103
Acenaphthene	17	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	1	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	1	< 0.05	< 0.05	< 0.05	< 0.05
Benzo[a]anthracene	1.8	< 0.05	< 0.05	< 0.05	< 0.05
Benzo[a]pyrene	0.81	< 0.01	< 0.01	< 0.01	< 0.01
Benzo[b]fluoranthene	0.75	< 0.05	< 0.05	< 0.05	< 0.05
Benzo[g,h,i]perylene	0.2	< 0.05	< 0.05	< 0.05	< 0.05
Benzo[k]fluoranthene	0.4	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	0.7	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo[a,h]anthracene	0.4	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	44	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	290	< 0.05	< 0.05	< 0.05	< 0.05
Indeno[1,2,3-cd]pyrene	0.2	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene (1&2)	1500	< 1	< 0.05	< 0.05	< 0.05
Naphthalene	7	< 0.06	< 0.05	< 0.05	< 0.05
Phenanthrene	380	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	5.7	< 0.05	< 0.05	< 0.05	< 0.05

NOTES:

1 MECP *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 7 Non-Potable Residential SCS, coarse grained soil.*

Shaded Concentration exceeds MECP Table 7 Residential SCS.

mbsg Metres below surface grade

EXP Services Inc.

*McCormick Park Developments Incorporated
Post Remediation Groundwater Sampling
177 Armstrong Street and 268 Carruthers Avenue, Ottawa, Ontario
OTT-22009213-B0
June 17, 2022*

Appendix D – Laboratory Certificates of Analysis

C.O.C.: G110777

REPORT No. B22-16103

Report To:

EXP Services Inc

2650 Queensview Drive, Suite 100
 Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 30-May-22

JOB/PROJECT NO.:

DATE REPORTED: 03-Jun-22

P.O. NUMBER: OTT-220091213-B

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Qty	Site Analyzed	Analyst Initials	Date Analyzed	Lab Method	Reference Method
SVOC	3	Kingston	esi	02-Jun-22	C-NAB-S-001 (k)	EPA 8270
SVOC	3	Kingston	esi	02-Jun-22	C-NAB-W-001 (k)	EPA 8270
PHC(F2-F4)	3	Kingston	KPR	01-Jun-22	C-PHC-W-001 (k)	MOE E3421
VOC's	3	Richmond Hill	JE	01-Jun-22	C-VOC-02 (rh)	EPA 8260
PHC(F1)	3	Richmond Hill	JE	01-Jun-22	C-VPHW-01 (rh)	MOE E3421
Chromium (VI)	3	Holly Lane	ST	03-Jun-22	D-CRVI-01 (o)	MOE E3056
Mercury	3	Holly Lane	PBK	02-Jun-22	D-HG-02 (o)	SM 3112 B
Metals - ICP-OES	3	Holly Lane	AHM	02-Jun-22	D-ICP-01 (o)	SM 3120
Metals - ICP-MS	3	Holly Lane	TPR	03-Jun-22	D-ICPMS-01 (o)	EPA 200.8

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg

F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)

F2 C10-C16 hydrocarbons in µg/g, (F2-naph if requested)

F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)

F4 C34-C50 hydrocarbons in µg/g

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

Any deviations from the method are noted and reported for any particular sample.

nC6 and nC10 response factor is within 30% of response factor for toluene:

nC10,nC16 and nC34 response factors within 10% of each other:

C50 response factors within 70% of nC10+nC16+nC34 average:

Linearity is within 15%:

All results expressed on a dry weight basis.

Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met. If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC QC will be made available upon request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards

Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
 Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G110777

REPORT No. B22-16103

Report To:

EXP Services Inc
2650 Queensview Drive, Suite 100
Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-May-22

JOB/PROJECT NO.:

DATE REPORTED: 03-Jun-22

P.O. NUMBER: OTT-220091213-B

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Client I.D. Sample I.D. Date Collected		MW22-4 B22-16103-1 30-May-22	MW22-3 B22-16103-2 30-May-22	MW22-5 B22-16103-3 30-May-22	O. Reg. 153 Tbl. 1 - GW (µg/L)	
	Units	R.L.					
Antimony	µg/L	0.1	1.5	2.7	1.6	1.5	
Arsenic	µg/L	0.1	0.4	0.5	0.4	13	
Barium	µg/L	1	92	206	94	610	
Beryllium	µg/L	0.1	< 0.1	< 0.2	< 0.1	0.5	
Boron	µg/L	5	117	158	119	1700	
Cadmium	µg/L	0.015	< 0.015	< 0.028	0.015	0.5	
Chromium	µg/L	2	< 2	< 2	< 2	11	
Chromium (VI)	µg/L	10	< 10	< 10	< 10	25	
Cobalt	µg/L	0.1	0.3	0.3	0.3	3.8	
Copper	µg/L	2	4	< 2	3	5	
Lead	µg/L	0.02	0.06	0.18	0.05	1.9	
Mercury	µg/L	0.02	0.05	< 0.02	0.05	0.1	
Molybdenum	µg/L	0.1	6.1	9.7	6.1	23	
Nickel	µg/L	0.2	4.8	2.7	4.8	14	
Selenium	µg/L	1	4	2	4	5	
Silver	µg/L	0.1	< 0.1	< 0.1	< 0.1	0.3	
Sodium	µg/L	200	78800	127000	80400	490000	
Thallium	µg/L	0.05	0.07	< 0.1	0.07	0.5	
Uranium	µg/L	0.05	2.61	1.27	2.66	8.9	
Vanadium	µg/L	0.1	0.4	0.4	0.4	3.9	
Zinc	µg/L	5	5	5	< 5	160	
Acetone	µg/L	30	< 30	< 30	< 30	2700	
Benzene	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Bromodichloromethane	µg/L	2	< 2	< 2	< 2	2	
Bromoform	µg/L	5	< 5	< 5	< 5	5	
Bromomethane	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.89	
Carbon Tetrachloride	µg/L	0.2	< 0.2	< 0.2	< 0.2	0.2	

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G110777

REPORT No. B22-16103

Report To:

EXP Services Inc
 2650 Queensview Drive, Suite 100
 Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 30-May-22

JOB/PROJECT NO.:

DATE REPORTED: 03-Jun-22

P.O. NUMBER: OTT-220091213-B

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Client I.D. Sample I.D. Date Collected		MW22-4 B22-16103-1 30-May-22	MW22-3 B22-16103-2 30-May-22	MW22-5 B22-16103-3 30-May-22	O. Reg. 153 Tbl. 1 - GW (µg/L)	
	Units	R.L.					
Monochlorobenzene (Chlorobenzene)	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Chloroform	µg/L	1	< 1	< 1	< 1	2	
Dibromochloromethane	µg/L	2	< 2	< 2	< 2	2	
Dichlorobenzene, 1,2-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Dichlorobenzene, 1,3-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Dichlorobenzene, 1,4-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Dichlorodifluoromethane	µg/L	2	< 2	< 2	< 2	590	
Dichloroethane, 1,1-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Dichloroethane, 1,2-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Dichloroethylene, 1,1-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Dichloroethene, cis-1,2-	µg/L	0.5	< 0.5	< 0.5	< 0.5	1.6	
Dichloroethene, trans-1,2-	µg/L	0.5	< 0.5	< 0.5	< 0.5	1.6	
Dichloropropane, 1,2-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Dichloropropene, cis-1,3-	µg/L	0.5	< 0.5	< 0.5	< 0.5		
Dichloropropene, trans-1,3-	µg/L	0.5	< 0.5	< 0.5	< 0.5		
Dichloropropene 1,3- cis+trans	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Ethylbenzene	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.2	< 0.2	< 0.2	< 0.2	0.2	
Hexane	µg/L	5	< 5	< 5	< 5	5	
Methyl Ethyl Ketone	µg/L	20	< 20	< 20	< 20	400	
Methyl Isobutyl Ketone	µg/L	20	< 20	< 20	< 20	640	
Methyl-t-butyl Ether	µg/L	2	< 2	< 2	< 2	15	

O. Reg. 153 - Soil, Ground Water and Sediment Standards
 Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
 Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G110777

REPORT No. B22-16103

Report To:

EXP Services Inc
2650 Queensview Drive, Suite 100
Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-May-22

JOB/PROJECT NO.:

DATE REPORTED: 03-Jun-22

P.O. NUMBER: OTT-220091213-B

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Client I.D. Sample I.D. Date Collected		MW22-4 B22-16103-1 30-May-22	MW22-3 B22-16103-2 30-May-22	MW22-5 B22-16103-3 30-May-22	O. Reg. 153 Tbl. 1 - GW (µg/L)	
	Units	R.L.					
Dichloromethane (Methylene Chloride)	µg/L	5	< 5	< 5	< 5	5	
Styrene	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	< 0.5	< 0.5	< 0.5	1.1	
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Tetrachloroethylene	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Toluene	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.8	
Trichloroethane, 1,1,1-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Trichloroethane, 1,1,2-	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Trichloroethylene	µg/L	0.5	< 0.5	< 0.5	< 0.5	0.5	
Trichlorofluoromethane	µg/L	5	< 5	< 5	< 5	150	
Vinyl Chloride	µg/L	0.2	< 0.2	< 0.2	< 0.2	0.5	
Xylene, m,p-	µg/L	1.0	< 1.0	< 1.0	< 1.0		
Xylene, o-	µg/L	0.5	< 0.5	< 0.5	< 0.5		
Xylene, m,p,o-	µg/L	1.1	< 1.1	< 1.1	< 1.1	72	
PHC F1 (C6-C10)	µg/L	25	< 25	< 25	< 25	420	
PHC F2 (>C10-C16)	µg/L	50	< 50	< 50	< 50	150	
PHC F3 (>C16-C34)	µg/L	400	< 400	< 400	< 400	500	
PHC F4 (>C34-C50)	µg/L	400	< 400	< 400	< 400	500	
Acenaphthene	µg/L	0.05	< 0.05	< 0.05	< 0.05	4.1	
Acenaphthylene	µg/L	0.05	< 0.05	< 0.05	< 0.05	1	
Anthracene	µg/L	0.05	< 0.05	< 0.05	< 0.05	0.1	
Benzo(a)anthracene	µg/L	0.05	< 0.05	< 0.05	< 0.05	0.2	
Benzo(a)pyrene	µg/L	0.01	< 0.01	< 0.01	< 0.01	0.01	
Benzo(b)fluoranthene	µg/L	0.05	< 0.05	< 0.05	< 0.05	0.1	
Benzo(b+k)fluoranthene	µg/L	0.1	< 0.1	< 0.1	< 0.1		
Benzo(g,h,i)perylene	µg/L	0.05	< 0.05	< 0.05	< 0.05	0.2	

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G110777

REPORT No. B22-16103

Report To:

EXP Services Inc
 2650 Queensview Drive, Suite 100
 Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 30-May-22

JOB/PROJECT NO.:

DATE REPORTED: 03-Jun-22

P.O. NUMBER: OTT-220091213-B

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Client I.D.	MW22-4	MW22-3	MW22-5	O. Reg. 153	
			Sample I.D.	B22-16103-1	B22-16103-2	B22-16103-3	Tbl. 1 - GW (µg/L)	
			Date Collected	30-May-22	30-May-22	30-May-22		
Benzo(k)fluoranthene	µg/L	0.05		< 0.05	< 0.05	< 0.05	0.1	
Chrysene	µg/L	0.05		< 0.05	< 0.05	< 0.05	0.1	
Dibenzo(a,h)anthracene	µg/L	0.05		< 0.05	< 0.05	< 0.05	0.2	
Fluoranthene	µg/L	0.05		< 0.05	< 0.05	< 0.05	0.4	
Fluorene	µg/L	0.05		< 0.05	< 0.05	< 0.05	120	
Indeno(1,2,3,-cd)pyrene	µg/L	0.05		< 0.05	< 0.05	< 0.05	0.2	
Methylnaphthalene,1-	µg/L	0.05		< 0.05	< 0.05	< 0.05	2	
Methylnaphthalene,2-	µg/L	0.05		< 0.05	< 0.05	< 0.05	2	
Naphthalene	µg/L	0.05		< 0.05	< 0.05	< 0.05	7	
Phenanthrene	µg/L	0.05		< 0.05	< 0.05	< 0.05	0.1	
Pyrene	µg/L	0.05		< 0.05	< 0.05	< 0.05	0.2	
Terphenyl-d14 (SS)	% rec.	10		109	111	115		

1 Chromium (VI) result is based on total Chromium

O. Reg. 153 - Soil, Ground Water and Sediment Standards
 Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
 Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G110777

REPORT No. B22-16103

Report To:

EXP Services Inc
 2650 Queensview Drive, Suite 100
 Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 30-May-22

JOB/PROJECT NO.:

DATE REPORTED: 03-Jun-22

P.O. NUMBER: OTT-220091213-B

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Summary of Exceedances

Table 1 - Ground Water		
MW22-3	Found Value	Limit
Antimony (µg/L)	2.7	1.5
MW22-5	Found Value	Limit
Antimony (µg/L)	1.6	1.5

O. Reg. 153 - Soil, Ground Water and Sediment Standards
 Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
 Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G096879

REPORT No. B22-17640

Report To:

EXP Services Inc

2650 Queensview Drive, Suite 100
 Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 08-Jun-22

JOB/PROJECT NO.: OTT-22009213-BO

DATE REPORTED: 16-Jun-22

SAMPLE MATRIX: Groundwater

P.O. NUMBER:

WATERWORKS NO.

Parameter	Qty	Site Analyzed	Analyst Initials	Date Analyzed	Lab Method	Reference Method
SVOC	1	Kingston	esi	13-Jun-22	C-NAB-S-001 (k)	EPA 8270
SVOC	1	Kingston	esi	13-Jun-22	C-NAB-W-001 (k)	EPA 8270
PHC(F2-F4)	1	Kingston	KPR	10-Jun-22	C-PHC-W-001 (k)	MOE E3421
VOC's	1	Richmond Hill	FAL	10-Jun-22	C-VOC-02 (rh)	EPA 8260
PHC(F1)	1	Richmond Hill	FAL	10-Jun-22	C-VPHW-01 (rh)	MOE E3421
Chromium (VI)	1	Holly Lane	ST	15-Jun-22	D-CRVI-01 (o)	MOE E3056
Mercury	1	Holly Lane	PBK	14-Jun-22	D-HG-02 (o)	SM 3112 B
Metals - ICP-OES	1	Holly Lane	AHM	14-Jun-22	D-ICP-01 (o)	SM 3120
Metals - ICP-MS	1	Holly Lane	TPR	16-Jun-22	D-ICPMS-01 (o)	EPA 200.8

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg

F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)

F2 C10-C16 hydrocarbons in µg/g, (F2-naph if requested)

F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)

F4 C34-C50 hydrocarbons in µg/g

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

Any deviations from the method are noted and reported for any particular sample.

nC6 and nC10 response factor is within 30% of response factor for toluene:

nC10, nC16 and nC34 response factors within 10% of each other:

C50 response factors within 70% of nC10+nC16+nC34 average:

Linearity is within 15%:

All results expressed on a dry weight basis.

Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met. If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC QC will be made available upon request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards

Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
 Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G096879

REPORT No. B22-17640

Report To:

EXP Services Inc

2650 Queensview Drive, Suite 100
Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-Jun-22

JOB/PROJECT NO.: OTT-22009213-BO

DATE REPORTED: 16-Jun-22

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Client I.D.	MW22-2			O. Reg. 153	
			Sample I.D.	B22-17640-1			Tbl. 1 - GW	(µg/L)
			Date Collected	08-Jun-22				
Antimony	µg/L	0.1	1.0				1.5	
Arsenic	µg/L	0.1	0.4				13	
Barium	µg/L	1	101				610	
Beryllium	µg/L	0.1	< 0.1				0.5	
Boron	µg/L	5	44				1700	
Cadmium	µg/L	0.015	0.017				0.5	
Chromium	µg/L	2	< 2				11	
Chromium (VI)	µg/L	10	< 10	1			25	
Cobalt	µg/L	0.1	< 0.1				3.8	
Copper	µg/L	2	2				5	
Lead	µg/L	0.02	0.06				1.9	
Mercury	µg/L	0.02	0.07				0.1	
Molybdenum	µg/L	0.1	10.2				23	
Nickel	µg/L	0.2	1.0				14	
Selenium	µg/L	1	1				5	
Silver	µg/L	0.1	< 0.1				0.3	
Sodium	µg/L	200	75500				490000	
Thallium	µg/L	0.05	< 0.05				0.5	
Uranium	µg/L	0.05	0.52				8.9	
Vanadium	µg/L	0.1	0.4				3.9	
Zinc	µg/L	5	< 5				160	
Benzene	µg/L	0.5	< 0.5				0.5	
Toluene	µg/L	0.5	< 0.5				0.8	
Ethylbenzene	µg/L	0.5	< 0.5				0.5	
Xylene, m,p-	µg/L	1.0	< 1.0					
Xylene, o-	µg/L	0.5	< 0.5					
Xylene, m,p,o-	µg/L	1.1	< 1.1				72	

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G096879

REPORT No. B22-17640

Report To:

EXP Services Inc

2650 Queensview Drive, Suite 100
 Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 08-Jun-22

JOB/PROJECT NO.: OTT-22009213-BO

DATE REPORTED: 16-Jun-22

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Parameter	Units	R.L.	Client I.D.	MW22-2				O. Reg. 153	
			Sample I.D.	B22-17640-1				Tbl. 1 - GW	(µg/L)
			Date Collected	08-Jun-22					
Toluene-d8 (SS)	% rec.			98.1					
PHC F1 (C6-C10)	µg/L	25		67				420	
PHC F2 (>C10-C16)	µg/L	50		< 50				150	
PHC F3 (>C16-C34)	µg/L	400		< 400				500	
PHC F4 (>C34-C50)	µg/L	400		< 400				500	
Acenaphthene	µg/L	0.05		< 0.05				4.1	
Acenaphthylene	µg/L	0.05		< 0.05				1	
Anthracene	µg/L	0.05		< 0.05				0.1	
Benzo(a)anthracene	µg/L	0.05		< 0.06 ²				0.2	
Benzo(a)pyrene	µg/L	0.01		< 0.01				0.01	
Benzo(b)fluoranthene	µg/L	0.05		< 0.05				0.1	
Benzo(b+k)fluoranthene	µg/L	0.1		< 0.1					
Benzo(g,h,i)perylene	µg/L	0.05		< 0.05				0.2	
Benzo(k)fluoranthene	µg/L	0.05		< 0.05				0.1	
Chrysene	µg/L	0.05		< 0.05				0.1	
Dibenzo(a,h)anthracene	µg/L	0.05		< 0.05				0.2	
Fluoranthene	µg/L	0.05		< 0.05				0.4	
Fluorene	µg/L	0.05		< 0.05				120	
Indeno(1,2,3,-cd)pyrene	µg/L	0.05		< 0.05				0.2	
Methylnaphthalene,1-	µg/L	0.05		< 0.05				2	
Methylnaphthalene,2-	µg/L	0.05		< 0.05				2	
Methylnaphthalene 2-(1-)	µg/L	1		< 1				2	
Naphthalene	µg/L	0.05		< 0.06				7	
Phenanthrene	µg/L	0.05		< 0.05				0.1	
Pyrene	µg/L	0.05		< 0.05				0.2	
Terphenyl-d14 (SS)	% rec.	10		112					

O. Reg. 153 - Soil, Ground Water and Sediment Standards
 Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
 Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G096879

REPORT No. B22-17640

Report To:

EXP Services Inc

2650 Queensview Drive, Suite 100
 Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-Jun-22

JOB/PROJECT NO.: OTT-22009213-BO

DATE REPORTED: 16-Jun-22

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.	MW22-2						O. Reg. 153 Tbl. 1 - GW (µg/L)
Sample I.D.	B22-17640-1						
Date Collected	08-Jun-22						
Parameter	Units	R.L.					

1. Chromium (VI) result is based on total chromium
2. NOTE: Elevated RL due to sample matrix interferences.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
 Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
 Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.

C.O.C.: G096879

REPORT No. B22-17640

Report To:

EXP Services Inc

2650 Queensview Drive, Suite 100
Ottawa ON K2B 8H6 Canada

Attention: Mark McCalla

Caduceon Environmental Laboratories

2378 Holly Lane
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 08-Jun-22

JOB/PROJECT NO.: OTT-22009213-BO

DATE REPORTED: 16-Jun-22

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Summary of Exceedances

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 1 - GW (µg/L) - Table 1 - Ground Water



Greg Clarkin, BSc., C. Chem
Lab Manager - Ottawa District

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 Caduceon Environmental Laboratories.



exp Services Inc.
2650 Queensview Drive, Suite 100
Ottawa, Ontario K2B 8H6

Telephone: **613-688-1899**
Facsimile: **613-225-7337**

Appendix E – Landfill Waybills



TICKET#: 527283

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 12/04/2022 12:05 pm
EXIT: 12/04/2022 12:25 pm

VEHICLE #: BB 60710
CONTAINER:
LICENSE: BB 60710
REFERENCE:

GROSS 37130 kg Scale In
TARE 14240 kg Scale Out
NET 22890 kg

Qty	Unit	Description	Rate	Subtotal	Taxes	Total
22.89	MT	CONTAMINATED SOIL	\$52.00	\$1,190.28	\$154.74	\$1,345.02

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,345.02
Received: \$1,345.02
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527283

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 12/04/2022 12:05 pm
EXIT: 12/04/2022 12:25 pm

VEHICLE: BB 60710
CONTAINER:
LICENSE: BB 60710
REFERENCE:

GROSS 37130 kg k Scale In
TARE 14240 kg Scale Out
NET 22890 kg

QTY	Unit	Description	Rate	Sub Total	Taxes	Total
22.89	MT	CONTAMINATED SOIL	\$52.00	\$1,190.28	\$154.74	\$1,345.02

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,345.02
Received: \$1,345.02
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527289

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 12/04/2022 12:47 pm
EXIT: 12/04/2022 1:02 pm

VEHICLE #: AN 51804
CONTAINER:
LICENSE: AN 51804
REFERENCE:

GROSS 32610 kg Scale In
TARE 15110 kg Scale Out
NET 17500 kg

Qty	Unit	Description	Rate	Subtotal	Taxes	Total
17.50	MT	CONTAMINATED SOIL	\$52.00	\$910.00	\$118.30	\$1,028.30

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,028.30
Received: \$1,028.30
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527289

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 12/04/2022 12:47 pm
EXIT: 12/04/2022 1:02 pm

VEHICLE: AN 51804
CONTAINER:
LICENSE: AN 51804
REFERENCE:

GROSS 32610 kg k Scale In
TARE 15110 kg Scale Out
NET 17500 kg

QTY	Unit	Description	Rate	Sub Total	Taxes	Total
17.50	MT	CONTAMINATED SOIL	\$52.00	\$910.00	\$118.30	\$1,028.30

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,028.30
Received: \$1,028.30
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527323

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 12/04/2022 2:21 pm
EXIT: 12/04/2022 2:44 pm

VEHICLE #: BB 60710
CONTAINER:
LICENSE: BB 60710
REFERENCE:

GROSS 30610 kg Scale In
TARE 14210 kg Scale Out
NET 16400 kg

Qty	Unit	Description	Rate	Subtotal	Taxes	Total
16.40	MT	CONTAMINATED SOIL	\$52.00	\$852.80	\$110.86	\$963.66

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$963.66
Received: \$963.66
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527323

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 12/04/2022 2:21 pm
EXIT: 12/04/2022 2:44 pm

VEHICLE: BB 60710
CONTAINER:
LICENSE: BB 60710
REFERENCE:

GROSS 30610 kg k Scale In
TARE 14210 kg Scale Out
NET 16400 kg

QTY	Unit	Description	Rate	Sub Total	Taxes	Total
16.40	MT	CONTAMINATED SOIL	\$52.00	\$852.80	\$110.86	\$963.66

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$963.66
Received: \$963.66
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527367

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 7:04 am
EXIT: 13/04/2022 7:21 am

VEHICLE #: AN 51804
CONTAINER:
LICENSE: AN 51804
REFERENCE:

GROSS 38570 kg Scale In
TARE 15130 kg Scale Out
NET 23440 kg

Qty	Unit	Description	Rate	Subtotal	Taxes	Total
23.44	MT	CONTAMINATED SOIL	\$52.00	\$1,218.88	\$158.45	\$1,377.33

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,377.33
Received: \$1,377.33
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527367

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 7:04 am
EXIT: 13/04/2022 7:21 am

VEHICLE: AN 51804
CONTAINER:
LICENSE: AN 51804
REFERENCE:

GROSS 38570 kg k Scale In
TARE 15130 kg Scale Out
NET 23440 kg

QTY	Unit	Description	Rate	Sub Total	Taxes	Total
23.44	MT	CONTAMINATED SOIL	\$52.00	\$1,218.88	\$158.45	\$1,377.33

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,377.33
Received: \$1,377.33
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527369

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 7:15 am
EXIT: 13/04/2022 7:29 am

VEHICLE #: BB 60710
CONTAINER:
LICENSE: BB 60710
REFERENCE:

GROSS 35640 kg Scale In
TARE 14340 kg Scale Out
NET 21300 kg

Qty	Unit	Description	Rate	Subtotal	Taxes	Total
21.30	MT	CONTAMINATED SOIL	\$52.00	\$1,107.60	\$143.99	\$1,251.59

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,251.59
Received: \$1,251.59
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527369

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 7:15 am
EXIT: 13/04/2022 7:29 am

VEHICLE: BB 60710
CONTAINER:
LICENSE: BB 60710
REFERENCE:

GROSS 35640 kg k Scale In
TARE 14340 kg Scale Out
NET 21300 kg

QTY	Unit	Description	Rate	Sub Total	Taxes	Total
21.30	MT	CONTAMINATED SOIL	\$52.00	\$1,107.60	\$143.99	\$1,251.59

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,251.59
Received: \$1,251.59
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527370

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 7:18 am
EXIT: 13/04/2022 7:31 am

VEHICLE #: BB 60709
CONTAINER:
LICENSE: BB 60709
REFERENCE:

GROSS 36010 kg Scale In
TARE 14410 kg Scale Out
NET 21600 kg

Qty	Unit	Description	Rate	Subtotal	Taxes	Total
21.60	MT	CONTAMINATED SOIL	\$52.00	\$1,123.20	\$146.02	\$1,269.22

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,269.22
Received: \$1,269.22
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527370

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 7:18 am
EXIT: 13/04/2022 7:31 am

VEHICLE: BB 60709
CONTAINER:
LICENSE: BB 60709
REFERENCE:

GROSS 36010 kg k Scale In
TARE 14410 kg Scale Out
NET 21600 kg

QTY	Unit	Description	Rate	Sub Total	Taxes	Total
21.60	MT	CONTAMINATED SOIL	\$52.00	\$1,123.20	\$146.02	\$1,269.22

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,269.22
Received: \$1,269.22
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527409

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 9:28 am
EXIT: 13/04/2022 9:45 am

VEHICLE #: BB 60709
CONTAINER:
LICENSE: BB 60709
REFERENCE:

GROSS 26930 kg Scale In
TARE 14380 kg Scale Out
NET 12550 kg

Qty	Unit	Description	Rate	Subtotal	Taxes	Total
12.55	MT	CONTAMINATED SOIL	\$52.00	\$652.60	\$84.84	\$737.44

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$737.44
Received: \$737.44
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527409

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 9:28 am
EXIT: 13/04/2022 9:45 am

VEHICLE: BB 60709
CONTAINER:
LICENSE: BB 60709
REFERENCE:

GROSS 26930 kg k Scale In
TARE 14380 kg Scale Out
NET 12550 kg

QTY	Unit	Description	Rate	Sub Total	Taxes	Total
12.55	MT	CONTAMINATED SOIL	\$52.00	\$652.60	\$84.84	\$737.44

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$737.44
Received: \$737.44
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527414

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 9:40 am
EXIT: 13/04/2022 10:07 am

VEHICLE #: BB 60710
CONTAINER:
LICENSE: BB 60710
REFERENCE:

GROSS 29570 kg Scale In
TARE 14290 kg Scale Out
NET 15280 kg

Table with 5 columns: Qty, Unit, Description, Rate, Subtotal, Taxes, Total. Row 1: 15.28 MT CONTAMINATED SOIL \$52.00 \$794.56 \$103.29 \$897.85

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$897.85
Received: \$897.85
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527414

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 9:40 am
EXIT: 13/04/2022 10:07 am

VEHICLE: BB 60710
CONTAINER:
LICENSE: BB 60710
REFERENCE:

GROSS 29570 kg k Scale In
TARE 14290 kg Scale Out
NET 15280 kg

Table with 5 columns: QTY, Unit, Description, Rate, Sub Total, Taxes, Total. Row 1: 15.28 MT CONTAMINATED SOIL \$52.00 \$794.56 \$103.29 \$897.85

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$897.85
Received: \$897.85
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527415

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 9:41 am
EXIT: 13/04/2022 10:15 am

VEHICLE #: AN 51804
CONTAINER:
LICENSE: AN 51804
REFERENCE:

GROSS 40120 kg Scale In
TARE 15110 kg Scale Out
NET 25010 kg

Qty	Unit	Description	Rate	Subtotal	Taxes	Total
25.01	MT	CONTAMINATED SOIL	\$52.00	\$1,300.52	\$169.07	\$1,469.59

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,469.59
Received: \$1,469.59
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527415

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 13/04/2022 9:41 am
EXIT: 13/04/2022 10:15 am

VEHICLE: AN 51804
CONTAINER:
LICENSE: AN 51804
REFERENCE:

GROSS 40120 kg k Scale In
TARE 15110 kg Scale Out
NET 25010 kg

QTY	Unit	Description	Rate	Sub Total	Taxes	Total
25.01	MT	CONTAMINATED SOIL	\$52.00	\$1,300.52	\$169.07	\$1,469.59

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,469.59
Received: \$1,469.59
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527320

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 12/04/2022 2:20 pm
EXIT: 12/04/2022 2:40 pm

VEHICLE #: BB 60709
CONTAINER:
LICENSE: BB 60709
REFERENCE:

GROSS 33730 kg Scale In
TARE 14300 kg Scale Out
NET 19430 kg

Qty	Unit	Description	Rate	Subtotal	Taxes	Total
19.43	MT	CONTAMINATED SOIL	\$52.00	\$1,010.36	\$131.35	\$1,141.71

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,141.71
Received: \$1,141.71
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA



TICKET#: 527320

TYPE CASH

GFL Environmental Inc.
17125 Lafleche Road
MOOSE CREEK, ON K0C 1W0
(613) 538-2776 HST - 84188 4893 RT0001

001726 - Theberge Developments Ltd.
1600 Laperriere Ave.
Ottawa, Ontario, ON K2B 8H6
EarthMovers - 177 Armstrong St.

ATTENDENT: sabjoa
ENTER: 12/04/2022 2:20 pm
EXIT: 12/04/2022 2:40 pm

VEHICLE: BB 60709
CONTAINER:
LICENSE: BB 60709
REFERENCE:

GROSS 33730 kg k Scale In
TARE 14300 kg Scale Out
NET 19430 kg

QTY	Unit	Description	Rate	Sub Total	Taxes	Total
19.43	MT	CONTAMINATED SOIL	\$52.00	\$1,010.36	\$131.35	\$1,141.71

Have A Nice Day!
ALL SALES ARE FINAL

Total: \$1,141.71
Received: \$1,141.71
Change: \$0.00
Cheque.: *****2825

SIGNATURE:

VISA