12197 Hurontario Street, Brampton and 12211, 12213 and 12231 Hurontario Street, Caledon, Ontario

Hydrogeological Investigation and Water Balance Assessment

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1 Introduction

1.1 Project Description

EXP Services Inc. (EXP) was retained by Argo Summer Valley Limited to prepare a Hydrogeological Investigation and Water Balance Assessment Report associated with the proposed development located at 12197 Hurontario Street, Brampton and 12211, 12213 and 12231 Hurontario Street, Caledon, Ontario (hereinafter referred to as the 'Site').

The Site is irregular in shape and covers an area of approximately 3.6 hectare (8.9 acres). The Site previously developed as a truck sales and repair facility and is presently vacant and has been remediated. It is our understanding that the proposed brownfield redevelopment will comprise construction of a residential subdivision inclusive of roads, sidewalks, sewers, watermains, and single-family dwellings. The Site location plan is shown on Figure 1.

EXP conducted a Preliminary Geotechnical Investigation and Environmental Site Assessment in conjunction with this investigation. The pertinent information gathered from the noted investigations is utilized for this report.

1.2 Project Objectives

The main objectives of the Hydrogeological Investigation and Water Balance Assessment are as follows:

- Establish the local hydrogeological settings within the Site;
- Provide recommendations on construction and long-term dewatering;
- Assess groundwater quality; and
- Prepare a Hydrogeological Investigation and Water Balance Assessment Report.

1.3 Scope of Work

To achieve the investigation objectives, EXP has completed the following scope of work:

- Reviewed available geological and hydrogeological information for the Site including source water protection (WHPA, SGRA, IPZ).
- Developed and conducted Single Well Response Tests (SWRT) on four (4) newly installed monitoring wells in geotechnical boreholes during the combined drilling program and previously installed monitoring wells to evaluate hydraulic properties of the saturated stratigraphic units at the Site.
- Completed one year of groundwater monitoring with bimonthly events of water level measurements.
- Collected one (1) groundwater sample for laboratory testing of the Region of Peel Sewer Use By-Law parameters.
- Completed three (3) shallow infiltration test holes by hand augering to less that 1 mbgs to support design of Low Impact Development features.
- Conducted a Door to Door Private Water Supply Well Survey;
- Evaluated the information collected during the field investigation program, including borehole geological information, SWRT results, groundwater level measurements, existing foundation drainage investigation and groundwater quality.
- Prepared site plans, cross sections, geological mapping, and groundwater contour mapping for the Site.
- Estimated construction dewatering flow raters (construction).
- Assessed potential impacts and recommend mitigation measures.

- Assessed pre and post development water balance and infiltration levels and provided preliminary sizing of LIDs as required by TRCA.
- Prepared a Hydrogeological Investigation and Water Balance Assessment Report.

The Hydrogeological Investigation and Water Balance Assessment was prepared in accordance with the Ontario Water Resources Act, Ontario Regulation 387/04.

1.4 Review of Previous Reports

The following reports were reviewed as part of this Hydrogeological Investigation and Water Balance Assessment:

- EXP Services Inc. (February 7, 2022), Preliminary Geotechnical Investigation, 12197 Hurontario Street, Brampton and 12211- 12233 Hurontario Street, Caledon, Ontario, Toronto, ON, prepared for Argo Development Corporation.
- EXP Services Inc. (January 27, 2022), Phase Two Environmental Site Assessment Update, 12197 Hurontario Street, Brampton and 12211- 12233 Hurontario Street, Caledon, Ontario, Toronto, ON, prepared for Argo Summer Valley Ltd..
- EXP Services Inc. (January 5, 2022), Phase One Environmental Site Assessment Update, 12197 Hurontario Street, Brampton and 12211- 12233 Hurontario Street, Caledon, Ontario, Toronto, ON, prepared for Argo Summer Valley Ltd.
- EXP Services Inc. (July 29, 2021), Remediation Report, 12197 Hurontario Street, Brampton and 12211- 12233 Hurontario Street, Caledon, Ontario, Toronto, ON, prepared for Sobeys Capital Incorporated.
- EXP Services Inc. (May 22, 2020), Phase Two Environmental Site Assessment, 12197 Hurontario Street, Brampton and 12211- 12233 Hurontario Street, Caledon, Ontario, Toronto, ON, prepared for Sobeys Capital Incorporated.
- EXP Services Inc. (January 20, 2020), Phase One Environmental Site Assessment, 12197 Hurontario Street, Brampton and 12211- 12233 Hurontario Street, Caledon, Ontario, Toronto, ON, prepared for Sobeys Capital Incorporated.
- EXP Services Inc. (June 11, 2019), Subsurface Environmental Investigation, 12197 Hurontario Street, Brampton and 12211-12233 Hurontario Street, Caledon, Ontario, Toronto, ON, prepared for Sobeys Capital Incorporated.

Any past and/or future geotechnical, hydrogeological, environmental and risk assessments, and updated development/architectural plans should be provided to update this hydrogeological report prior to submission of permits and approvals by the municipalities and agencies.

2 Hydrogeological Setting

2.1 Regional Setting

2.1.1 Regional Physiography

The Site is located within a physiographic region named South Slope. The physiographic landform is known as the Till Plains (Drumlinized). Part of the South Slope is drumlinized. The South Slope is the southern slope of the Oak Ridges Moraine, which also includes the strip south of the Peel Plain. The South Slope lies to the north of the Iroquois Plain (Chapman & Putnam, 2007). It rises approximately 100 to 130 m in an average width of 10 to 11 kms.

2.1.2 Regional Geology and Hydrogeology

The surficial geology can be described as coarse textured (foreshore-basinal) glaciolacustrine deposits consisting of sand, gravel, minor silt, and clay (Ministry of Northern Development and Mines, 2012). The surficial geology of the Site and surrounding areas is shown on Figure 2. Based on the available regional geology maps, the subsurface stratigraphy of the Site from top to bottom is summarized in Table 2-1 (TRCA, 2008 and Oak Ridge Moraine Groundwater Program, 2018).

Table 2-1: Summary of Subsurface Stratigraphy

Stratigraphic Unit	General Description	Top Elevation of Stratigraphic Unit
Halton Till or Equivalent (Aquitard)	This lithologic unit typically consists of sandy silt to clayey silt till interbedded with silt, clay, sand, and gravel.	256.52
Oak Ridges Moraine or Equivalent (Aquifer)	This geology unit mainly consists of interbedded fine-grained sand and silt deposits where coarse-grained sand and gravel along with clay laminae are locally reported.	243.59
Thorncliffe Formation (Aquifer)	This geology formation generally consists of glaciofluvial (sand, silty sand) or glaciolacustrine deposits (silt, sand, pebbly silt, and clay).	222.02
Queenston Formation	Bedrock primarily consists of shale, and siltstone. It belongs to the Upper Ordovician, (Ministry of Northern Development and Mines, 2012).	217.62

Regional groundwater across the area flows southeast, towards Lake Ontario (Oak Ridge Moraine Groundwater Program, 2018). Local deviation from the regional groundwater flow pattern may occur in response to changes in topography and/or soils, as well as the presence of surface water features and/or existing subsurface infrastructure.

2.1.3 Existing Water Well Survey

Water Well Records (WWRs) were compiled from the database maintained by the Ministry of the Environment, Conservation and Parks (MECP) and reviewed to determine the number of water wells documented within a 500-m radius of the Site boundaries. The locations of the MECP WWRs within 500 m of the Site are shown on Figure 3. A summary of the WWR is included in Appendix A.

The MECP WWR database indicates that thirty-four (34) records within a 500 m radius from the Site centroid where two (2) well record are identified onsite (Figure 3 and Appendix A). Well distances are calculated relative to the Site centroid, therefore some distances in Appendix A exceed 500 m.

The database indicates that the offsite wells are at an approximate distance of twenty-nine (29) m or greater from the Site centroid. All offsite wells were reportedly identified as monitoring and observation wells, test holes, dewatering wells, water supply wells, abandoned and/or listed with unknown use.

The Well Identification Numbers (Well ID No.) of the offsite water supply wells are 4901103, 4901104, 4901105, 4901108, 4901109, 4901609, 4901610, 4901611, 4901612, 4901613, 4901614, 4901617, 4901618, and 4902890.

The reported water levels ranged from depths of 2.0 m to 44.0 meters below ground surface (mbgs).

Based on the date of installation of the water supply wells (1950s-1970s) and since the area is municipally serviced, it is unlikely that the noted water supply wells are still active.

2.2 Site Setting

2.2.1 Site Topography

The Site is between residential and rural areas. The topography is considered relatively flat with a regional gradual southeasterly slope towards Etobicoke Creek and Lake Ontario.

As indicated on the borehole logs included in Appendix B, the surface elevation of the Site ranges between approximately 256.94 to 258.48 meters above sea level (masl).

2.2.2 Local Surface Water Features

The Site is within the Etobicoke Creek watershed. No surface water features exist onsite. The nearest surface water feature is Etobicoke Creek, approximately located 295 meters east of the Site boundary. Lake Ontario is approximately 29 km from the Site boundary to the southeast.

2.2.3 Local Geology and Hydrogeology

A summary of subsurface soil stratigraphy is provided in the following paragraphs. The soil descriptions are based on the geotechnical investigation report (EXP, 2022). They are summarized for the hydrogeological interpretations. As such, the information provided in this section shall not be used for construction design purposes.

The detailed soil profiles encountered in each borehole and the results of moisture content determinations are presented on the attached borehole logs (Appendix B). The soil boundaries indicated on the borehole logs are inferred from non-continuous sampling and observations during drilling. These boundaries are intended to reflect approximate transition zones for the Hydrogeological Investigation and Water Balance Assessment and shall not be interpreted as exact planes of geological change.

The "Notes on Sample Description" preceding the borehole logs form an integral part of and should be read in conjunction with this report. The following is a brief description of the soil conditions encountered during the investigation.

Based on the results of the geotechnical investigation, the general subsurface soil stratigraphy consists of the following units from top to bottom:

Topsoil

Approximately 120 mm thick layer of topsoil was encountered from ground surface in boreholes BH21-1, BH21-2, BH21-5, and BH21-6. It should be noted that the topsoil quantity should not be established from the information provided at the borehole locations only. As the site is highly disturbed with significant areas with no topsoil or asphalt surfaces, if required, a more

detailed analysis which involves shallow test pits should be carried out to accurately quantify the amount of topsoil to be removed for construction purpose.

Fill

Fill was encountered from ground surface in boreholes BH21-3 and BH21-4 and underlies the topsoil layer in remaining boreholes. The fill extends to depths of approximately 1.0 to 2.5 m below existing grade. The fill generally appeared to be reworked on-site material with the exception of near surface fill comprising sandy silt to silty sand with some sand and gravel pockets in Boreholes BH21-3 and BH21-4. Moisture contents in the fill ranged from approximately 8 to 27% indicating moist to wet conditions.

Sandy Silt Till

Sandy silt till exists below the fill in Boreholes BH21-1, BH21-2, BH21-4 and BH21-6. The sandy silt till extends to depths of approximately 4.2 to 8.1 m. The sandy silt till contains some clay, trace gravel and occasional oxidized zones. At depths between 6.0 to 6.6 m below grade, a wet silty sand layer was noted within the till in Borehole BH21-6 and a silt layer was noted in Borehole BH21-1. Borehole BH21-6 was terminated in sandy silt till at depth of 8.1 m below grade. The sandy silt till is generally brown in colour changing to grey below 4.5 m in Borehole BH21-6. The sandy silt till exists in a compact to dense state of compactness. Moisture contents in the sandy silt till were recorded between approximately 9 and 17% indicating moist conditions. The presence of cobbles and boulders should always be anticipated in the glacial till deposits, owing to their mode of deposition.

Clayey Silt Till

Clayey silt till exists below the sandy silt till in Boreholes BH21-1, BH21-2, BH21-4, and below the fill in Boreholes BH21-3 and BH21-5. Boreholes BH21-1 to BH21-5 in were terminated in the clayey silt till at approximately 8.1 m depth. The clayey silt till contains trace sand and trace gravel. The clayey silt till generally grey below 4.5 m depth. The consistency of the clayey silt till varies with depth and varies from one borehole location to another and generally assessed to be stiff to hard. Moisture contents in the clayey silt till were recorded between approximately 10 and 23% indicating moist to very moist conditions. The presence of cobbles and boulders should always be anticipated in the glacial till deposits, owing to their mode of deposition.

The borehole and monitoring well locations are shown on Figure 4. Geological cross-sections were generated based on the available borehole logs completed as part of the previous and current investigations and shown on Figure 5 (Cross section A-A'). The cross section shows a simplified representation of soil conditions and soil deposits may be interconnected differently than represented. Borehole logs used to generate both cross-sections are provided in Appendix B.

3 Results

3.1 Monitoring Well Details

The monitoring well network was installed as part of the Geotechnical and Environmental Investigations at the Site. It consists of the following:

- Eleven (11) shallow overburden monitoring wells (BH103, TH201, TH202, MW301, MW302, MW303, MW304, BH21-1, BH21-2, BH21-3, and BH21-4) were installed;
- One (1) deep overburden monitoring well (TH203) was installed.

The diameter of all monitoring wells is 50 mm. All wells were installed with a stick up mount protective casing. Borehole logs and monitoring well installation details are provided in Appendix B. The monitoring well locations are shown on Figure 4.

3.2 Water Level Monitoring

As part of the Hydrogeological Investigation and Water Balance Assessment, static water levels in the monitoring wells installed outside of the existing building were recorded in seven (7) monitoring events, including January 5 and 12, April 11, May 19, July 21, September 30, and November 16, 2022. A summary of all static water level data as it relates to the elevation survey is given in Table 3-1 below.

The groundwater elevation recorded in the shallow wells ranged from 251.02 masl (6.78 mbgs at BH21-4 on November 16, 2022) to 257.92 masl (0.56 mbgs at BH21-2 on January 5, 2022). The groundwater elevation recorded for the deep wells ranged from 249.11 masl (9.03 mbgs at TH203 on September 30, 2022) to 249.71 masl (8.43 mbgs at TH203 on January 5, 2022).

Table 3-1: Summary of Measured Groundwater Elevations

Monitoring Well ID	Ground Surface Elevation (masl)	Approximate Full Well Depth (mbgs)	Depth	5-Jan-22	12-Jan-22	11-Apr-22	19-May-22	21-Jul-22	30-Sep-22	16-Nov-22
BH 103	258.14	9.05	mbTOP	7.94	7.95	7.52	7.39	8.06	7.88	7.98
			mbgs	6.88	6.89	6.46	6.33	7.00	6.82	6.92
			masl	251.26	251.25	251.68	251.81	251.14	251.32	251.22
TH201	257.84	0.92	mbTOP	1.64	1.83	1.77	2.00	2.65	2.41	2.82
			mbgs	0.72	0.91	0.85	1.08	1.73	1.49	1.90
			masl	257.12	256.93	256.99	256.76	256.11	256.35	255.94
TH202	257.28	0.97	mbTOP	1.74	2.12	2.00	2.13	2.73	2.60	2.95
			mbgs	0.77	1.15	1.03	1.16	1.76	1.63	1.98
			masl	256.51	256.13	256.25	256.12	255.52	255.65	255.30
TH203	258.14	0.80	mbTOP	9.23	9.36	9.33	9.31	9.70	9.83	9.81
			mbgs	8.43	8.56	8.53	8.51	8.90	9.03	9.01
			masl	249.71	249.58	249.61	249.63	249.24	249.11	249.13
MW301	257.27	1.09	mbTOP	1.64	1.98	1.84	2.13	3.19	3.08	3.60
			mbgs	0.55	0.89	0.75	1.04	2.10	1.99	2.51
			masl	256.72	256.38	256.52	256.23	255.17	255.28	254.76
MW302	258.14	1.01	mbTOP	3.20	3.11	2.46	2.55	3.33	3.43	3.77
			mbgs	2.19	2.10	1.45	1.54	2.32	2.42	2.76
			masl	255.95	256.04	256.69	256.60	255.82	255.72	255.38

Monitoring Well ID	Ground Surface Elevation (masl)	Approximate Full Well Depth (mbgs)	Depth	5-Jan-22	12-Jan-22	11-Apr-22	19-May-22	21-Jul-22	30-Sep-22	16-Nov-22
MW303	257.85	0.99	mbTOP	1.79	2.09	1.98	2.31	2.86	2.67	2.96
			mbgs	0.80	1.10	0.99	1.32	1.87	1.68	1.97
			masl	257.05	256.75	256.86	256.54	255.99	256.17	255.88
MW304	256.94	0.93	mbTOP	1.72	2.25	2.11	2.23	2.78	2.47	2.65
			mbgs	0.79	1.32	1.18	1.30	1.85	1.54	1.72
			masl	256.15	255.62	255.76	255.64	255.09	255.40	255.22
BH21-1	257.91	0.88	mbTOP	7.47	7.37	6.17	6.16	6.85	7.32	7.65
			mbgs	6.59	6.49	5.29	5.28	5.97	6.44	6.77
			masl	251.32	251.42	252.62	252.63	251.94	251.47	251.14
BH21-2	258.48	0.81	mbTOP	1.37	2.35	1.73	1.98	2.97	2.67	2.66
			mbgs	0.56	1.54	0.92	1.17	2.16	1.86	1.85
			masl	257.92	256.94	257.56	257.31	256.32	256.62	256.63
BH21-3	258.30	0.82	mbTOP	2.05	2.37	2.20	2.12	2.65	2.73	2.90
			mbgs	1.23	1.55	1.38	1.30	1.83	1.91	2.08
			masl	257.07	256.76	256.92	257.00	256.47	256.39	256.22
BH21-4	257.80	0.74	mbTOP	6.82	6.94	6.92	6.83	7.23	7.40	7.52
			mbgs	6.08	6.20	6.18	6.09	6.49	6.66	6.78
			masl	251.72	251.60	251.62	251.71	251.31	251.14	251.02

One map was created for the Site to show groundwater contours of the shallow water-bearing zone (Figures 6). Accordingly, the groundwater flow direction is interpreted to be east-southeast of the Site, towards Etobicoke Creek.

For the design of foundations without perimeter and foundation drainage systems, shallower wells need to be considered to evaluate the shallow groundwater table. The hydrogeologist needs to be consulted during the design process.

Groundwater levels are expected to show seasonal fluctuations and vary in response to prevailing climate conditions. This may also affect the direction and rate of flow. Seasonal groundwater level measurements are ongoing in order to provide more information on seasonal groundwater level fluctuations.

3.3 Hydraulic Conductivity Testing

Four (4) Single Well Response Tests (SWRT's) were completed on monitoring wells BH21-1, BH21-2, BH21-3, and BH21-4 on January 12, 2022. The tests were completed to estimate the saturated hydraulic conductivity (K) of the soils at the well screen depths.

The static water level within each monitoring well was measured prior to the start of testing. In advance of performing SWRTs, each monitoring well underwent development to remove fines introduced into the screens following construction. The development process involved purging of the monitoring wells to induce the flow of fresh formation water through the screen. Each monitoring well was permitted to fully recover prior to performing SWRTs.

Hydraulic conductivity values were calculated from the SWRT and constant rate test data as per Hvorslev's solution included in the Aqtesolv Pro. V.4.5 software package. The semi-log plots for normalized drawdown versus time are included in Appendix C.

A summary of the hydraulic conductivities (K-values) estimated from the SWRTs are provided in Table 3-2.

Table 3-2: Summary of Hydraulic Conductivity Testing

Monitoring Well	Well Depth (mbgs)	Screen Interval (mbgs)		Soil Formation Screened	Estimated Hydraulic Conductivity (m/s)
		From	to		
BH21-1	257.91	254.91	257.91	Sandy Silt Till to Clayey Silt Till	1.2E-7
BH21-2	258.48	255.48	258.48	Clayey Silt Till	9.4E-9
BH21-3	258.30	255.30	258.30	Clayey Silt Till	1.3E-7
BH21-4	257.80	254.80	257.80	Clayey Silt Till	2.2E-7
Highest K Value					2.2E-7
Arithmetic Mean of K Values					1.2E-7
Geometric Mean of K Values					7.5E-8

SWRTs provide K-estimates of the geological formation surrounding the well screens and may not be representative of bulk formation hydraulic conductivity. As shown in Table 3-2, the highest K-value of the tested water-bearing zone is 2.2E-7 m/s. The arithmetic and the geometric mean of the K-values are 1.2E-7 m/s and 7.6E-8 m/s, respectively.

3.4 Groundwater Quality

To assess the suitability for discharging pumped groundwater into the sewers owned by the Peel Region during dewatering activities, one (1) groundwater sample was collected from monitoring well BH21-2, on January 12, 2022 using a peristaltic pump. Prior to collecting the noted water sample, approximately three (3) standing well volumes of groundwater were purged from the referred well. The samples were collected unfiltered and placed into pre-cleaned laboratory-supplied vials and/or bottles provided with analytical test group specific preservatives, as required. Dedicated nitrile gloves were used during sample handling. The groundwater samples were submitted for analysis to AGAT Laboratories, a CALA certified independent laboratory in Mississauga, Ontario. Analytical results are provided in Appendix D.

Table 3-3 summarizes exceedance(s) of the Sanitary (Table 1) and Storm (Table 2) Sewer Use By-Law parameters.

When comparing the chemistry of the collected groundwater samples to the Peel Sanitary and Combined Sewer Discharge Criteria (Table 1), there were no parameter exceedances to be reported.

When comparing the chemistry of the collected groundwater samples to the Peel Storm Sewer Discharge Criteria (Table 2), only Manganese (Mn) reported an exceedance.

Reporting detection limits (RDLs) were below the Sewer Use By-Law parameter criteria of Tables 1 and 2.

Table 3-3: Summary of Analytical Results

Parameter	Units	Region of Peel Sanitary and Combined Sewer Discharge Limit (Table 1)	Region of Peel Storm Sewer Discharge Limit (Table 2)	Concentration BH21-2 12-01-2022
Total Manganese (Mn)	µg/L	5	0.05	**0.056**

Bold – Exceeds Region of Peel Storm Sewer Discharge Limit (Table 2).
Bold & underlined – Exceeds Region of Peel Sanitary and Combined Sewer Discharge Limit (Table 1).

For the short-term dewatering system (construction phase), it is anticipated that TSS levels and some other parameters (for example, Total Metals) in the pumped groundwater may become elevated and exceed either or both, Sanitary and Storm

Sewer Use By-Law limits. To control the concentration of TSS and associated metals, it is recommended that a suitable treatment method be implemented (filtration or decantation facilities and/ or any other applicable treatment system) during construction dewatering activities to discharge to the applicable sewer system. The specifications of the treatment system will need to be adjusted to the reported water quality results by the treatment contractor/process engineer.

For the long-term dewatering discharge to the sanitary sewer system (post-development phase) and based on the water quality test results, the water is suitable to be discharged without a treatment system. For the long-term dewatering discharge to the storm sewer system (post-development phase) and based on the water quality results, it is recommended to implement a suitable pre-treatment, as required.

The water quality results presented in this report may not be representative of the long-term condition of groundwater quality onsite. As such, regular water quality monitoring is recommended for the post-construction phase, as required by the Region of Peel.

An agreement to discharge into the sewers owned by the Region of Peel will be required prior to releasing dewatering effluent.

The Subsurface Environmental Investigation (2019) was reviewed and determined the following exceedances to Table 4 SCS: Petroleum Hydrocarbons (PHC), Electrical Conductivity (EC) and Sodium Adsorption Ratio (SAR).

The Phase Two Environmental Site Assessment Report (2020) was reviewed and determined the following exceedances to MECP (2011) Table 4 SCS: EC and SAR in surficial soil and Sodium and Chloride in groundwater.

The Remediation Report (2021) was reviewed and determined through confirmatory wall and floor samples that soil PHC concentrations now met Table 4 SCS post-remediation. Soil EC and SAR concentrations were found to be within the PSS post-remediation.

The Phase Two ESA Update (2022) was reviewed and determined that no exceedances of the Table 4 SCS were identified in soil or groundwater.

The Modified Generic Risk Assessment (2022) was reviewed and determined that the parameters carried forward for consideration in the MGRA are: EC and SAR in soil, and sodium and chloride in groundwater.

3.5 Infiltration Testing

EXP completed four (4) infiltration rate tests (INF 21-3, INF 301, INF 303, and INF 203) within the Site area on April 11 and May 19, 2022. These tests were conducted in proximity of selected monitoring wells: BH/MW 21-3, BH/MW 301, BH/MW 303 and BH/MW 203.

Infiltration tests (IT) were conducted at depths ranged from 0.6 mbgs to 0.72 mbgs, depending on the measured groundwater elevation at the testing location. The reported water levels at these wells on May 19, 2022 are 1.30 mbgs (BH 21-3), 1.04 mbgs (BH 301), and 1.32 mbgs (BH 303) and 8.51 (BH 203). Table 3.3 below shows a summary of field saturated hydraulic conductivity (K) testing and design infiltration rates, as per the Low Impact Development (LID) Stormwater Management Planning and Design Guide, CVC – TRCA, 2010, Appendix F. The estimated field saturated hydraulic conductivities were correlated to infiltration rates based on the relationship provided in Appendix D of the guideline.

Infiltration rate testing locations are shown on Figure 4 and infiltration rate analysis is provided in Appendix F.

Table 3.4: Summary of Infiltration Testing Results

Infiltration Test Location/ MW ID	Depth of Hole (mbgs)	Formation tested	Field Saturated Hydraulic Conductivity, K_{fs} (cm/s)	Infiltration Rates (mm/hr)
INF 21-3	0.60	Clayey silt till	6.3E-07	12
INF 301	0.72	Silt till	4.3E-06	20
INF 303	0.75	Silt and sand	1.4E-05	27
INF 203-Redo	0.83	Silt and sand	6.2E-05	41
Geometric Mean			**6.7E-06**	**23**
Design Infiltration Rate*				**9**

Notes:
*Safety Factor of 2.5 was applied to calculate the design infiltration rate (Low Impact Development (LID) Stormwater Management Planning and Design Guide, CVC – TRCA, 2010, Appendix D).

The estimated design infiltration rate based on percolation rate testing for the Site is 9 mm/hr.

4 Water Balance Study

4.1 Background Information

The Site is surrounded by existing residential areas and highways. The topography is considered relatively flat with a regional gradual southeasterly slope towards Etobicoke Creek and Lake Ontario. As indicated on the borehole logs included in Appendix B, the surface elevation of the Site ranges between approximately 256.94 to 258.48 meters above sea level (masl).

It is our understanding that the proposed development will comprise construction of a residential subdivision inclusive of roads, sidewalks, sewers, watermains, and single-family dwellings. The Site location plan is shown on Figure 1.

The surficial geology can be described as coarse textured (foreshore-basinal) glaciolacustrine deposits consisting of sand, gravel, minor silt, and clay (Ministry of Northern Development and Mines, 2012). The surficial geology of the Site and surrounding areas is shown on Figure 2.

The Site is within the Etobicoke Creek watershed. No surface water features exist onsite. The nearest surface water feature is Etobicoke Creek, which lies approximately 295 meters east of the Site boundary. Lake Ontario is approximately 29 km from the Site boundary to the southeast.

4.2 Methodology

The Thornthwaite water balance (Thornthwaite, 1948; Mather, 1978; 1979) is a counting method used to analyze the allocation of water among various components of the hydrologic cycle. This methodology was applied to complete the pre-construction (existing conditions) and post-development water balance. Inputs to the model are monthly temperature, precipitation, and Site latitude. Outputs include monthly potential and actual evapotranspiration, soil moisture storage, soil moisture storage change, surplus, infiltration, and runoff.

When precipitation (P) occurs, it can either runoff (R) through the surface water system, infiltrate (I) to the water table including an interflow component, or evapo-transpire (ET) from the earth's surface and vegetation. The difference between total precipitation (P) and the total of evaporation and evapotranspiration (ET) is defined to be the water surplus (S) which is available for both infiltration (recharge to the groundwater system including interflow) and for runoff. When long-term averages of P, R, I and ET are used, no net change in groundwater storage (ST) is assumed. Annually, however, there is a potential for small changes in ST. The annual water budget can be stated as follows:

$$P = ET + R + I + ST$$

Where:

P = precipitation
ET = evapotranspiration
R = surface water runoff
I = infiltration
ST = change in groundwater storage

For this assessment, the Thornthwaite and Mather method was used to estimate average annual infiltration rates. The method is based on the United Stated Geological Survey (USGS) graphical user interface (Thornthwaite Monthly Water-Balance program, 2007). For ease of calculation, a spreadsheet was used for the computation.

Infiltration is governed by the surficial soil types, topography, and land cover. If the water table is at surface, as measured in shallow monitoring wells, then the percolation rate of precipitation into the shallow soils is considered negligible.

4.3 Meteorological Data

Meteorological data including average monthly precipitation and average temperatures were obtained from the National Climate Data and Information Archive (Environment Canada) for the Georgetown WWTP (Station ID No. 6152695) climatic station (elevation 221.0 masl).

Meteorological data of 30 years from 1977 to 2006 was utilized for the assessment. Summary of input data is provided in Appendix F-1.

4.4 Pre- and Post-Development Site Characteristics

4.4.1 Pre-Development Site Characteristics

The Site is irregular in shape and covers an area of approximately 3.6 hectare (8.9 acres). The Site was previously developed as a truck sales and repair facility and is presently vacant. It is our understanding that the proposed development will comprise construction of a residential subdivision inclusive of roads, sidewalks, sewers, watermains, and single-family dwellings. A summary of the existing (pre-development) landscape features is provided in Table 4.1:

Table 4.1: Pre-Development (Existing) Land Use

Description	Pre-Construction (Existing) (m^2)	Percentage %
Open spaces/Landscaped	8,435	24%
Paved Surfaces	23,863	67%
Existing Buildings	3,582	10%
Total Site Area	35,880	100.0

It should be noted that the areas provided in Table 4.1 above were determined based on a review of available Site plans and aerial photographs and these estimates are considered appropriate for estimating the water balance. As evident from the information provided in Table 4.1, under pre-development conditions, approximately 24% of the Site area is pervious and available for groundwater infiltration (Figure 7).

4.4.2 Post-Development Site Characteristics

As provided in the draft Site Plan, Table 4.2 provides a summary of the post-development Site characteristics.

Table 4.2: Post-Development Site Characteristics

Description	Impervious Areas m^2	Pervious Areas available for Infiltration m^2	Total Areas Post-Construction (Proposed) m^2
Building Roofs	12,152	0	11,885
ROW (roads, sidewalks, parking) - Paved	6,723	0	7,186
Open Areas/Landscaped Areas (Public)	0	17,005	16,813

Description	Impervious Areas m^2	Pervious Areas available for Infiltration m^2	Total Areas Post-Construction (Proposed) m^2
Totals	19,070	17,005	35,884
Percentage %	52.61%	47.39%	100.0

Under post-development conditions, the total pervious area is increased from 10% to 47.39% of the total Site area (Tables 4.1 and 4.2 and Figure 8).

4.5 Pre-Development Water Balance Estimates

4.5.1 Climate Data Analysis

The mean annual water surplus was calculated by using the Thornthwaite and Mather (1955) method. Monthly average precipitation values were obtained for 30 years (1977 to 2006) from the National Climate Data and Information Archive (Environment Canada) for the Georgetown WWTP (Station ID No. 6152695).

Moisture storage of 200 mm/year was assumed for soils and considered to be representative of pre-construction Site conditions. The closest latitude to the Site is 43^0, which was used in the USGS model (2007).

Table 4.3 summarizes the climatic water balance analysis. Appendix F-1 and F-2 provide the model input and output, respectively.

Table 4.3: Summary of Climatic Water Balance Analysis in Pre-Development Conditions

Soil Moisture Storage (mm/yr)	Precipitation (mm/yr)	Actual ET (mm/yr)	Surplus (mm/yr)
200 mm/yr Silt and Clay	877.30	542.00	335.30

Note: ET = Evapotranspiration

The results of climatic water balance analysis for the Site suggest that a surplus of 335.30 mm/year of water is available for surface runoff and infiltration.

4.5.2 Infiltration

The infiltration is expected to be controlled by soil type, topography, and soil cover type. Surplus water is portioned between runoff and infiltration based on the controlling factors provided by MOE (1995). It is noted that the controlling factors provided by the MOE were used for estimating infiltration factors.

Using this method, a total infiltration factor for the Site was estimated by using the individual sub-factors, which are representative of the topography, soil type and land cover conditions (Figures 2 and 7). Appendix F-3 provides a summary of the sub factors and total factor based on the Site conditions. The infiltration sub-factors were determined for estimating pre-development infiltration rates of the entire Site.

The estimated pre-development total infiltration factor of 0.42 (or 42%) represents the fraction of the water surplus available for infiltration. The complementary fraction of the available water for runoff is 0.58. The infiltration factor is utilized to calculate the amount of annual infiltration (in units of m^3/yr) at the Site by multiplying it with the average yearly water surplus estimate and with the Site area available for infiltration.

Applying the infiltration factor of 0.42 and a water surplus of 335.30 mm/yr, the estimated pre-development infiltration rate of the whole Site is 141.83 mm/yr.

4.5.3 Pre-Development Water Balance Analysis

The water balance analysis is based on available information on a regional scale and considered representative for the Site. Table 4.4 provides a summary of water balance analysis for the Site.

Table 4.4: Summary of Overall Pre-Development Water Balance Results

Location	Total Site Area (m^2)	Area Available for Infiltration (m^2)	Total Precipitation (m^3/yr)	Actual Evapo-transpiration (m^3/yr)	Runoff (m^3/yr)	Infiltration (m^3/yr)
Total Site	35,880	8,435	31,478	19,447	10,834	1,196
Percentage of Total Precipitation			100%	62%	33.3%	4%

The total property area was used to estimate the annual precipitation volume of the Site (Appendix F-4). As summarized in Table 4.4, the breakdown of the pre-development water balance is as follows: 62.0% of the total precipitation is subject to evapotranspiration, 34.0% to runoff, and 4.0% to infiltration.

The pre-development water balance, on a weighted average depth basis (in mm/year) is as follows:

P (877.30) = ET (542.00) + R (301.96) + I 33.34) + ST (0)

4.6 Post-Development Water Balance Estimates

4.6.1 Post-Development Water Balance

Based on the proposed development drawings, the total area of pervious surfaces under post-development conditions is approximately 16,813 m^2, representing approximately 47.39% of the total Site area of 35,880 m^2 (Table 4.2). The remaining 19,070 m^2 is not available to contribute to infiltration during the post-development stage (approximately 53.1% of the total land area).

Post-development infiltration sub-factors were determined in a similar manner as for estimating infiltration sub-factors for pre-development Site conditions, both based on the method recommended by MOE (1995). For post-development infiltration sub-factors, the landscaped areas were assumed to be consistent with cultivated cover with an infiltration sub-factor of 0.1 (Appendix F-3). The estimated post-development total infiltration factor of 0.50 (or 50.0%).

Table 4-5 presents a summary of the overall post-development water balance assessment.

Table 4.5: Summary of Overall Post-Development Water Balance Forecast

Location	Total Site Area (m^2)	Area Available for Infiltration (m^2)	Total Precipitation (m^3/yr)	Evapo-transpiration (m^3/yr)	Runoff (m^3/yr)	Infiltration (m^3/yr)
Total Site	35,880	18,875	31,477	9,216	19,410	2,851
Percentage of Total Precipitation			100%	29.28%	61.66%	9.06%

In post development phase due to an increase in landscape areas, the annual infiltration volume will be increased from approximately 1,196 m^3/year to 2,851 m^3/year in post-development, resulting in a surplus of 1,654 m^3/year (Appendix F-4).

The post-development water balance, on a weighted average depth basis (in mm/year) is as follows:

P (877.3) = ET (256.9) + R (540.97) + I (79.45) + ST (0)

4.7 Impact and Proposed Mitigation Measures

Due to an increase in landscaped areas in post-development phase compared to pre-development conditions, there will be an infiltration surplus in post-development and therefore no mitigation measures are required for the hydrogeological water budget. As such, no mitigation measures are required at the Site for the hydrogeological water balance.

However, mitigation measures are required for stormwater design to retain 5mm; the following measures are proposed by Burnside:

- Extra depth topsoil in all rear yards
- Roof leader discharge to rear yards (50% of rooftops)
- Soakaway pits sized for 5mm runoff from 50% rooftops, with overflow to rear yard, for the noted lots on the attached plan.

These mitigation measures consist of low impact development (LID) and will be installed as per the plan enclosed in Appendix G as prepared by Burnside.

5 Dewatering Assessment

It is our understanding that the proposed development will comprise construction of a residential subdivision inclusive of roads, sidewalks, sewers, watermains, recreational areas and single-family dwellings. Table 4-1 presents the assumptions used to calculate the dewatering rate for the individual units making up the Site.

Table 5-1 Construction Dewatering Estimate Assumptions

Input Parameter	Single Unit	Underground Services	Units	Notes
Ground Surface Elevation	258		masl	Approximate elevation based on the borehole logs and Site
Number of Subgrade Levels	1 Level		-	Single dwelling basements proposed
Top of Slab Elevation	255		masl	Approximately 3.5 masl per underground level
Lowest Footing Elevation	253.5		masl	Assumed to be approximately 1.5 m below the top of slab elevation
Excavation Area (Length x Width)	Basement Excavation : 20 x 20 m Trench Excavation : 50 x 2 m		m^2	Approximate average area for a given lot and trench excavation.
Hydraulic Conductivity (K)	1.2E-7		m/s	Average K-value of the tested water-bearing zone

5.1 Dewatering Flow Rate Estimate and Zone of Influence

The Dupuit-Forcheimer equation for radial flow to both sides of an excavation through an unconfined aquifer resting on a horizontal impervious surface was used to obtain a flow rate estimate for the units. Dewatering flow rate is expressed as follows:

$$Q_w = \frac{\pi K(H^2 - h^2)}{Ln\left[\frac{R_o}{r_e}\right]}$$

$$r_e = \frac{a+b}{\pi} \qquad R_o = R_{cj} + r_e$$

Where:

Qw = Rate of pumping (m^3/s)
X = Length of excavation (m)
K = Hydraulic conductivity (m/s)
H = Hydraulic head beyond the influence of pumping (static groundwater elevation) (m)
h = Hydraulic head above the base of aquifer in an excavation (m)
R_0 = Radius of influence (m)
R_{cj} = Cooper-Jacob's radius of influence (m)
r_e = Equivalent perimeter (m)
a = Length of the excavation area (m)
b = Width of the excavation area (m)

It is expected that the initial dewatering rate will be higher to remove groundwater from within the overburden formation. The dewatering rates are expected to decrease once the target water level is achieved in the excavation footprint as groundwater will have been removed, primarily from storage, resulting in lower seepage rates into the excavation.

5.2 Trench Excavation Flow Rate Estimate

The analytical solution for estimating plane flow from an unconfined aquifer to a fully-penetrating excavation was used to obtain a flow rate estimate for the underground services trench. Dewatering flow rate is expressed as follows:

$$Q = \frac{\pi K(H^2-h^2)}{ln\, R_o/r_s} + 2[\frac{xK(H^2-h^2)}{2L}]$$

Where:

Qw = Construction dewatering rate (m^3/s)
K = saturated and horizontal hydraulic conductivity (m/s)
H = hydraulic head beyond R0 (m)
h = hydraulic head within A (m)
s = drawdown (=H-h)
rs = equivalent well radius of A (m)
RS = distance of influence of construction dewatering/pumping from equivalent well border (m)
R0 = radius of influence of construction dewatering/pumping from equivalent well center (m)
x = length of the trench (m)
w = width (m)
L = distance of influence of construction dewatering/pumping from equivalent well center (m)
π = Pi (1)
Sy = specific yield

5.3 Radius of Influence

The radius of influence (Rcj) for the construction dewatering of residential units was calculated based on Cooper-Jacob's equation. This equation is used to predict the distance at which the drawdown resulting from pumping is negligible.

The estimated radius of influence due to pumping is based on Cooper-Jacob's formula as follows:

$$\mathrm{R}_{cj} = \sqrt{2.25KDt/s}$$

Where:

Ro = Estimated radius of influence (m)
D = Aquifer thickness (original saturated thickness) (m)
K = Hydraulic conductivity (m/s)
S = Storage coefficient
t = Duration of pumping (s)

The radius of influence (Rs) for the construction dewatering of underground services was calculated based on Sichardt's equation. This equation is used to predict the distance at which the drawdown resulting from pumping is negligible. This empirical formula was developed to provide representative flow rates using the steady state flow dewatering equations, as discussed below.

The estimated radius of influence due to pumping is based on Sichardt's formula as follows:

$$R_s = C(H - h)\sqrt{(K)}$$

Where:

Rs = Estimated Sichardt's radius of influence (m)
H = Hydraulic head in aquifer (static water level or saturated depth) (m)
h = Dynamic water level (m)
K = Hydraulic conductivity (m/sec)
C = Constant (3,000)

Based on Sichardt's formula and the highest K-value, the calculated distance of influence (Lo = Ro/2) is provided in Appendix E.

5.4 Stormwater

Additional pumping capacity may be required to maintain dry conditions within the excavation during and following significant precipitation events. Therefore, the dewatering rates at the Site should also include removing stormwater from the excavation.

A 15 mm precipitation event was utilized for estimating the stormwater volume. The calculation of the stormwater volume is included in Appendix E.

The estimate of the stormwater volume only accounts for direct precipitation into the excavation. The dimensions of the excavation are considered in the dewatering calculations. Runoff which originated outside of the excavation's footprint is excluded and it should be directed away from the excavation.

During precipitation events greater than 15 mm (ex: 100-year storm), measures should be taken by the contractor to retain stormwater onsite in a safe manner to not exceed the allowable water taking and discharge limits, as necessary. A two (2) and a one hundred (100) year storm event over a 24-hour period are 57.5 and 125.5 mm, respectively.

5.5 Results of Dewatering Rate Estimates

5.5.1 Construction Dewatering Rate Estimate

For this assessment, it was assumed that the proposed construction plans include an excavation with shoring extending to the Site boundaries. EXP should be retained to review the assumptions outlined in this section, should the assumed shoring design change. Short-term (construction) dewatering calculations are presented in Appendix E.

Pits (elevator, sump pits) are assumed to have the same excavation depth and dewatering target as the main excavation; deeper pits may require localized dewatering and revised dewatering estimates. Based on the assumptions provided in this report, the results of the dewatering rate estimate can be summarized as follows:

Table 5-2A Summary of Construction Dewatering Rate – Residential Units

Description	Single Unit (L/day)
Estimated Short Term Dewatering Rate (without safety factor or precipitation)	3,050
With Factor of Safety of 2 (excluding precipitation) for permit	6,100
With Factor of Safety of 2 (including precipitation)	12,110

Table 5-2B Summary of Construction Dewatering Rate – Underground Services

Description	Underground Services (L/day)
Estimated Construction Dewatering Rate (including trench, ends, and precipitation)	25,750

The peak dewatering flow rates does not account for flow from utility beddings and variations in hydrogeological properties beyond those encountered during this investigation.

Local dewatering may be required for pits (elevator pits, sump pits), if these extend deeper than the dewatering target. Local dewatering is not considered to be part of this assessment. Dewatering estimates should be reviewed once the pit dimensions are available.

All grading around the perimeter of the excavation should be graded away from the shoring the systems and ramp/site access to redirect runoff away from excavation.

The contractor is responsible for the design of the dewatering systems (depth of wells, screen length, number of wells, spacing sand pack around screens, prevent soil loss etc.) to ensure that dry conditions are always maintained within the excavation at all costs.

Dewatering should be monitored using dedicated monitoring wells within and around the perimeter of the excavation, and these wells should be monitored using manual measurements and with electronic data loggers; records should be maintained on site to track dewatering progress. Discharge rates should be monitored using calibrated flow meters and records of dewatering progress, and daily precipitation as per MECP requirements should be maintained.

No excavations are planned for environmental purposes as the Record of Site Condition has already been filed; no further dewatering requirements are anticipated to be associated with the RA or CPU.

5.5.2 Post-Construction Dewatering Rate Estimate

It is our understanding that the development plan includes permanent foundation sub-drain systems that will ultimately discharge to the municipal sewer system if conventional footings are installed.

The long-term dewatering was based on the same equations as construction dewatering shown in Section 5.1.

The calculation for the estimated flow to the future sub-drain system (with no cutoff walls) is provided in Appendix E. The dewatering target for the foundation drainage system is taken at 0.5 m below the lowest slab elevation.

The foundation drain analysis provides a flow rate estimate. Once the foundation drain is built, actual flow rate measurements of the sump discharge will be required to confirm the estimated flow rate.

Based on the assumptions provided in this report, the estimated sub-drain discharge volumes are summarized in Appendix E. Seasonal and daily fluctuations are expected. These estimates may be affected by hydrogeological conditions beyond those encountered at this time, fluctuations in groundwater regimes, surrounding Site alterations, and existing and future infrastructures.

For the design of foundations without perimeter and/or foundation drainage system, shallower wells need to be considered to evaluate the shallow groundwater table. The hydrogeologist needs to be consulted during the design process.

Table 4-3: Summary of Long-Term Dewatering Rate – Residential Units

Description	Single Unit (L/day)
Long-Term Dewatering Rate without Safety Factor	1,000
Long-Term Dewatering Rate with Safety Factor of 2 for design, budgeting and permitting	2,000

Intermittent cycling of sump pumps and seasonal fluctuation in groundwater regimes should be considered for pump specifications. A safety factor was applied to the flow rate to account for water level fluctuations due to seasonal changes.

These estimates assume that pits (elevator and/or sump pits) are made as watertight structures (without drainage), if their depths extend below the dewatering target, as previously stated. The dewatering assumptions are based on using shoring system without open cuts. Open cuts can act as preferential groundwater pathways in the long-term and cause foundation drainage volumes to increase.

The sub-drain rate estimate is based on the assumptions outlined in this report. Any variations in hydrogeological conditions beyond those encountered as part of this investigation may significantly influence the sub-drain discharge volumes.

5.6 MECP Water Taking Permits

5.6.1 Short-Term Discharge Rate (Construction Phase)

In accordance with the Ontario Water Resources Act, if the water taking for the construction dewatering is more than 50,000 L/day but less than 400,000 L/day, then an online registration in the Environmental Activity and Sector Registry (EASR) with the MECP will be required. If groundwater dewatering rates onsite exceed 400,000 L/day, a Category 3 Permit to Take Water (PTTW) will be required from the MECP.

As of July 1, 2021, an amendment of O. Reg. 63/16 has come into effect and replaced the former subsection 7 (5) such that the EASR water taking limit of 400,000 L/day would apply to groundwater takings of each dewatered work area only, excluding stormwater. Based on the dewatering rates described above, construction dewatering is anticipated to be below 50,000 L/day, and so an EASR will not be required.
A Discharge Plan (dewatering sketch, sewer discharge agreement) must be developed and applied for any discharges from the Site. Monitoring of both water quantity and water quality must be carried out for the entire duration of the construction dewatering phase. During this phase, the Discharge Plan and the daily water taking records must be available onsite.

The Discharge Plan, hydrogeological investigation report, and geotechnical assessment of settlements must also be available at the construction Site during the entire construction dewatering. EXP should be notified immediately about any changes to the construction dewatering schedule or design, since the EASR will need to be updated to reflect these modifications. Altogether, the hydrogeological report, EASR, Discharge Plan and geotechnical assessment constitute the Water Taking Plan which needs to be available onsite during the construction dewatering.

6 Environmental Impact

6.1 Surface Water Features

The Site is within the Etobicoke Creek watershed. No surface water features exist onsite. The nearest surface water feature is Etobicoke Creek, approximately located 295 meters east of the Site boundary. Lake Ontario is approximately 29 km from the Site boundary to the southeast.

Due to the limited extent of zone of influence and the wide distance to the nearest surface water feature, no detrimental impacts on surface water features are expected during construction activities.

6.2 Groundwater Sources

Well Records from the MECP Water Well Record (WWR) Database were reviewed to determine the presence and number of water supply wells within a 500 m radius of the Site boundaries. Given that the dewatering zone of influence is limited, no dewatering related impact is expected on the water wells in the area.

To verify results of the MECP WWR search, a baseline residential water well survey form and accompanying letter was distributed to residents within a 500 m radius of the Site on July 28, 2023. A total of seven hundred and fifty four (754) properties visited and handed over well survey forms and accompanying letters, resulting in no authorizations from well owners given. A full description of the Door to Door survey can be found in Appendix H.

6.3 Monitoring and Contingency Plan for Private Water Wells

The door to door well survey did not return any respondents and participants. In the event that a well owner wishes to participate at a later date, then the private well will be surveyed. Each participating private well will be monitored using a data logger for continuous groundwater level monitoring, and one sample per year will be taken during the course of construction. Upon completion of construction, one sample will be taken within 3 months after the end of construction. The water quality sampling will include general chemistry, microbiology, Total Suspended Solids (TSS), and turbidity.

During construction, the following monitoring and contingency plan should be undertaken.

- In the event of a complaint from a well owner is received during construction, the Client will investigate the nature of the complaint by taking water levels and groundwater samples and assess the potential impacts of construction onto the private well.
- In the event that the source of water of a private water well owner is impacted by construction, the Client will provide an alternate source of drinking water at their own cost until the matter is resolved. This may include bottled water as a temporary source.
- If it is determined that the construction has impacted the private well, then alternate solutions will have to be implemented by the Client at his own costs including but not limited to: deepening of the private well, replacement of the private well or connection to a watermain.

6.4 Groundwater Quality

It is our understanding that the potential effluent from the dewatering system during the construction will be released to the municipal sewer system. As such, the quality of groundwater discharge is required to conform the Region of Peel Sewer Use By-Law.

For the short-term dewatering system (construction phase), it is anticipated that TSS levels and some other parameters (for example, Total Metals) in the pumped groundwater may become elevated and exceed both, Sanitary and Storm Sewer Use By-Law limits. To control the concentration of TSS and associated metals, it is recommended that a suitable treatment method be implemented (filtration or decantation facilities and/ or any other applicable treatment system) during construction dewatering activities to discharge to the applicable sewer system. The specifications of the treatment system will need to be adjusted to the reported water quality results by the treatment contractor/process engineer.

Dewatering (short and long-term) may induce migration of contaminants within the zone of influence and beyond due to changing hydraulic gradients, hydrogeological conditions beyond Site boundaries and preferential pathways in utility beddings etc. The water quality sampling conducted as part of this assessment was performed under static conditions. As a result, monitoring may be required during dewatering activities (short and long-term) to monitor potential migration, and this should be performed more frequently during early dewatering stages.

An agreement to discharge into the sewers owned by the Town of Caledon will be required prior to releasing dewatering effluent. The Phase Two Environmental Site Assessment Report (2020) was reviewed and determined the following exceedances to MECP (2011) Table 4 SCS: Sodium and Chloride in groundwater. The Phase Two ESA Update (2022) was reviewed and determined that no exceedances of the Table 4 SCS were identified in soil or groundwater.

6.5 Well Decommissioning

In conformance with Regulation 903 of the Ontario Water Resources Act, the installation and eventual decommissioning of any dewatering system wells or monitoring wells must be completed by a licensed well contractor. This will be required for all wells that are no longer in use.

7 Conclusions and Recommendations

Based on the findings of the Hydrogeological Investigation and Water Balance Assessment, the following conclusions and recommendations are provided:

- When comparing the chemistry of the collected groundwater samples to the Peel Sanitary and Combined Sewer Discharge Criteria (Table 1), there were no parameter exceedances to be reported. When comparing the chemistry of the collected groundwater samples to the Peel Storm Sewer Discharge Criteria (Table 2), only Manganese (Mn) reported an exceedance.
- In post development phase due to an increase in landscape areas, the annual infiltration volume will be increased from approximately 1,196 m^3/year to 2,851 m^3/year in post-development, resulting in a surplus of 1,654 m^3/year (Appendix F-4).
- Based on the assumptions outlined in this report, the estimated peak dewatering rate for proposed construction activities is approximately 12,110 L/day for a single unit and 25,750 L/day for underground services. These are the rates which will be required to be discharged to the municipal sewer system. Based on the dewatering rates described above, construction dewatering is anticipated to be below 50,000 L/day, and so an EASR will not be required.
- No excavations are planned for environmental purposes as the Record of Site Condition has already been filed; no further dewatering requirements are anticipated to be associated with the RA or CPU.
- The long-term flow rate of the foundation sub-drain is estimated to be approximately 2,000 L/day. It is recommended that once the sub-drain system is in place, a flow meter be installed at the sump(s) to record daily discharge volumes during the commissioning stage of the system. Regular maintenance/cleaning of the sub-drain system is recommended to ensure its proper operation.
- The construction dewatering volume is based on the assumptions outlined in this report. Any variations in hydrogeological conditions beyond those encountered as part of this preliminary investigation may significantly influence the discharge volumes.
- For the short-term dewatering system (construction phase), it is anticipated that TSS levels and some other parameters (for example, Total Metals) in the pumped groundwater may become elevated and exceed both, Sanitary and Storm Sewer Use By-Law limits. To control the concentration of TSS and associated metals, it is recommended that a suitable treatment method be implemented (filtration or decantation facilities and/ or any other applicable treatment system) during construction dewatering activities to discharge to the applicable sewer system. The specifications of the treatment system will need to be adjusted to the reported water quality results by the treatment contractor/process engineer.
- An agreement to discharge into the sewers owned by the Town of Caledon will be required prior to releasing dewatering effluent.
- The EASR registration allows construction dewatering discharge of up to 400,000 L/day. A Discharge Plan (dewatering sketch, sewer discharge agreement) must be developed and applied for any discharges from the Site. The Discharge Plan and monitoring for both water quantity and water quality must be carried at the Site during the entire construction dewatering phase. The daily water taking records must be maintained onsite for the entire construction dewatering phase. The EASR, Discharge Plan, hydrogeological investigation report, and geotechnical assessment of settlements must always also be available at the construction Site for the entire construction dewatering. EXP should be notified immediately about any changes to the construction dewatering schedule or design, since EASR will need to be updated to reflect these modifications. The hydrogeological report, EASR, Discharge Plan and geotechnical assessment constitutes the Water Taking Plan which needs to be available onsite for the duration of construction dewatering.
- In conformance with Regulation 903 of the Ontario Water Resources Act, the installation and eventual decommissioning of any dewatering system wells or monitoring wells must be completed by a licensed well contractor. This will be required for all wells that are no longer in use.

The conclusions and recommendations provided above should be reviewed in conjunction with the entirety of the report. They assume that the present design concept described throughout the report will proceed to construction. This report is solely intended for the construction and long-term dewatering assessments. Any changes to the design concept may result in a modification to the recommendations provided in this report.

8 Limitations

This report is based on a limited investigation designed to provide information to support an assessment of the current hydrogeological conditions within the study area. The conclusions and recommendations presented within this report reflect Site conditions existing at the time of the assessment. EXP must be contacted immediately, if any unforeseen Site conditions are experienced during construction activities. This will allow EXP to review the new findings and provide appropriate recommendations to allow the construction to proceed in a timely and cost-effective manner.

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We trust that this information is satisfactory for your purposes. Should you have any questions or comments, please do not hesitate to contact this office.

Sincerely,

EXP Services Inc.

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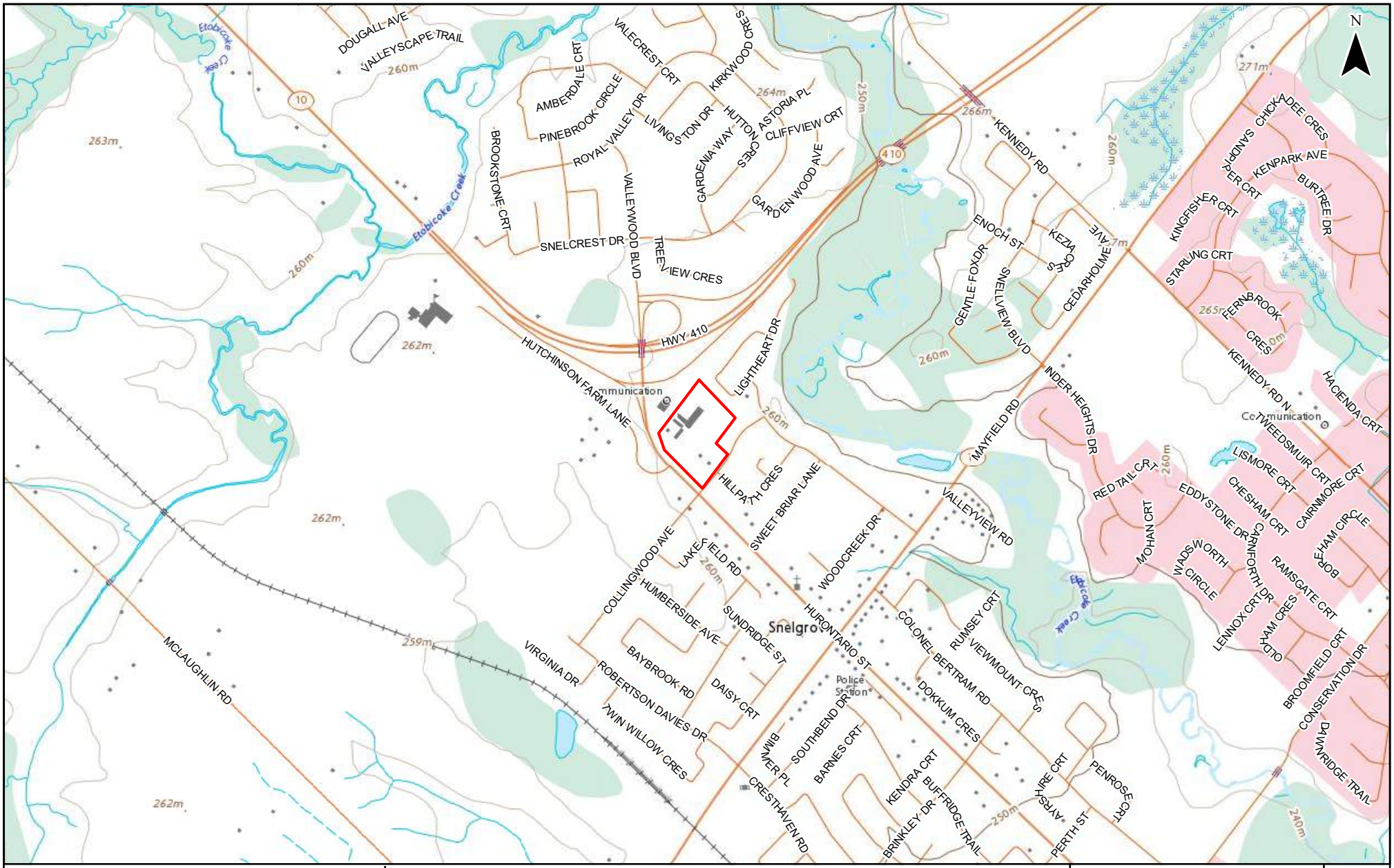
Figures



SCALE:

0 150 300 450 600 750 m

LEGEND:

APPROXIMATE SITE BOUNDARY

SITE LOCATION PLAN

FIGURE: 1

exp.

DRAWN BY:	CHECKED BY:
AC	JS

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON,
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0

DATE: FEBRUARY 2022

SCALE:

0 100 200 300 400 500 m

SOURCE:

BASED ON ONTARIO GEOLOGICAL SURVEY DATA PUBLISHED IN 2010

exp.

DRAWN BY:	CHECKED BY:
AC	JS

LEGEND:

- APPROXIMATE SITE BOUNDARY
- 19: MODERN ALLUVIAL DEPOSITS
- 5D: GLACIOLACUSTRINE-DERIVED SILTY TO CLAYEY TILL

SURFICIAL GEOLOGY

FIGURE: 2

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0

DATE: FEBRUARY 2022

SCALE:
0 100 200 300 400 500 m

SOURCE:
BASED ON GOOGLE EARTH IMAGERY DATED 2021,
AVAILABLE WELL RECORD INFORMATION AS OF SEPTEMBER 2019

exp.

DRAWN BY:	CHECKED BY:
AC	JS

LEGEND:

- MONITORING WELL / TEST HOLE
- WATER SUPPLY WELL
- ABANDONED WELL
- UNCLASSIFIED / UNFINISHED WELL
- APPROXIMATE SITE BOUNDARY
- 500 m ZONE

MECP WATER WELL RECORDS MAP

FIGURE: 3

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0 | DATE: FEBRUARY 2022

SCALE:

0 25 50 75 100 125 m

LEGEND:

- BOREOLE (EXP, 2021)
- BOREHOLE / MONITORING WELL (EXP 2020)
- BOREHOLE / MONITORING WELL (EXP, 2021)
- CROSS SECTION AXIS
- APPROXIMATE SITE BOUNDARY

exp.

DRAWN BY:	CHECKED BY:
AC	JS

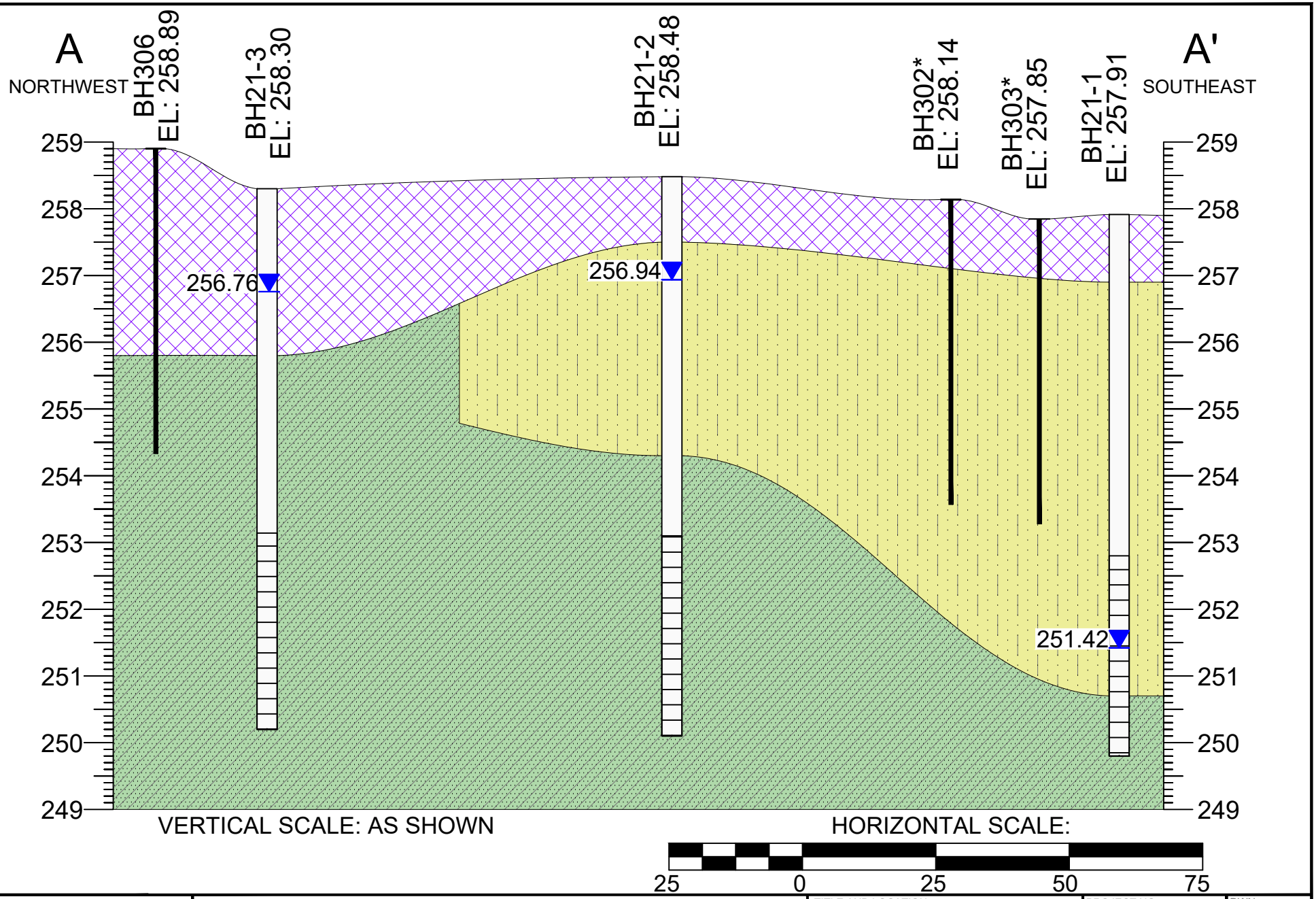
BOREHOLE / MONITORING WELL LOCATION PLAN

FIGURE: 4

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0

DATE: FEBRUARY 2022



EXP Services Inc.
t: +1.905.793.9800 | f: +1.905.793.0641
1595 Clark Boulevard
Brampton, ON L6T 4V1
Canada
www.exp.com

• BUILDINGS • EARTH & ENVIRONMENT • ENERGY • INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

LEGEND:

- ASPHALT / CONCRETE
- FILL
- SANDY SILT TILL
- CLAYEY SILT TILL
- * STRAIGHT AUGER TO FINAL DEPTH
- GROUNDWATER ELEVATION ON JANUARY 12, 2022

TITLE AND LOCATION:

CROSS SECTION A-A'
12197 HURONTARIO STREET, BRAMPTON AND 12221- 12233 HURONTARIO STREET, CALEDON, ONTARIO

PROJECT NO.: BRM-00257876-D0	DWN.: NS
SCALE: AS NOTED	CK: FC
DATE: MARCH 2022	FIG. NO.: 5A

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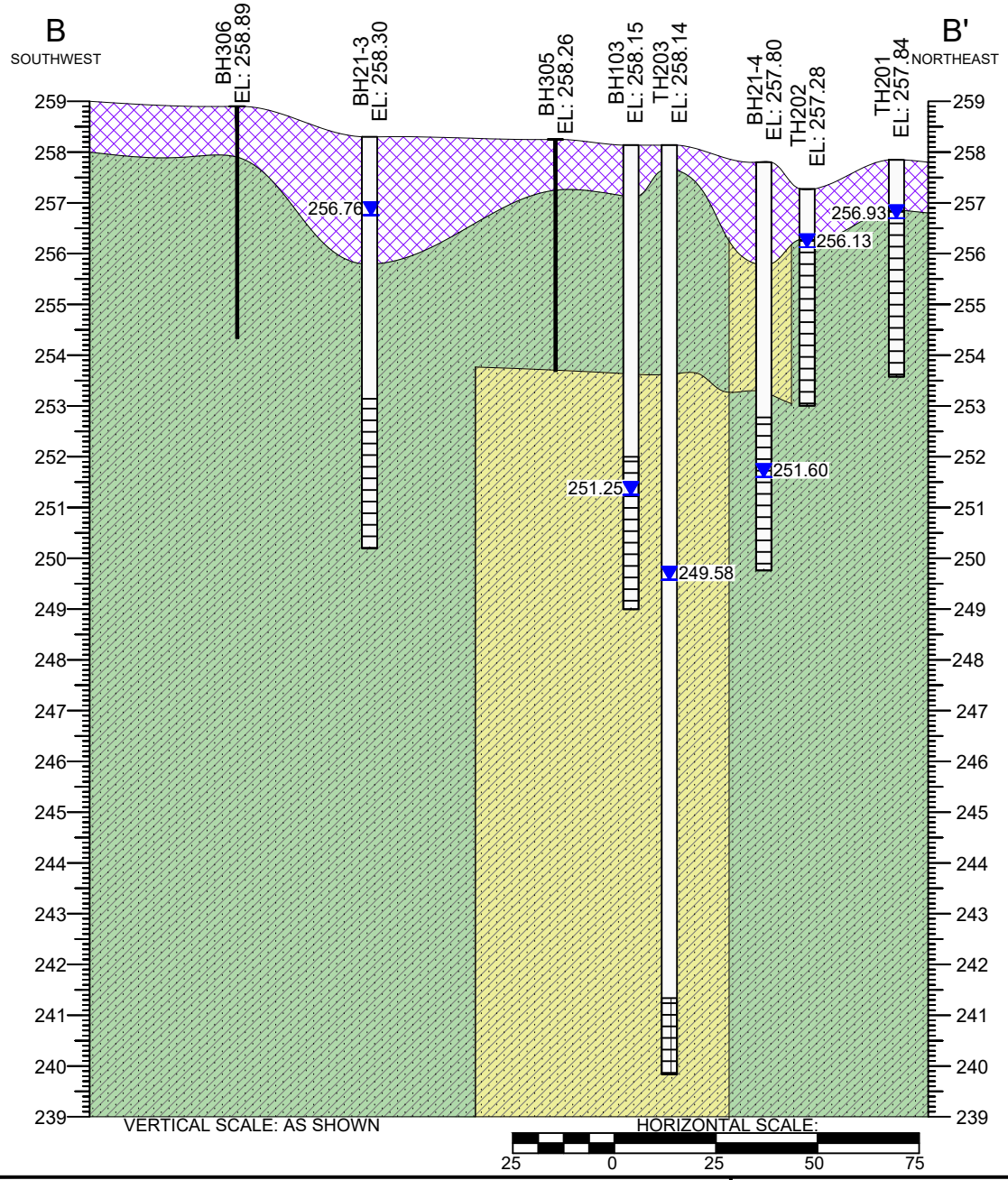

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• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

LEGEND:

- ASPHALT / CONCRETE
- FILL
- SANDY SILT TILL
- CLAYEY SILT TILL
- GROUNDWATER ELEVATION ON JANUARY 12, 2022

TITLE AND LOCATION:

CROSS SECTION B-B'

12197 HURONTARIO STREET, BRAMPTON AND 12221- 12233 HURONTARIO STREET, CALEDON, ONTARIO

PROJECT NO.:	DWN.:
BRM-00257876-D0	NS
SCALE:	CK:
AS NOTED	FC
DATE:	FIG. NO.:
MARCH 2022	5B

J:\2003-Brampton\Projects\Environmental Sciences\Brampton Jobs\BRM\00200000\250000\257876-D0 - 12197 Hurontario St, Caledon\3 - Deliverables\Figures\Draft Figures\Figures.dwg

SCALE:

0 25 50 75 100 125 m

DRAWN BY: AC

CHECKED BY: JS

LEGEND:

- BOREHOLE / MONITORING WELL (EXP, 2021)
- XX.XX GROUNDWATER ELEVATION (m asl) AS MEASURED ON JANUARY 12, 2022
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE SITE BOUNDARY

GROUNDWATER CONTOUR PLAN

FIGURE: 6

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0

DATE: MARCH 2022

SCALE:

0 25 50 75 100 125 m

LEGEND:

OPEN SPACE

APPROXIMATE SITE BOUNDARY

DRAWN BY:	CHECKED BY:
AC	JS

EXISTING LAND USE

FIGURE: 7

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0

DATE: FEBRUARY 2022

SCALE:
0 25 50 75 100 125 m

SOURCE:
BASED ON SITE PLAN - SUMMER VALLEY.
CAIVAN, NOVEMBER 2021. DRAWING # SK-05.

exp.

DRAWN BY:	CHECKED BY:
AC	JS

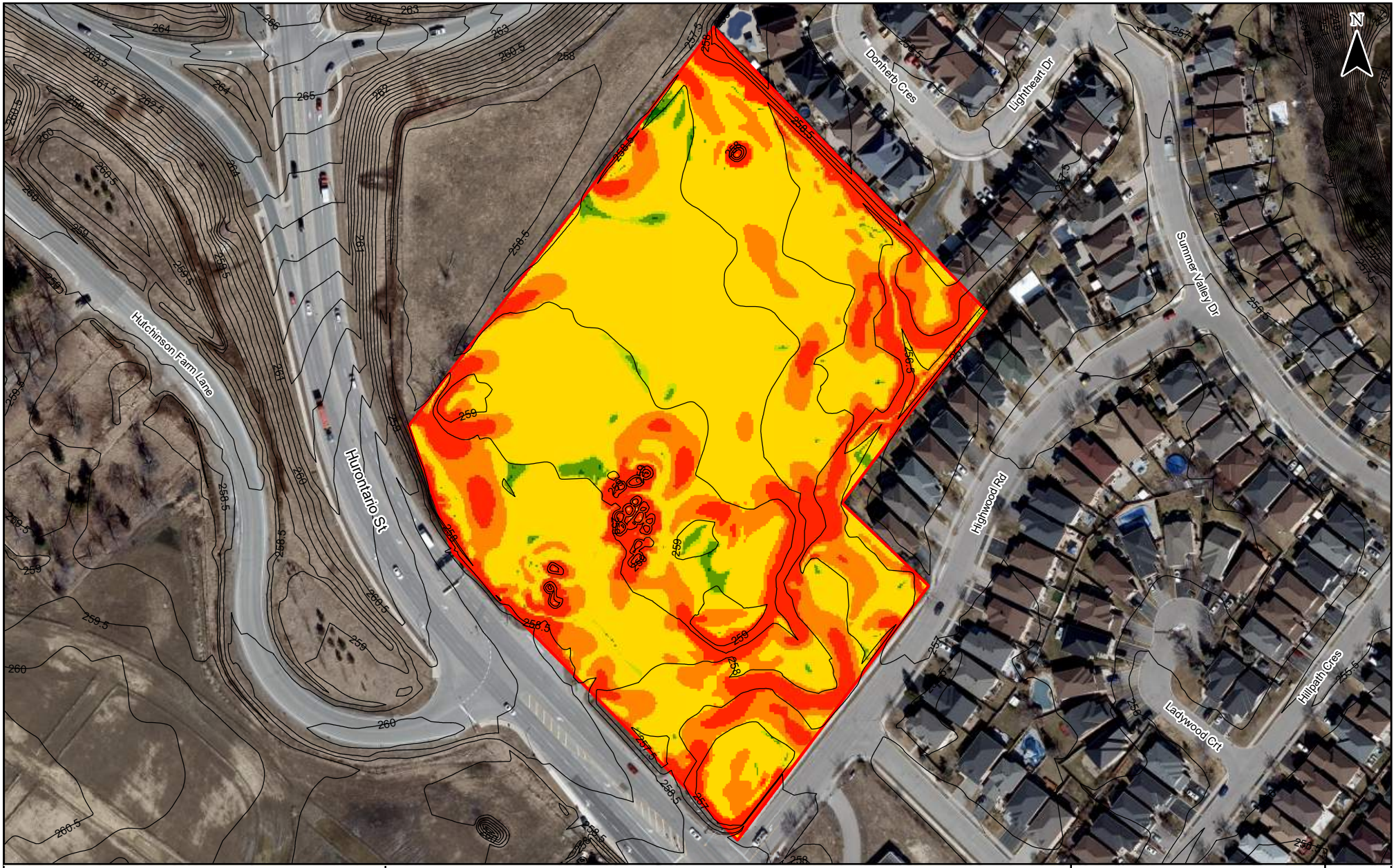
LEGEND:
- RESIDENTIAL
- LANDSCAPE
- PAVED ROAD
- APPROXIMATE SITE BOUNDARY

PROPOSED LAND USE

FIGURE: 8

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0 | DATE: FEBRUARY 2022



SCALE:
0 25 50 75 100 125 m

SOURCE:
TOPOGRAPHIC CONTOURS (2021) BASED ON PUBLIC SECTOR INFORMATION MADE AVAILABLE UNDER THE CITY OF BRAMPTON GEOHUB OPEN DATA

exp.

DRAWN BY:	CHECKED BY:
AC	JS

LEGEND:
TOPOGRAPHIC CONTOUR (m asl)
APPROXIMATE SITE BOUNDARY

EXISTING SLOPE (INFILTRATION FACTOR):
- <0.06% (0.30)
- 0.06 - 0.28% (0.25)
- 0.28 - 0.38% (0.20)
- 0.38 - 2.8% (0.15)
- 2.8 - 4.7% (0.10)
- >4.7% (0.05)

EXISTING SLOPE

FIGURE: 9

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0
DATE: FEBRUARY 2022

Appendix A – MECP WWR Summary Table

On-Site

BORE_HOLE_ID	WELL_ID	DATE	EAST83	NORTH83	ELEVATION (m ASL)	STREET	CITY	DISTANCE TO SITE BOUNDARY (m)	CONSTRUCTION METHOD	WELL DEPTH (m bgs)	WATER FOUND (m bgs)	CASING DIAMETER (cm)	1st USE	2nd USE	FINAL STATUS
10315957	4901111	1/16/1961	594183	4843461	259.3				Boring	16.8	13.4	16.8	Domestic		Water Supply
11765486	7043038	4/3/2007	594170	4843626	258.1	12231, 1223, 12233 HURONTARIO ST	CALEDON		Boring	6.0	3.6	3.0			Observation Wells

Off-Site

BORE_HOLE_ID	WELL_ID	DATE	EAST83	NORTH83	ELEVATION (m ASL)	STREET	CITY	DISTANCE TO SITE BOUNDARY (m)	CONSTRUCTION METHOD	WELL DEPTH (m bgs)	WATER FOUND (m bgs)	CASING DIAMETER (cm)	1st USE	2nd USE	FINAL STATUS
10315949	4901103	5/18/1954	594348	4843310	255.4			143	Boring	16.8	15.2	15.2	Domestic		Water Supply
10315950	4901104	11/1/1961	594373	4843281	255.7			181	Boring	19.8	14.6	10.7	Domestic		Water Supply
10315951	4901105	7/4/1962	594522	4843112	255.0			405	Cable Tool	41.1	41.1	5.5	Domestic		Water Supply
10315954	4901108	6/1/1967	594550	4843077	255.0			450	Boring	15.8	12.8	15.8	Domestic		Water Supply
10315955	4901109	6/12/1954	594192	4843770	258.8			69	Boring	15.2	13.7	13.7	Domestic		Water Supply
10316454	4901609	9/18/1953	594371	4842987	255.0			434	Boring	14.9	13.4	14.9	Domestic		Water Supply
10316455	4901610	6/20/1954	594298	4843282	256.1			133	Boring	17.4	17.4	17.4	Domestic		Water Supply
10316456	4901611	7/3/1954	594459	4842983	254.9			472	Boring	18.3	16.5	18.3	Domestic		Water Supply
10316457	4901612	12/18/1955	594143	4843426	258.4			49	Boring	18.9	16.5	18.9	Domestic		Water Supply
10316458	4901613	9/19/1961	594371	4843208	256.2			234	Boring	18.6	15.2	18.6	Domestic		Water Supply
10316459	4901614	4/4/1962	594411	4843208	255.9			259	Cable Tool	44.5	43.9	39.3	Domestic		Water Supply
10316462	4901617	8/23/1961	594260	4843269	256.7			133	Cable Tool	45.7	44.2	42.7	Domestic		Water Supply
10316463	4901618	11/16/1963	593847	4843508	261.4			269	Cable Tool	48.8	39.6	39.3	Livestock	Domestic	Water Supply
10317731	4902890	6/3/1968	594405	4843213	256.0			251	Cable Tool	16.8	15.2	16.8	Domestic		Water Supply
1001497608	7101921	1/24/2008	594116	4843613	259.3	HURONTARIO, N. OF MAYFIELD	BRAMPTON	29			2.0	6.1			Abandoned-Other
11323491	4909758	5/25/2005	594350	4843643	255.4	57 LIGHTHESRT ROAD	BRAMPTON	44	Digging		11.0	16.5	Not Used		Abandoned-Other
11760760	7034881	8/21/2006	594324	4843313	255.4	12197 HURONTARIO	CALEDON	123	Other Method	5.2		2.1			Abandoned-Other
11763712	7041219	1/12/2007	594429	4843164	255.7	12197 HURONTARIO ST	BRAMPTON	304	Other Method	4.9		1.5	Not Used		Observation Wells
11177200	4909572	11/16/2004	594714	4843223	251.2			489	Other Method			1.8			Observation Wells
1001547985	7102926	12/17/2007	594100	4843619	259.4	12267 HURONTARIO ST.	BRAMPTON	45							Abandoned-Other
1007307017	7321773	9/24/2018	593970	4843159		HUTCHINSON FARM LN	CALEDON	361	Boring	4.5	3.3		Monitoring		Observation Wells
1007307023	7321775	9/25/2018	593944	4843589		HUTCHINSON FARM LN.	CALEDON	170	Boring	7.0	4.2		Monitoring		Observation Wells
1007309453	7322190	10/18/2018	593916	4843834		HWY 10 & HWY 410	BRAMPTON	324	Boring	15.2	12.2		Monitoring		Observation Wells
1007360863	7327350	12/7/2018	594047	4843521		Hutchinson Farm Line	Brampton	74	Boring	6.1			Monitoring		Monitoring and Test Hole
1007360866	7327351	12/7/2018	593877	4843717		Hutchinson Farm Line	Brampton	282	Boring	6.1			Monitoring		Monitoring and Test Hole
1007360875	7327354	12/7/2018	594238	4843355		Hurontario Street	Brampton	45	Boring	6.1			Monitoring		Monitoring and Test Hole
1007360878	7327355	12/7/2018	594396	4843194		Hurontario Street	Brampton	260	Boring	6.1			Monitoring		Monitoring and Test Hole
1007360881	7327356	12/7/2018	594540	4843072		Hurontario Street	Brampton	446	Boring	6.1			Monitoring		Monitoring and Test Hole
10322846	4908310	7/15/1997	594448	4842977	254.7			473	Not Known				Not Used		Abandoned-Other
10526896	4908963	3/27/2002	593776	4843904	263.2			477	Digging				Not Used		Abandoned-Other
1004197602	7188750	5/4/2012	593846	4843992	261.8			475							
1005904094	7259060	4/23/2015	594586	4843079	254.7			474							

Appendix B – Borehole Logs

Log of Borehole BH103

Project No. MRK-00257876-A0 Drawing No. 3

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

Date Drilled: February 27, 2020

Drill Type: B57-Track Mount

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value (20, 40, 60)	Combustible Vapour Reading (ppm) (25, 50, 75)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Brown sand and gravel **FILL**, moist, no odour, no staining.	258.15	0		ND			AUG1	
		Brown clayey **SILT**, trace gravel, moist, no odour, no staining.	~257.7							
		-Reworked Native.		1						
		Brown clayey **SILT TILL**, moist, no odour, no staining.	~256.6	2		ND			AUG2	
				3					AUG3	
				4		ND				
		Grey sandy **SILT TILL**, moist, no odour, no staining.	~253.6	5		ND			AUG4	
				6					AUG5	
▼			~249.9	7		ND				
				8					AUG6	
		End of Test hole at 9.14 mbgs.	~249.0	9		ND				
				10						
				11						
				12						

ENVIRONMENTAL-EXP TH LOGS.GPJ 5/12/20

Time	Water Level (m)	Depth to Cave (m)
March 5, 2020	8.19m	
May 7 , 2020	8.226m	

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Log of Borehole TH201

Project No. MRK-00257876-A0 Drawing No. 12

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

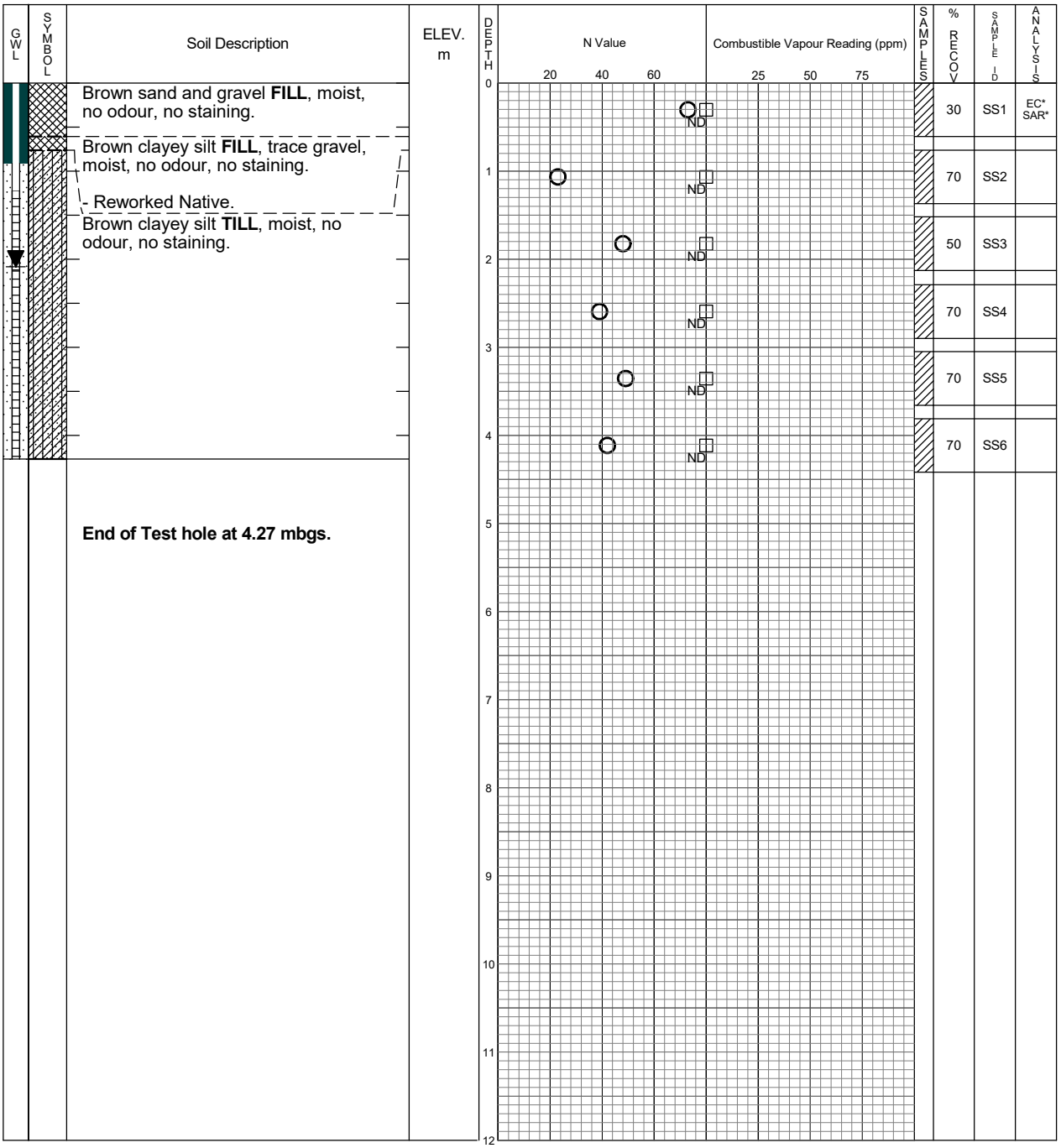
Date Drilled: April 30, 2020

Drill Type: CME 55-Track Mount

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		



ENVIRONMENTAL-EXP TH LOGS.GPJ 5/12/20

Time	Water Level (m)	Depth to Cave (m)
May 7 , 2020	2.122m	

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Log of Borehole TH202

Project No. MRK-00257876-A0 Drawing No. 13

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

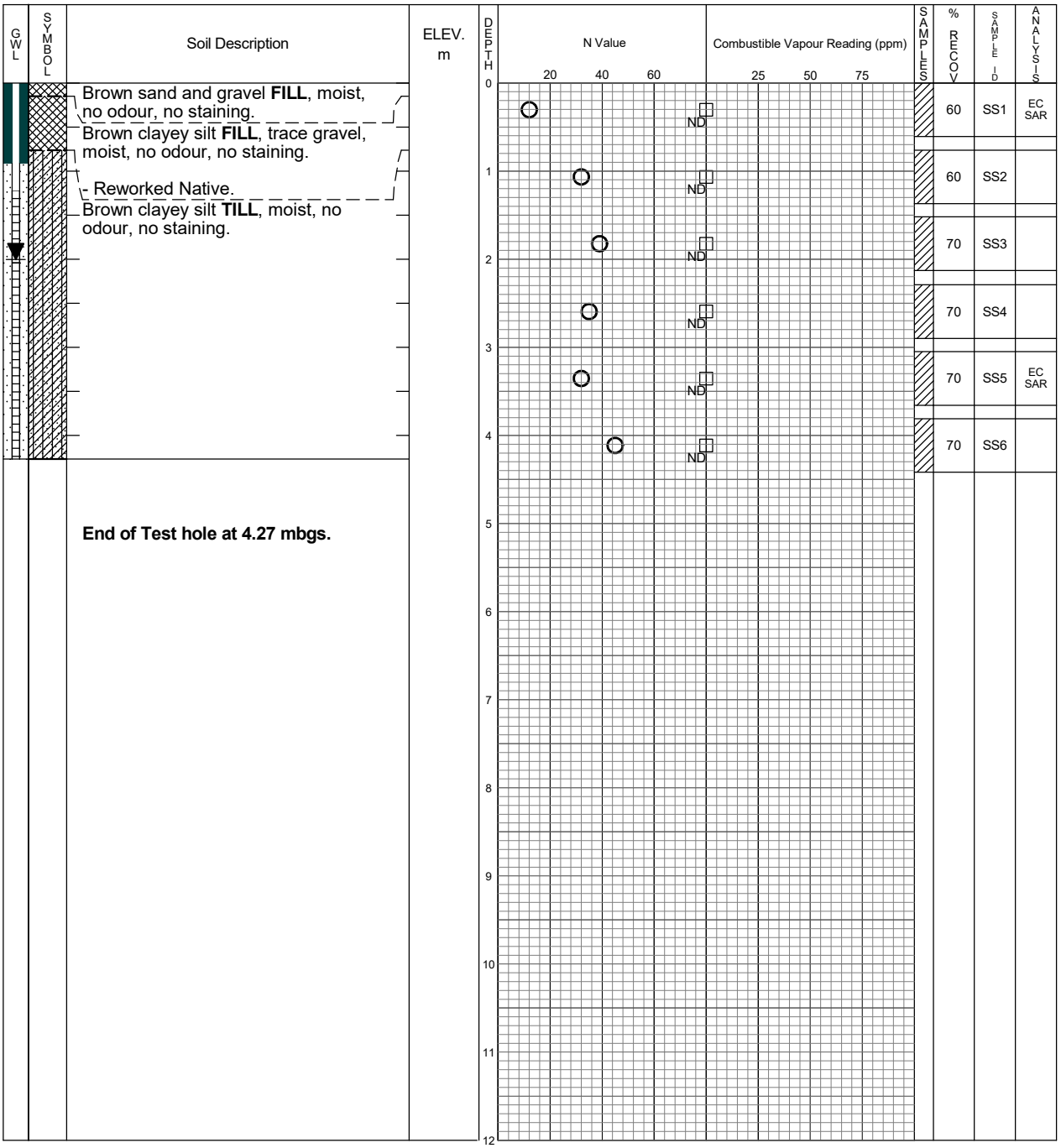
Date Drilled: May 1, 2020

Drill Type: CME 55-Track Mount

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		



ENVIRONMENTAL-EXP TH LOGS.GPJ 5/12/20

Time	Water Level (m)	Depth to Cave (m)
May 7 , 2020	2.041m	

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Log of Borehole TH203

Project No. MRK-00257876-A0 Drawing No. 14

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 2

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

Date Drilled: May 1, 2020

Drill Type: CME 55-Track Mount

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value (20, 40, 60)	Combustible Vapour Reading (ppm) (25, 50, 75)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Brown sand and gravel **FILL**, moist, no odour, no staining.		0						
		Brown clayey **SILT**, trace gravel, moist, no odour, no staining. -Reworked Native.		1						
		Brown clayey **SILT TILL**, moist, no odour, no staining.		2						
				3						
				4						
		Grey sandy **SILT TILL**, moist, no odour, no staining.		5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						

ENVIRONMENTAL-EXP TH LOGS.GPJ 5/12/20

Continued Next Page

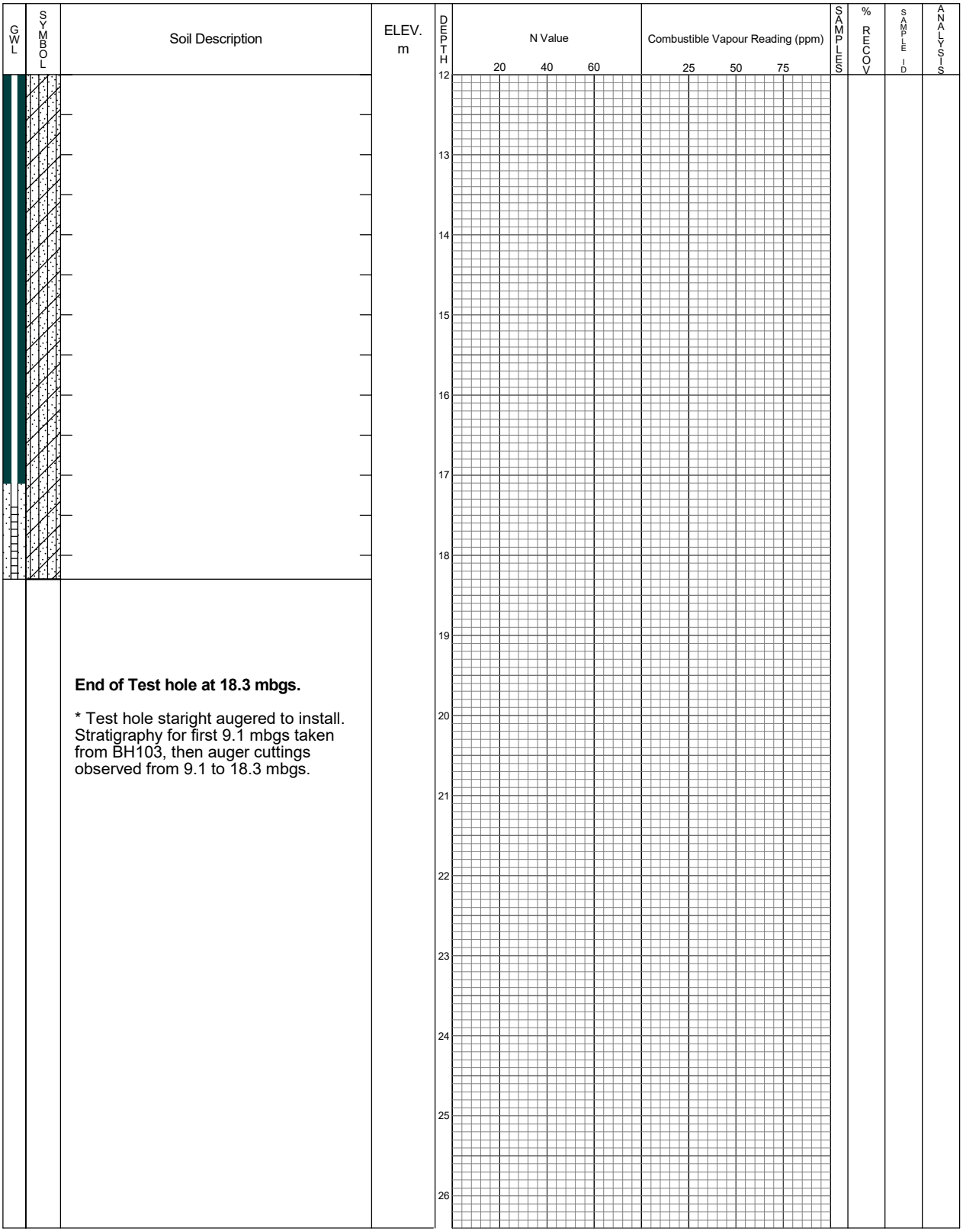
Time	Water Level (m)	Depth to Cave (m)
May 7 , 2020	9.727m	

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Log of Borehole TH203

Project No. MRK-00257876-A0 Drawing No. 14

Project: Phase Two Environmental Site Assessment Sheet No. 2 of 2



ENVIRONMENTAL-EXP TH LOGS.GPJ 5/12/20

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Time	Water Level (m)	Depth to Cave (m)
May 7 , 2020	9.727m	

Log of Borehole TH204

Project No. MRK-00257876-A0 Drawing No. 15

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

Date Drilled: May 1, 2020

Drill Type: CME 55-Track Mount

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value	Combustible Vapour Reading (ppm)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Brown sand and gravel **FILL**, moist, no odour, no staining.		0	20 40 60	25 50 75		70	SS1	EC SAR
		Brown clayey silt **FILL**, trace sand and gravel, moist, no odour, no staining.		1				70	SS2	
		- Reworked Native. Brown clayey **SILT TILL**, moist, no odour, no staining.		2				70	SS3	
				3				70	SS4	
		End of Test hole at 3.66 mbgs.		4				70	SS5	EC SAR
				5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						

ENVIRONMENTAL-EXP TH LOGS.GPJ 5/12/20

Time	Water Level (m)	Depth to Cave (m)

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Log of Borehole TH205

Project No. MRK-00257876-A0 Drawing No. 16

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

Date Drilled: April 30, 2020

Drill Type: CME 55-Track Mount

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value	Combustible Vapour Reading (ppm)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Brown clayey silt **FILL**, trace sand and gravel, moist, no odour, no staining.		0		ND		70	SS1	EC SAR
		- Reworked Native.		1		ND		70	SS2	
		Brown clayey **SILT TILL**, moist, no odour, no staining.		2		ND		70	SS3	
						ND		70	SS4	
				3		ND		70	SS5	EC
		End of Test hole at 3.66 mbgs.		4						
				5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						

N Value: 20, 40, 60

Combustible Vapour Reading (ppm): 25, 50, 75

ENVIRONMENTAL-EXP TH LOGS.GPJ 5/12/20

Time	Water Level (m)	Depth to Cave (m)

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Log of Borehole BH21-1

Project No. BRM-00257876-D0 Drawing No. 2

Project: Geotechnical Investigation Sheet No. 1 of 1

Location: NE Corner of Hurontario Street and Highwood Road, Brampton/Caledon

Date Drilled: December 21, 2021

Drill Type: CME-55, track mount machine

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)
~ 120 mm TOPSOIL over **FILL:** clayey silt to sandy silt, trace rootlets, minor organics, brown, moist	257.91	0
	~256.9	1
SANDY SILT TILL: some clay, trace gravel, brown, oxidized seams, moist, compact to very dense		2
		3
		4
		5
Silt layer, some clay, between~ 6.0 to 6.6 m depth		6
	~251.3	
	~250.7	7
CLAYEY SILT TILL: some sand, trace gravel, grey, moist		
	~249.8	8
END OF BOREHOLE		

SPT (N Value): 7, 14, 21, 25, 38, 57, 32, 22

Shear Strength (kPa): 20 40 60 80 | 100 200

Combustible Vapour Reading (ppm): 25 50 75

Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

Natural Unit Weight kN/m³: 22.9

Date	Water Level (m)	Hole Open to (m)
On completion	Dry	
January 5, 2022	6.59	
January 12, 2022	6.49	

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 2/2/22

Log of Borehole BH21-2

Project No. BRM-00257876-D0 Drawing No. 3

Project: Geotechnical Investigation Sheet No. 1 of 1

Location: NE Corner of Hurontario Street and Highwood Road, Brampton/Caledon

Date Drilled: December 21, 2021

Drill Type: CME-55, track mount machine

Datum: Geodetic

Auger Sample ☒
SPT (N) Value ○ ▨
Dynamic Cone Test —
Shelby Tube ■
Field Vane Test ✚ S

Combustible Vapour Reading □
Natural Moisture ×
Plastic and Liquid Limit ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Penetrometer ▲

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
		~ 120 mm TOPSOIL over **FILL:** clayey silt to sandy silt, some gravel, trace organics, brown, moist	258.48	0
			~257.9	
		SANDY SILT TILL: some clay, trace gravel, brown, oxidized seams, moist, compact to very dense	~257.5	1
				2
				3
			~254.3	4
		CLAYEY SILT TILL: trace sand, trace gravel, brown to grey, moist		5
		- becoming grey below ~5.0 m depth		6
		-becoming hard		7
		-becoming very stiff		8
			~250.1	
		END OF BOREHOLE		

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

SPT values: 10, 20, 29, 24, 29, 18, 56, >, 27

Sample | Natural Unit Weight kN/m³: 21.0

Date	Water Level (m)	Hole Open to (m)
On completion	8.0	
January 5, 2022	0.56	
January 12, 2022	1.72	

exp.

Log of Borehole BH21-3

Project No. BRM-00257876-D0 Drawing No. 4

Project: Geotechnical Investigation Sheet No. 1 of 1

Location: NE Corner of Hurontario Street and Highwood Road, Brampton/Caledon

Date Drilled: December 20, 2021

Drill Type: CME-55, track mount machine

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)	Sample	Natural Unit Weight kN/m³
FILL: sandy silt to silty sand, some gravel, trace rootlets, brown, moist	258.30	0		
-changing to clayey silt (disturbed material)	~257.7			
- becoming wet	~257.1	1		
CLAYEY SILT TILL: some sand, trace gravel, brown to grey below ~4.5 m, moist	~255.8	2		
		3		22.8
-sandy silt till layer between ~4.5 to 5.2 m depth		4		
		5		
		6		23.6
		7		
	~250.2	8		
END OF BOREHOLE				

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

SPT values: 14, 5, 18, 29, 64, 41, 28, 30

Date	Water Level (m)	Hole Open to (m)
On completion	7.9	
January 5, 2022	1.23	
January 12, 2022	1.55	

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 2/5/22

Log of Borehole BH21-4

Project No. BRM-00257876-D0 Drawing No. 5

Project: Geotechnical Investigation Sheet No. 1 of 1

Location: NE Corner of Hurontario Street and Highwood Road, Brampton/Caledon

Date Drilled: December 21, 2021

Drill Type: CME-55, track mount machine

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)	Sample	Natural Unit Weight kN/m³
FILL: sandy silt with sand & gravel pockets, brown, moist	257.80			
-Brown sandy silt, some gravel (reworked on-site material)	~257.2			
SANDY SILT TILL: some sand, trace gravel, brown, oxidized seams, moist	~255.8			
CLAYEY SILT TILL: some sand, trace gravel, grey , moist	~253.3			23.2
	~251.7			21.1
END OF BOREHOLE	~249.7			

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

SPT values: 31, 11, 27, 33, 31, 25, 21, 16

Date	Water Level (m)	Hole Open to (m)
On completion	8.0	
January 5, 2022	6.08	
January 12, 2022	6.20	

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 2/2/22

Log of Borehole BH21-5

Project No. BRM-00257876-D0 Drawing No. 6

Project: Geotechnical Investigation Sheet No. 1 of 1

Location: NE Corner of Hurontario Street and Highwood Road, Brampton/Caledon

Date Drilled: December 21, 2021

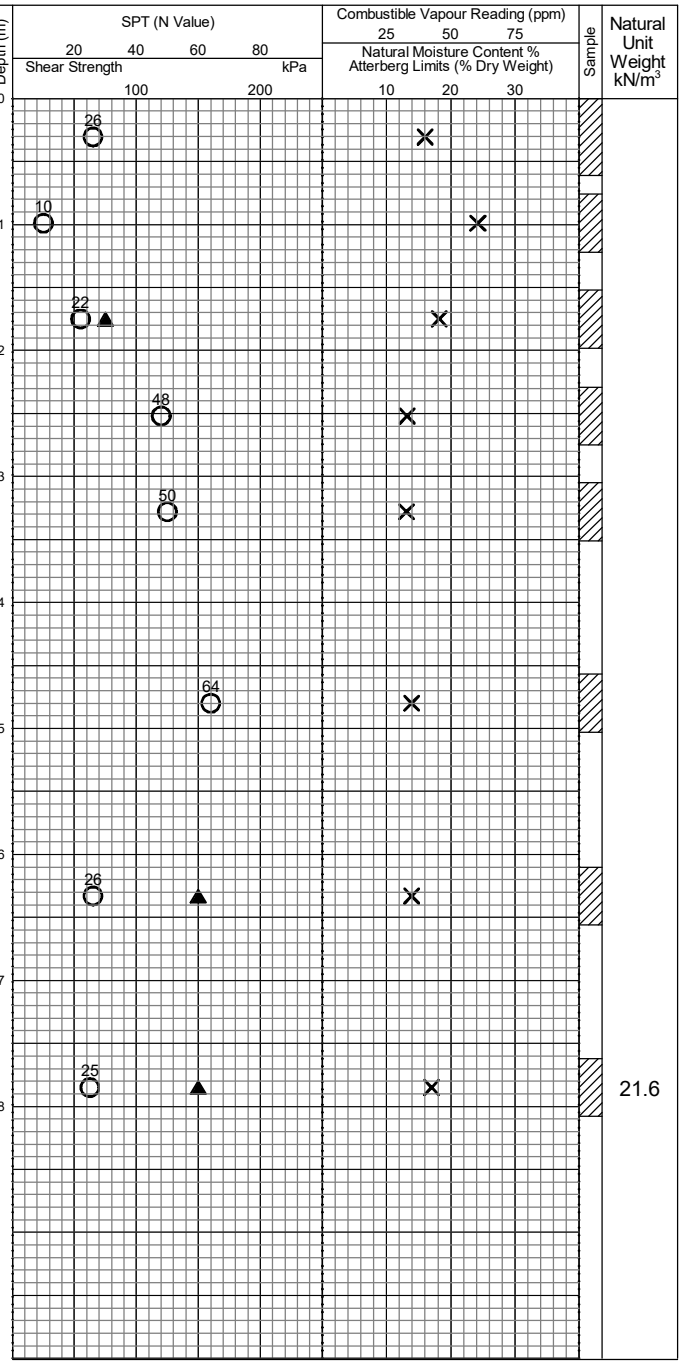
Drill Type: CME-55, track mount machine

Datum: Geodetic

Auger Sample ☒
SPT (N) Value ○ ▨
Dynamic Cone Test ——
Shelby Tube ■
Field Vane Test ✚ S

Combustible Vapour Reading □
Natural Moisture ×
Plastic and Liquid Limit ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Penetrometer ▲

Soil Description	ELEV. m
~ 120 mm TOPSOIL over **FILL:** sandy silt to clayey silt, some sand, trace gravel, brown to brown-grey, moist possible fill or disturbed native	257.03
CLAYEY SILT TILL: trace sand, trace gravel, brown to grey below 4.5 m, moist	~255.2
Silt layer, some clay, between~ 4.5 to 5.0 m depth	~248.9
END OF BOREHOLE	



Date	Water Level (m)	Hole Open to (m)
On completion	8.0	

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 2/2/22

Log of Borehole BH21-6

Project No. BRM-00257876-D0 Drawing No. 7

Project: Geotechnical Investigation Sheet No. 1 of 1

Location: NE Corner of Hurontario Street and Highwood Road, Brampton/Caledon

Date Drilled: December 21, 2021

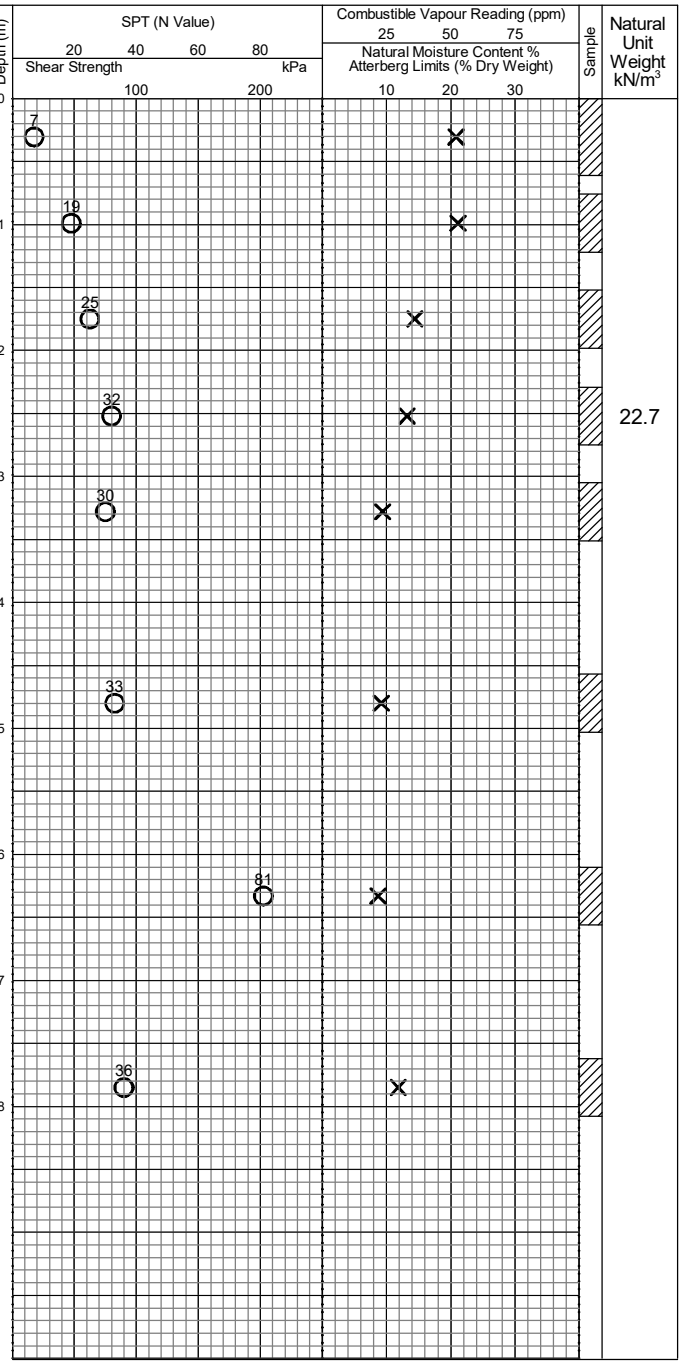
Drill Type: CME-55, track mount machine

Datum: Geodetic

Auger Sample ☒
SPT (N) Value ○ ▨
Dynamic Cone Test —
Shelby Tube ■
Field Vane Test S

Combustible Vapour Reading □
Natural Moisture ×
Plastic and Liquid Limit ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Penetrometer ▲

Soil Description	ELEV. m
~ 120 mm TOPSOIL over **FILL:** clayey silt, trace gravel, trace rootlets, brown, moist	257.93
	~256.8
SANDY SILT TILL: some clay, trace gravel, brown to grey below 4.5 m, moist	
- - - - - - - - - - - - - silty sand layer between ~6.0 to 6.5m depth - - - - - - - - - - - - -	
- becoming wet	
	~249.8
END OF BOREHOLE	



Date	Water Level (m)	Hole Open to (m)
On completion	7.0	

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 2/2/22

Log of Borehole BH301

Project No. MRK-00257876-A0 Drawing No. 1

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

Date Drilled: December 13, 2021

Drill Type: CME 45

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value (20, 40, 60)	Combustible Vapour Reading (ppm) (25, 50, 75)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Straight auger to 4.57 mbgs.	257.27	0						
			~256.6	1						
				2						
				3						
				4						
			~252.7	5						
		End of Borehole at 4.57 mbgs.		6						
				7						
				8						
				9						
				10						
				11						
				12						

ENVIRONMENTAL-EXP BH LOGS - 300 SERIES.GPJ 1/7/22

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Time	Water Level (m)	Depth to Cave (m)
December 14, 2021	255.18	
December 19, 2021	256.58	

Log of Borehole BH302

Project No. MRK-00257876-A0 Drawing No. 2

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

Date Drilled: December 13, 2021

Drill Type: CME 45

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value (20, 40, 60)	Combustible Vapour Reading (ppm) (25, 50, 75)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Straight auger to 4.57 mbgs.	258.14	0						
				1						
				2						
			~254.9	3						
				4						
			~253.6	5						
		End of Borehole at 4.57 mbgs.		6						
				7						
				8						
				9						
				10						
				11						
				12						

ENVIRONMENTAL-EXP BH LOGS - 300 SERIES.GPJ 1/7/22

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Time	Water Level (m)	Depth to Cave (m)
December 14, 2021 December 19, 2021	254.87	

Log of Borehole BH303

Project No. MRK-00257876-A0 Drawing No. 3

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

Date Drilled: December 13, 2021

Drill Type: CME 45

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value (20, 40, 60)	Combustible Vapour Reading (ppm) (25, 50, 75)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Straight auger to 4.57 mbgs.	257.85	0						
			~257.1	1						
				2						
				3						
				4						
			~253.3	5						
		End of Borehole at 4.57 mbgs.		6						
				7						
				8						
				9						
				10						
				11						
				12						

ENVIRONMENTAL-EXP BH LOGS - 300 SERIES.GPJ 1/7/22

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Time	Water Level (m)	Depth to Cave (m)
December 14, 2021	254.45	
December 19, 2021	257.06	

Log of Borehole BH304

Project No. MRK-00257876-A0 Drawing No. 4

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

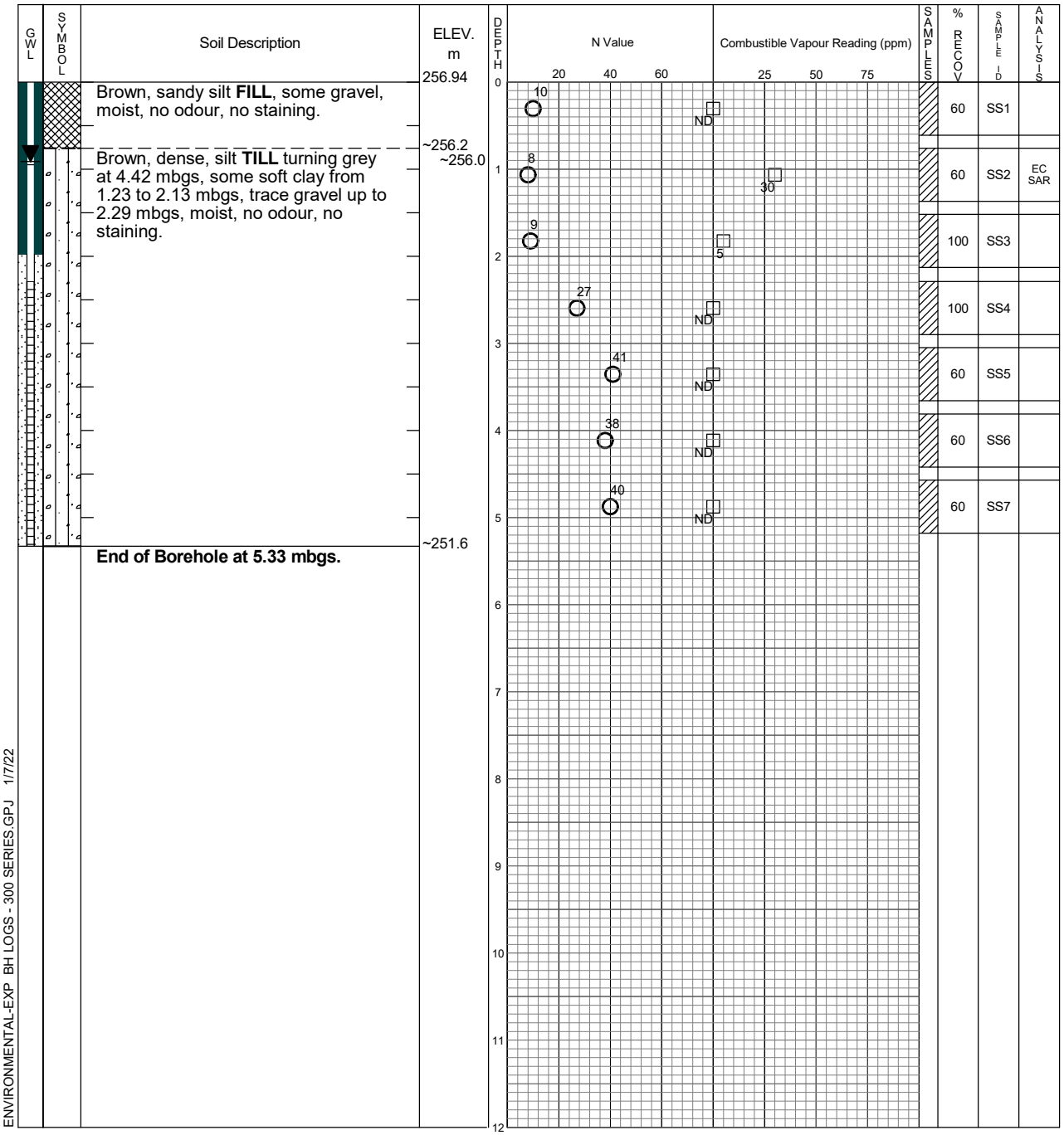
Date Drilled: December 14, 2021

Drill Type: CME 45

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		



ENVIRONMENTAL-EXP BH LOGS - 300 SERIES.GPJ 1/7/22

Time	Water Level (m)	Depth to Cave (m)
December 14, 2021	254.13	
December 19, 2021	255.99	

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Log of Borehole BH305

Project No. MRK-00257876-A0 Drawing No. 5

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

Date Drilled: December 14, 2021

Drill Type: CME 45

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value	Combustible Vapour Reading (ppm)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Brown, loose, sandy silt **FILL** with trace rootlets, moist, no odour, no staining.	258.26	0	4	ND		80	SS1	
		Brown, loose to firm, silt **TILL**, moist, no odour, no staining.	~257.5	1	8	ND		80	SS2	EC SAR
				2	19	ND		100	SS3	
				3	22	ND		100	SS4	
				4	37	ND		60	SS5	
				5	40	ND		60	SS6	
		End of Borehole at 4.57 mbgs.	~253.7	6						
				7						
				8						
				9						
				10						
				11						
				12						

ENVIRONMENTAL-EXP BH LOGS - 300 SERIES.GPJ 1/7/22

Time	Water Level (m)	Depth to Cave (m)

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Log of Borehole BH306

Project No. MRK-00257876-A0 Drawing No. 6

Project: Phase Two Environmental Site Assessment Sheet No. 1 of 1

Location: 12197 Hurontario Street, Brampton and 12211, 12213, 12231 and 12233 Hurontario Street, Caledon, Ontario

Date Drilled: December 14, 2021

Drill Type: CME 45

Datum:

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

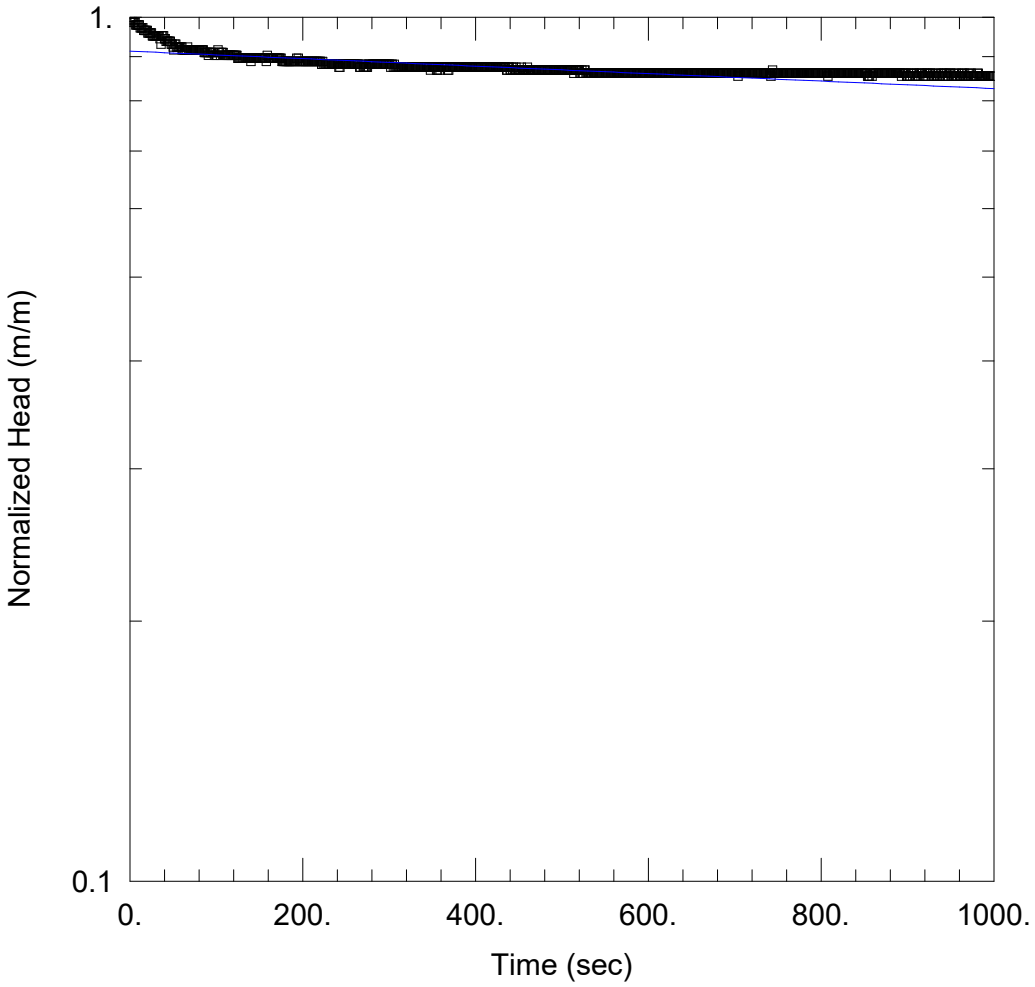
GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value	Combustible Vapour Reading (ppm)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Brown, loose, sandy silt **FILL** with trace rootlets and gravel, moist, no odour, no staining.	258.89	0	3	ND		80	SS1	
		Brown, loose, silt **TILL**, turns grey from 1.68 to 2.59 mbgs, trace sand from 2.59 mbgs, moist, no odour, no staining.	~258.1	1	7	ND		80	SS2	EC SAR
				2	9	ND		60	SS3	
				3	13	ND		80	SS4	
				4	11	ND		100	SS5	
				5	20	ND		100	SS6	
		End of Borehole at 4.57 mbgs.	~254.3	6						
				7						
				8						
				9						
				10						
				11						
				12						

ENVIRONMENTAL-EXP BH LOGS - 300 SERIES.GPJ 1/7/22

exp Services Inc.
Markham, Ontario
Telephone: 905.695.3217

Time	Water Level (m)	Depth to Cave (m)

Appendix C – SWRT Procedures and Results



WELL TEST ANALYSIS

Data Set: I:\...\BH 21-1.aqt
Date: 02/24/22 Time: 14:34:47

PROJECT INFORMATION

Company: EXP
Client: Argo Development Corporation
Project: BRM-00257876-D0
Location: 12197 Hurontario St, Caledon
Test Date: 12 January 2022

AQUIFER DATA

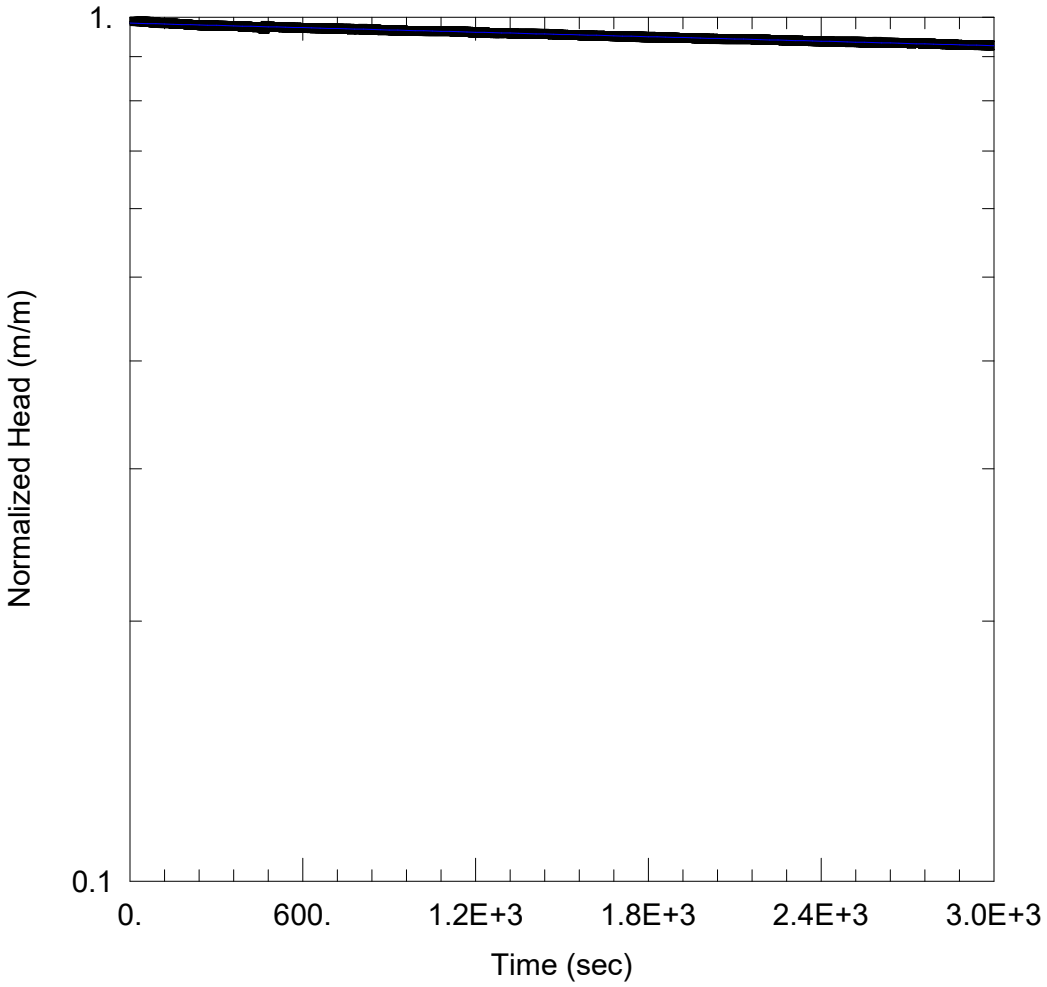
Saturated Thickness: 1.4 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH 21-1)

Initial Displacement: 0.432 m
Total Well Penetration Depth: 3. m
Casing Radius: 0.0254 m
Static Water Column Height: 1.4 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 1.217E-7 m/sec
y0 = 0.3945 m



WELL TEST ANALYSIS

Data Set: I:\...\BH 21-2.aqt
Date: 02/24/22 Time: 14:35:11

PROJECT INFORMATION

Company: EXP
Client: Argo Development Corporation
Project: BRM-00257876-D0
Location: 12197 Hurontario St, Caledon
Test Date: 14 January 2022

AQUIFER DATA

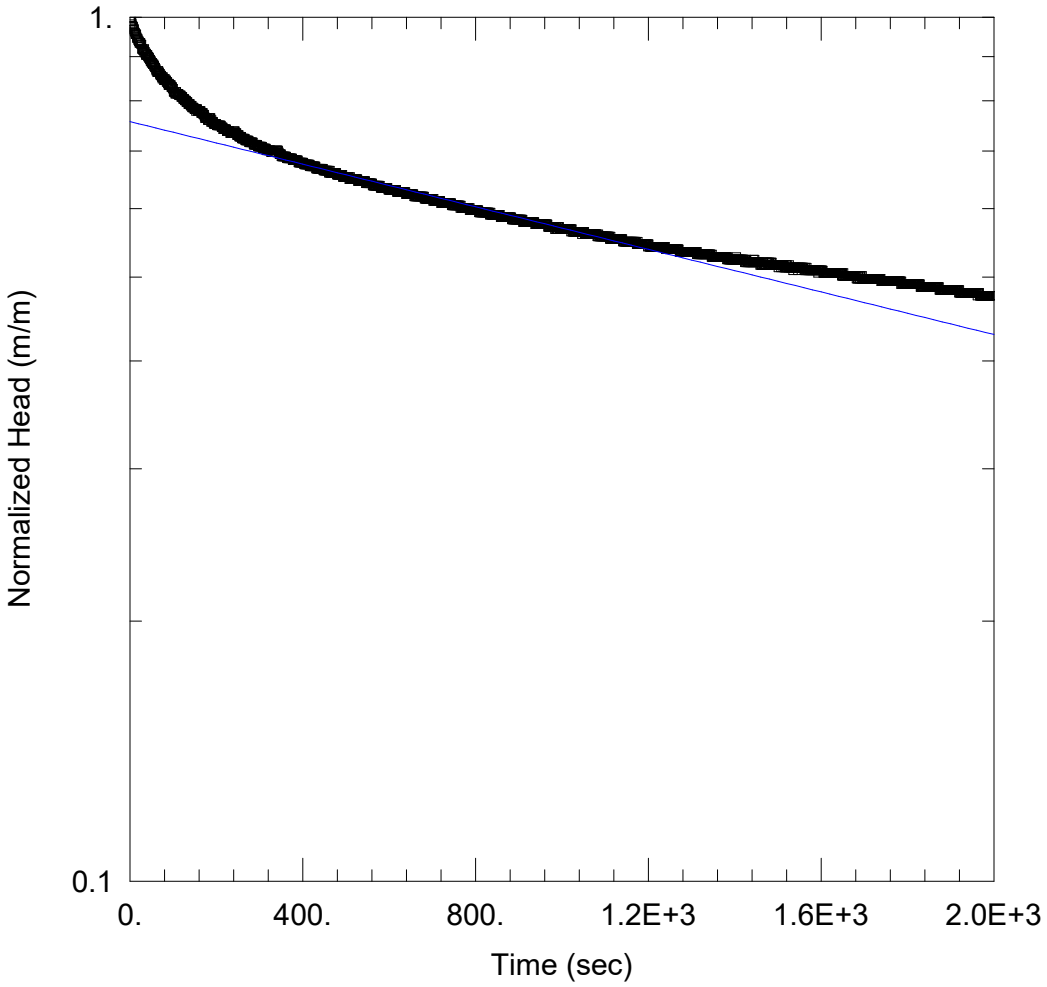
Saturated Thickness: 5.04 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH 21-2)

Initial Displacement: 1.605 m
Total Well Penetration Depth: 5.04 m
Casing Radius: 0.0254 m
Static Water Column Height: 5.04 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 9.412E-9 m/sec
y0 = 1.579 m



WELL TEST ANALYSIS

Data Set: I:\...\BH 21-3.aqt
Date: 02/24/22 Time: 14:36:08

PROJECT INFORMATION

Company: EXP
Client: Argo Development Corporation
Project: BRM-00257876-D0
Location: 12197 Hurontario St, Caledon
Test Date: 12 January 2022

AQUIFER DATA

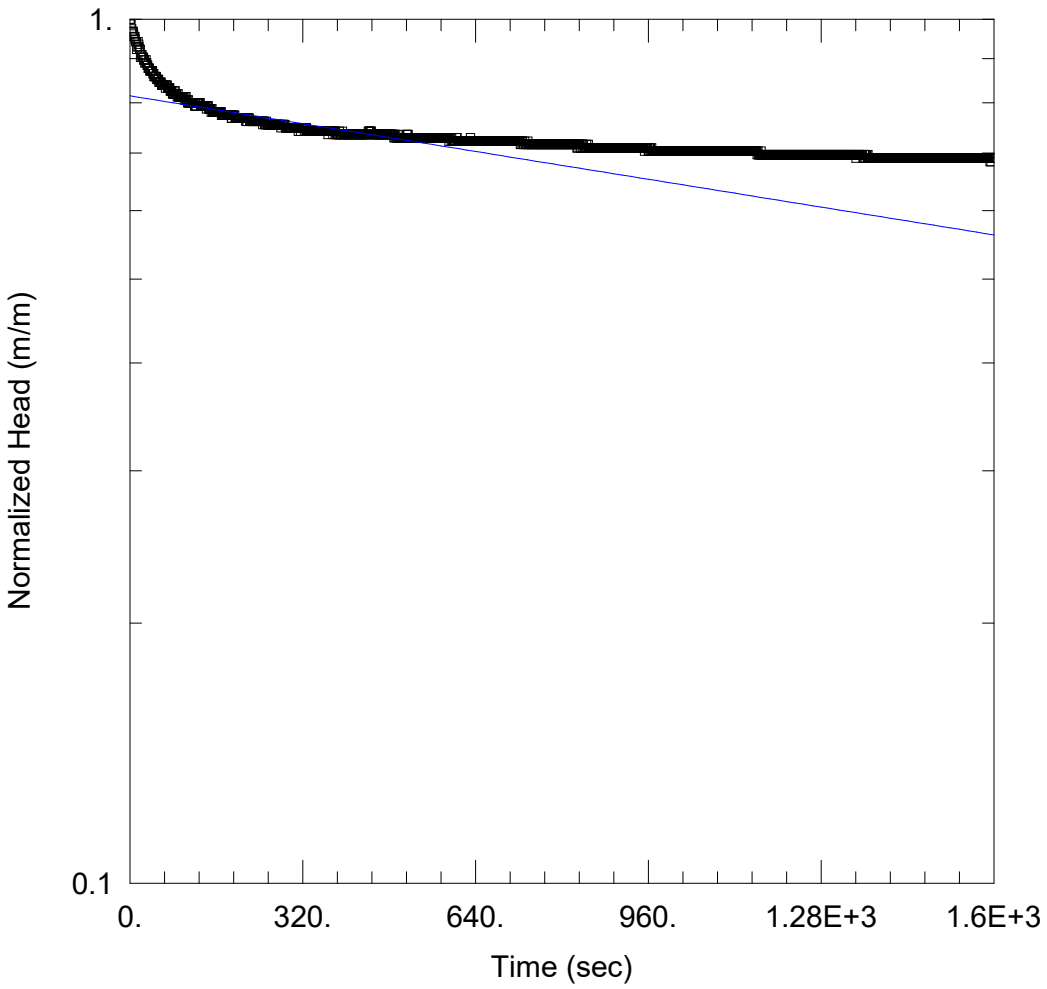
Saturated Thickness: 6.425 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH 21-3)

Initial Displacement: 0.813 m Static Water Column Height: 6.425 m
Total Well Penetration Depth: 6.425 m Screen Length: 3. m
Casing Radius: 0.0254 m Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
K = 1.332E-7 m/sec y0 = 0.6154 m



WELL TEST ANALYSIS

Data Set: I:\...\BH 21-4.aqt
Date: 02/24/22 Time: 14:36:32

PROJECT INFORMATION

Company: EXP
Client: Argo Development Corporation
Project: BRM-00257876-D0
Location: 12197 Hurontario St, Caledon
Test Date: 12 January 2022

AQUIFER DATA

Saturated Thickness: 1.84 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH 21-4)

Initial Displacement: 0.465 m Static Water Column Height: 1.84 m
Total Well Penetration Depth: 3. m Screen Length: 3. m
Casing Radius: 0.0254 m Well Radius: 0.0762 m

SOLUTION

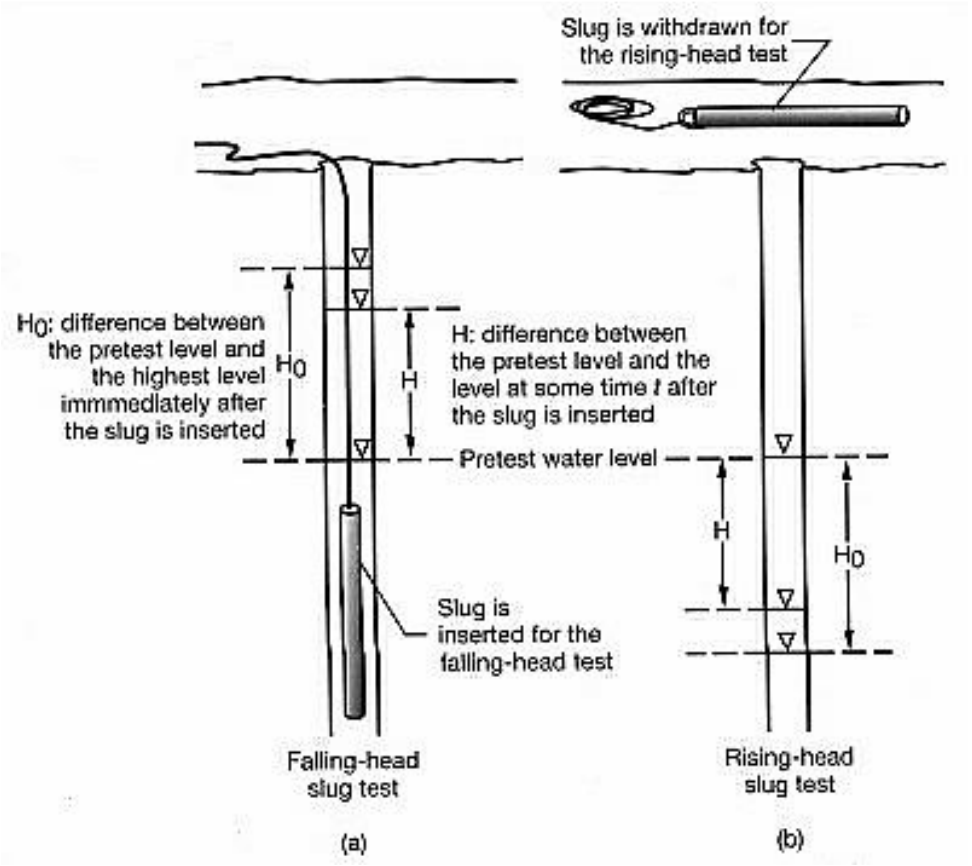
Aquifer Model: Unconfined Solution Method: Hvorslev
K = 2.151E-7 m/sec y0 = 0.379 m

Single Well Response Test Procedure

A Single Well Response Test (SWRT), also known as a bail test or a slug test, is conducted in order to determine the saturated hydraulic conductivity (K) of an aquifer. The method of the SWRT is to characterize the change of groundwater level in a well or borehole over time.

In order to ensure consistency and repeatability, all **exp** employees are to follow the procedure outlined in this document when conducting SWRTs.

The figure below depicts a schematic of a slug and bail test and the respective water level changes.



Initials ___

Slug Test Procedure

Equipment Required

- Copy of a signed health and safety plan
- Copy of the work program
- PPE as required by Site-Specific HASP
- Copy of the monitoring well location plan/site plan
- Waterproof pen and bound field note book
- SWRT field data Entry form
- Disposable gloves
- Duct tape
- Deionized water
- Alconox (phosphate free detergent)
- Spray bottles
- Electronic water level meter and spare batteries
- Solid PVC or stainless steel slug of known volume or clean water
- String (nylon)
- Water pressure transducer (data logger) and baro-logger
- Watch or stop watch with second hand
- Plastic sheeting

Testing Procedure

1. Remove cap from well and collect static water level
2. Remove waterra tubing/bailer and place in garbage bag. Record static water level measurement again.
3. Lower the slug into the well and record the dynamic water level.
4. Record the drawdown (for the slug test) at set five (5) second intervals for the first five (5) minutes, then reduce to every one (1) minute.
5. Continue recording the drawdown until 95% recovery is reached. To calculate this value: Find the difference between the dynamic water level and the static water level, then multiply by 95% (.95). Add the resulting value to the dynamic water level.

   (Static Water Level – Dynamic Water Level).95 + Static Water Level = 95% Recovery Value
6. Once complete, replace the waterra tubing/bailer and re-secure the well cap.

Note: If the well is deep, more than one slug may be inserted by attaching the slugs to a series.

Slugs must be washed with methanol, then lab grade soap, and then rinsed with de-ionized water after each use.

Based on the recorded observations, the hydraulic conductivity (in m/s) of the aquifer will be determined. In order to determine the hydraulic conductivity; the well diameter, radius of the borehole and length of the screen will also be required.

Bail Test Procedure

Equipment Required

- 20 L (5 gal) Graduated pail
- Stop watch or watch with seconds
- Garbage bags
- Water level meter
- Field sheets/log book
- Latex Gloves
- Bailer and Rope

Procedure

1. Remove cap from well and collect static water level.
2. If using a **bailer**:
    a. Affix the rope to the bailer.
    b. Remove the waterra tubing and place in garbage bag
    c. Record static water level measurement again.
    d. Record how much water was removed by either counting the number of full bailers or emptying removed water into a container.
    e. Quickly lower the bailer into the well and remove.
    f. Continue this process until the water level will reduce no further.
    g. Record the dynamic water level.
3. If using **waterra** to bail the water:
    a. Pump the water into graduated bucket until the water level will reduce no further.
    b. Record how much water has been removed.
    c. Record the dynamic water level.
4. Record the recovery at set five (5) second intervals for the first (5) minutes, then reduce to every one (1) minute.
5. Continue recording the drawdown/recovery until 95% recovery is reached.
6. Once complete, replace any waterra tubing that may have been removed from the well and re-secure the well cap.

Appendix D – Laboratory's Certificates of Analysis

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: EXP SERVICES INC
1595 CLARK BLVD.
BRAMPTON, ON L6T4V1
(905) 793-9809
ATTENTION TO: Francois Chartier
PROJECT: BRM-00257876-D0
AGAT WORK ORDER: 22T853125
MICROBIOLOGY ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
ULTRA TRACE REVIEWED BY: Marc Paquet, Chimiste, AGAT Québec
WATER ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
DATE REPORTED: Jan 20, 2022
PAGES (INCLUDING COVER): 18
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

AGAT Laboratories

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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

E. Coli (Using MI Agar)

DATE RECEIVED: 2022-01-12

DATE REPORTED: 2022-01-20

				SAMPLE DESCRIPTION:	BH21-2
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2022-01-12 13:00
Parameter	**Unit**	**G / S**	**RDL**	**3421373**	
Escherichia coli	CFU/100mL	200		0	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Peel Storm By-Law 53-2010
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3421373 Escherichia coli, Total Coliforms RDL = 1 CFU/100mL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Amanjot Bhela

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
AMANJOT BHELA
CHEMIST

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

Fecal Coliforms in Water

DATE RECEIVED: 2022-01-12

DATE REPORTED: 2022-01-20

				SAMPLE DESCRIPTION:	BH21-2
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2022-01-12 13:00
Parameter	**Unit**	**G / S**	**RDL**	**3421373**	
Fecal Coliform	CFU/100mL	0		0	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Peel Storm By-Law 53-2010
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3421373 Fecal Coliforms RDL = 1 CFU/100mL

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

Peel Region Sanitary/Storm - Organics

DATE RECEIVED: 2022-01-12

DATE REPORTED: 2022-01-20

					SAMPLE DESCRIPTION:	BH21-2
					SAMPLE TYPE:	Water
					DATE SAMPLED:	2022-01-12 13:00
Parameter	**Unit**	**G / S: A**	**G / S: B**	**RDL**	**3421373**	
Oil and Grease (animal/vegetable) in water	mg/L	150		0.5	<0.5[<A]	
Oil and Grease (mineral) in water	mg/L	15		0.5	<0.5[<A]	
Methylene Chloride	mg/L	2	0.0052	0.0003	<0.0003[<B]	
Methyl Ethyl Ketone	mg/L	8.0		0.0009	<0.0009[<A]	
cis-1,2-Dichloroethylene	mg/L	4	0.0056	0.0002	<0.0002[<B]	
Chloroform	mg/L	0.04	0.002	0.0002	<0.0002[<B]	
Benzene	mg/L	0.01	0.002	0.0002	<0.0002[<B]	
Trichloroethylene	mg/L	0.4	0.008	0.0002	0.0003[<B]	
Toluene	mg/L	0.27	0.002	0.0002	<0.0002[<B]	
Tetrachloroethene	mg/L	1	0.0044	0.0002	<0.0002[<B]	
trans-1,3-Dichloropropene	mg/L	0.14	0.0056	0.0003	<0.0003[<B]	
Ethylbenzene	mg/L	0.16	0.002	0.0001	<0.0001[<B]	
1,1,2,2-Tetrachloroethane	mg/L	1.4	0.017	0.0001	<0.0001[<B]	
Styrene	mg/L	0.2		0.0001	<0.0001[<A]	
1,2-Dichlorobenzene	mg/L	0.05	0.0056	0.0001	<0.0001[<B]	
1,4-Dichlorobenzene	mg/L	0.08	0.0068	0.0001	<0.0001[<B]	
m & p-Xylene	mg/L			0.0002	<0.0002	
o-Xylene	mg/L			0.0001	<0.0001	
Xylenes (Total)	mg/L	1.4	0.0044	0.0001	<0.0001[<B]	
PCBs	mg/L	0.001	0.0004	0.0002	<0.0002[<B]	
Di-n-butyl phthalate	mg/L	0.08	0.015	0.0005	<0.0005[<B]	
Bis(2-Ethylhexyl)phthalate	mg/L	0.012	0.0088	0.0005	<0.0005[<B]	

Certified By: N Popnikolof

AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

Peel Region Sanitary/Storm - Organics

DATE RECEIVED: 2022-01-12

DATE REPORTED: 2022-01-20

		SAMPLE DESCRIPTION:	BH21-2
		SAMPLE TYPE:	Water
		DATE SAMPLED:	2022-01-12 13:00
Surrogate	**Unit**	**Acceptable Limits**	**3421373**
Toluene-d8	% Recovery	50-140	102
4-Bromofluorobenzene	% Recovery	50-140	80
Decachlorobiphenyl	%	50-140	107
2,4,6-Tribromophenol	%	50-140	78
2-Fluorophenol	%	50-140	85
Chrysene-d12	%	50-140	88
phenol-d6 surrogate	%	50-140	90

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Peel Sanitary By-Law 53-2010, B Refers to Peel Storm By-Law 53-2010
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3421373 Oil and Grease animal/vegetable is a calculated parameter. The calculated value is the difference between Total O&G and Mineral O&G.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)

DATE RECEIVED: 2022-01-12

DATE REPORTED: 2022-01-20

				SAMPLE DESCRIPTION:	BH21-2
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2022-01-12 13:00
Parameter	**Unit**	**G / S**	**RDL**	**3421373**	
Total Nonylphenol	mg/L	0.001	0.001	<0.001	
NP1EO	mg/L		0.001	<0.001	
NP2EO	mg/L		0.0003	<0.0003	
Total Nonylphenol Ethoxylates	mg/L	0.01	0.001	<0.001	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to CIty of Toronto Storm Sewer Discharge
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Montréal (unless marked by *)

Certified By:

AGAT Laboratories

5835 COOPERS AVENUE
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Certificate of Analysis

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

CBOD5

DATE RECEIVED: 2022-01-12

DATE REPORTED: 2022-01-20

				SAMPLE DESCRIPTION:	BH21-2
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2022-01-12 13:00
Parameter	**Unit**	**G / S**	**RDL**	**3421373**	
Biochemical Oxygen Demand, Carbonaceous	mg/L		2.00	<2.00	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

AGAT Laboratories

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MISSISSAUGA, ONTARIO
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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

Peel Sanitary/Storm Sewer Use By-Law - Inorganics

DATE RECEIVED: 2022-01-12

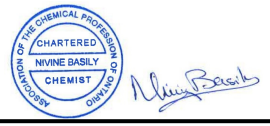
DATE REPORTED: 2022-01-20

					SAMPLE DESCRIPTION:	BH21-2
					SAMPLE TYPE:	Water
					DATE SAMPLED:	2022-01-12 13:00
Parameter	**Unit**	**G / S: A**	**G / S: B**	**RDL**		**3421373**
pH	pH Units	5.5-10	6.0-9.0	NA		7.80
Total Suspended Solids	mg/L	350	15	10		<10[<B]
Fluoride	mg/L	10		0.05		<0.05[<A]
Sulphate	mg/L	1500		0.10		71.8[<A]
Total Cyanide	mg/L	2	0.02	0.002		<0.002[<B]
Phenols	mg/L	1.0	0.008	0.002		0.005[<B]
Total Phosphorus	mg/L	10	0.4	0.02		<0.02[<B]
Total Kjeldahl Nitrogen	mg/L	100	1	0.10		<0.10[<B]
Total Aluminum	mg/L	50		0.010		0.028[<A]
Total Antimony	mg/L	5		0.020		<0.020[<A]
Total Arsenic	mg/L	1	0.02	0.015		<0.015[<B]
Total Cadmium	mg/L	0.7	0.008	0.010		<0.010[<A]
Total Chromium	mg/L	5	0.08	0.015		<0.015[<B]
Total Cobalt	mg/L	5		0.020		<0.020[<A]
Total Copper	mg/L	3	0.05	0.010		<0.010[<B]
Total Lead	mg/L	3	0.120	0.020		<0.020[<B]
Total Manganese	mg/L	5	0.05	0.020		0.056[B-A]
Total Mercury	mg/L	0.01	0.0004	0.0002		<0.0002[<B]
Total Molybdenum	mg/L	5		0.020		<0.020[<A]
Total Nickel	mg/L	3	0.08	0.015		<0.015[<B]
Total Selenium	mg/L	1	0.02	0.002		<0.002[<B]
Total Silver	mg/L	5	0.12	0.010		<0.010[<B]
Total Tin	mg/L	5		0.025		<0.025[<A]
Total Titanium	mg/L	5		0.010		<0.010[<A]
Total Zinc	mg/L	3	0.04	0.020		<0.020[<B]

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Peel Sanitary By-Law 53-2010, B Refers to Peel Storm By-Law 53-2010
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Exceedance Summary

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Francois Chartier

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3421373	BH21-2	ON Peel SM	Peel Sanitary/Storm Sewer Use By-Law - Inorganics	Total Manganese	mg/L	0.05	0.056

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FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: Jan 20, 2022			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
E. Coli (Using MI Agar)															
Escherichia coli	3421373	3421373	0	0	NA	<									
Comments: NA - % RPD Not Applicable.															
Fecal Coliforms in Water															
Fecal Coliform	3421373	3421373	0	0	NA	<									
Comments: NA - % RPD Not Applicable															

Certified By:

Amanjot Bhela

CHARTERED CHEMIST AMANJOT BHELA — ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO

AGAT Laboratories

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CANADA L4Z 1Y2
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Quality Assurance

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Jan 20, 2022			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Peel Region Sanitary/Storm - Organics															
Oil and Grease (animal/vegetable) in water	3418162		< 0.5	< 0.5	NA	< 0.5	106%	70%	130%	110%	70%	130%	104%	70%	130%
Oil and Grease (mineral) in water	3418162		< 0.5	< 0.5	NA	< 0.5	78%	70%	130%	78%	70%	130%	80%	70%	130%
Methylene Chloride	3421373	3421373	<0.0003	<0.0003	NA	< 0.0003	105%	50%	140%	106%	60%	130%	109%	50%	140%
Methyl Ethyl Ketone	3421373	3421373	<0.0009	<0.0009	NA	< 0.0009	115%	50%	140%	100%	50%	140%	103%	50%	140%
cis-1,2-Dichloroethylene	3421373	3421373	<0.0002	<0.0002	NA	< 0.0002	111%	50%	140%	75%	60%	130%	93%	50%	140%
Chloroform	3421373	3421373	<0.0002	<0.0002	NA	< 0.0002	126%	50%	140%	76%	60%	130%	99%	50%	140%
Benzene	3421373	3421373	<0.0002	<0.0002	NA	< 0.0002	105%	50%	140%	74%	60%	130%	87%	50%	140%
Trichloroethylene	3421373	3421373	0.0003	0.0002	NA	< 0.0002	98%	50%	140%	94%	60%	130%	96%	50%	140%
Toluene	3421373	3421373	<0.0002	<0.0002	NA	< 0.0002	99%	50%	140%	95%	60%	130%	79%	50%	140%
Tetrachloroethene	3421373	3421373	<0.0002	<0.0002	NA	< 0.0002	93%	50%	140%	101%	60%	130%	106%	50%	140%
trans-1,3-Dichloropropene	3421373	3421373	<0.0003	<0.0003	NA	< 0.0003	106%	50%	140%	112%	60%	130%	93%	50%	140%
Ethylbenzene	3421373	3421373	<0.0001	<0.0001	NA	< 0.0001	89%	50%	140%	73%	60%	130%	89%	50%	140%
1,1,2,2-Tetrachloroethane	3421373	3421373	<0.0001	<0.0001	NA	< 0.0001	108%	50%	140%	93%	60%	130%	105%	50%	140%
Styrene	3421373	3421373	<0.0001	<0.0001	NA	< 0.0001	94%	50%	140%	85%	60%	130%	101%	50%	140%
1,2-Dichlorobenzene	3421373	3421373	<0.0001	<0.0001	NA	< 0.0001	116%	50%	140%	74%	60%	130%	84%	50%	140%
1,4-Dichlorobenzene	3421373	3421373	<0.0001	<0.0001	NA	< 0.0001	115%	50%	140%	100%	60%	130%	104%	50%	140%
m & p-Xylene	3421373	3421373	<0.0002	<0.0002	NA	< 0.0002	95%	50%	140%	93%	60%	130%	104%	50%	140%
o-Xylene	3421373	3421373	<0.0001	<0.0001	NA	< 0.0001	79%	50%	140%	92%	60%	130%	102%	50%	140%
PCBs	3424917		< 0.0002	< 0.0002	NA	< 0.0002	104%	50%	140%	94%	50%	140%	107%	50%	140%
Di-n-butyl phthalate	3222492		< 0.0005	< 0.0005	NA	< 0.0005	78%	50%	140%	90%	50%	140%	111%	50%	140%
Bis(2-Ethylhexyl)phthalate	3222492		< 0.0005	< 0.0005	NA	< 0.0005	105%	50%	140%	90%	50%	140%	98%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

AGAT Laboratories
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Quality Assurance

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

Ultra Trace Analysis

RPT Date: Jan 20, 2022			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)															
Total Nonylphenol	1	3416235	0.025	0.022	12.8%	< 0.001	NA	60%	140%	88%	60%	140%	NA	60%	140%
NP1EO	1	3416235	0.001	0.001	NA	< 0.001	NA	60%	140%	82%	60%	140%	NA	60%	140%
NP2EO	1	3416235	0.0009	0.0009	NA	< 0.0003	NA	60%	140%	77%	60%	140%	NA	60%	140%

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Quality Assurance

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Jan 20, 2022			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Peel Sanitary/Storm Sewer Use By-Law - Inorganics															
pH	3421528		7.83	7.84	0.1%	NA	102%	90%	110%						
Total Suspended Solids	3433463		<10	<10	NA	< 10	100%	80%	120%						
Fluoride	3422145		<0.05	<0.05	NA	< 0.05	92%	70%	130%	102%	80%	120%	94%	70%	130%
Sulphate	3422145		69.6	69.6	0.0%	< 0.10	99%	70%	130%	106%	80%	120%	107%	70%	130%
Total Cyanide	3415604		<0.002	<0.002	NA	< 0.002	75%	70%	130%	96%	80%	120%	96%	70%	130%
Phenols	3425068		<0.002	<0.002	NA	< 0.002	98%	90%	110%	99%	90%	110%	106%	80%	120%
Total Phosphorus	3421373	3421373	<0.02	<0.02	NA	< 0.02	100%	70%	130%	103%	80%	120%	94%	70%	130%
Total Kjeldahl Nitrogen	3421528		0.24	0.25	NA	< 0.10	98%	70%	130%	108%	80%	120%	100%	70%	130%
Total Aluminum	3421373	3421373	0.028	0.031	NA	< 0.010	100%	70%	130%	100%	80%	120%	97%	70%	130%
Total Antimony	3421373	3421373	<0.020	<0.020	NA	< 0.020	93%	70%	130%	95%	80%	120%	92%	70%	130%
Total Arsenic	3421373	3421373	<0.015	<0.015	NA	< 0.015	99%	70%	130%	107%	80%	120%	104%	70%	130%
Total Cadmium	3421373	3421373	<0.010	<0.010	NA	< 0.010	90%	70%	130%	97%	80%	120%	94%	70%	130%
Total Chromium	3421373	3421373	<0.015	<0.015	NA	< 0.015	99%	70%	130%	101%	80%	120%	106%	70%	130%
Total Cobalt	3421373	3421373	<0.020	<0.020	NA	< 0.020	96%	70%	130%	101%	80%	120%	104%	70%	130%
Total Copper	3421373	3421373	<0.010	<0.010	NA	< 0.010	98%	70%	130%	103%	80%	120%	102%	70%	130%
Total Lead	3421373	3421373	<0.020	<0.020	NA	< 0.020	99%	70%	130%	103%	80%	120%	101%	70%	130%
Total Manganese	3421373	3421373	0.056	0.058	NA	< 0.020	102%	70%	130%	106%	80%	120%	106%	70%	130%
Total Mercury	3421373	3421373	<0.0002	<0.0002	NA	< 0.0002	104%	70%	130%	101%	80%	120%	96%	70%	130%
Total Molybdenum	3421373	3421373	<0.020	<0.020	NA	< 0.020	99%	70%	130%	105%	80%	120%	105%	70%	130%
Total Nickel	3421373	3421373	<0.015	<0.015	NA	< 0.015	97%	70%	130%	99%	80%	120%	101%	70%	130%
Total Selenium	3421373	3421373	<0.002	0.003	NA	< 0.002	107%	70%	130%	113%	80%	120%	110%	70%	130%
Total Silver	3421373	3421373	<0.010	<0.010	NA	< 0.010	99%	70%	130%	101%	80%	120%	100%	70%	130%
Total Tin	3421373	3421373	<0.025	<0.025	NA	< 0.025	94%	70%	130%	95%	80%	120%	95%	70%	130%
Total Titanium	3421373	3421373	<0.010	<0.010	NA	< 0.010	94%	70%	130%	106%	80%	120%	114%	70%	130%
Total Zinc	3421373	3421373	<0.020	<0.020	NA	< 0.020	101%	70%	130%	102%	80%	120%	104%	70%	130%
CBOD5															
Biochemical Oxygen Demand, Carbonaceous	3421812		27.0	27.0	0.0%	< 2	102%	70%	130%						

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

AGAT Laboratories

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http://www.agatlabs.com

Method Summary

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Fecal Coliform	MIC-93-7000	SM 9222 D	MF/INCUBATOR

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SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Oil and Grease (animal/vegetable) in water	VOL-91-5011	EPA SW-846 3510C & SM5520	BALANCE
Oil and Grease (mineral) in water	VOL-91-5011	EPA SW-846 3510C & SM 5520	BALANCE
Methylene Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
cis-1,2-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Tetrachloroethene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
trans-1,3-Dichloropropene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	CALCULATION
Toluene-d8	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
PCBs	ORG-91-5112	modified from EPA SW-846 3510C & 8082A	GC/ECD
Decachlorobiphenyl	ORG-91-5112	modified from EPA SW846 3510C & 8082A	GC/ECD
Di-n-butyl phthalate	ORG-91-5114	modified from EPA SW-846 3510C & 8270E	GC/MS
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	modified from EPA SW-846 3510C & 8270E	GC/MS
2,4,6-Tribromophenol	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
2-Fluorophenol	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Chrysene-d12	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS

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Method Summary

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
phenol-d6 surrogate	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Ultra Trace Analysis			
Total Nonylphenol	TOX-151-19003F	ASTM D7065-6	LCMSMS
NP1EO	TOX-151-19003F	ASTM D7065-6	LCMSMS
NP2EO	TOX-151-19003F	ASTM D7065-6	LCMSMS
Total Nonylphenol Ethoxylates	TOX-19003F	ASTM D7065-6	LCMSMS

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Method Summary

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 22T853125

PROJECT: BRM-00257876-D0

ATTENTION TO: Francois Chartier

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Biochemical Oxygen Demand, Carbonaceous	INOR-121-6023	SM 5210 B	INCUBATOR
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Total Suspended Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Total Cyanide	INOR-93-6051	modified from MOECC E3015; SM 4500-CN- A, B, & C	TECHNICON AUTO ANALYZER
Phenols	INOR-93-6072	modified from SM 5530 D	LACHAT FIA
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Kjeldahl Nitrogen	INOR-93-6048	modified from EPA 351.2 and SM 4500-NORG D	LACHAT FIA
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

AGAT Laboratories

Mi-3i

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: EXP Services Inc
Contact: Francois Chartier
Address: 1595 Clark Blvd
Phone: Thabiso.Modise@exp.com Fax:
Reports to be sent to:
1. Email: Francois.Chartier@exp.com
2. Email: Jeffrey.Leon@exp.com

Project Information:

Project: BRM-00257876-DO
Site Location: 12197 Hurontario St
Sampled By: Thabiso Modise
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐
Company:
Contact:
Address:
Email:

Regulatory Requirements:

(Please check all applicable boxes)

☐ Regulation 153/04
Table _____ *Indicate One*
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Excess Soils R406
Table _____ *Indicate One*
☐ Regulation 558
☐ CCME

☑ Sewer Use
☑ Sanitary ☑ Storm
Peel
Region
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
Indicate One

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☑ Yes ☐ No

Laboratory Use Only

Work Order #: 22T853125
Cooler Quantity: 1 Large
Arrival Temperatures: 4.6 | 5.2 | 3.9
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: Free Pet

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs Analyze F4G if required ☐ Yes ☐ No	O. Reg 153: PAHs	O. Reg 153: PCBs	O. Reg 153: VOC	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	Peel Sanitary & Storm	Potentially Hazardous or High Concentration (Y/N)
BH 21-2	12 Jan 22	1:00 AM (PM)	26	GW		N											✓	
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
THABISO MODISE	12 Jan 22	17:30	NEAL		
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

22 JAN 12 5:25PM

Page _____ of _____

No: T 129948

Appendix E – Construction and Post-Construction Flow Rate Calculations

APPENDIX E: Short and Long Term Flow Rate

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

Table E-1: Dewatering Flow rate for construction and from Under-Slab Drain System

Parameters	Symbols	Unit	Construction	Post Construction
Geological Formation	-	-	Glacial Deposit	Glacial Deposit
Ground Elevation	-	mASL	258.00	258.00
Lowest Top Slab Elevation	-	mASL	255.00	255.00
Highest Groundwater Elevation	-	mASL	257.92	257.92
Lowest Footing Elevation	-	mASL	253.50	253.50
Base of the Water-Bearing Zone	-	mASL	250.00	250.00
Height of Static Water Table Above the Base of the Water-Bearing Zone	**H**	m	7.92	7.92
Dewatering Target Elevation	-	mASL	252.50	254.50
Height of Target Water Level Above the Base of Water-Bearing Zone	**h_w**	m	2.50	4.50
Dupuit Criteria	**hw/H**	%	32	57
Hydraulic Conductivity	**K**	m/s	1.2E-07	1.2E-07
Length of Excavation	-	m	20.00	20.00
Width of Excavation	-	m	20.00	20.00
Equivalent Radius (equivalent perimeter)	**r_e**	m	12.73	12.73
Method to Calculate Radius of Influence	-	-	**Cooper-Jacob**	**Cooper-Jacob**
Time (30 days)	**t**	s	2592000	31536000
Specific Yield	**Sy**		0.05	0.05
Cooper-Jacob's Radius of Influence from Sides of Excavation	**Rcj**	m	10.53	36.73
Radius of Influence	**Ro**	m	23.26	49.46
Dewatering Flow Rate (unconfined radial flow component)	**Q**	m^3/day	3.05	1.02
Factor of Safety	**fs**	-	2.00	2.00
Dewatering Flow Rate (multiplied by factor of safety)	**Q.fs**	m^3/day	6.11	2.04
Precipitation Event	-	mm/day	15	0
Volume from Precipitation	-	m^3/day	6.00	0
Dewatering Flow Rate **Without Safety Factor** (including stormwater collection)	-	m^3/day	9.05	1
Dewatering Flow Rate **With Safety Factor** (including stormwater collection)	-	m^3/day	12.11	2

Notes:
mASL - meters above sea level

Analytical Solution for Estimating Radial Flow from an Unconfined Aquifer to a Fully-Penetrating Excavation

$$Q_w = \frac{\pi K(H^2 - h^2)}{Ln\,[\frac{R_o}{r_e}]}$$

(Based on the Dupuit-Forcheimer Equation)

$$r_e = \frac{a+b}{\pi} \qquad R_o = R_{cj} + r_e \qquad R_{cj} = \sqrt{2.25KDt/S}$$

Where:

Q_w = Flow rate per unit length of excavation (m^3/s)

K = Hydraulic conductivity (m/s)

H = Height of static water table above base of water-bearing zone (m)

h_w = Height of target water level above the base of water-bearing zone (m)

Rcj=Cooper Jacob Radius of Influence (m)

R_o=Radius of influence (m)

re=Equivalent perimeter (m)

APPENDIX E: Construction Dewatering Calculations

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

Table E-2: Unconfined Flow into Long Excavation

Parameters	Symbols	Unit	Value
Groundwater Elevation	-	m ASL	257.92
Construction Dewatering Elevation Target	-	m ASL	253.84
Bottom Elevation of Water-Bearing Zone	-	m ASL	250.00
Length of Trench	**x**	m	50.00
Width of Trench	**w**	m	2.00
Area of Trench	**A**	m^2	100.00
Hydraulic Conductivity	**K**	m/s	1.2E-07
Drawdown	**s**	m	4.08
Equivalent Well Radius of A	**rs**	m	16.55
Distance of Influence of Construction Dewatering from Equivalent Well Border	R_S	m	4.24
Radius of Influence of Construction Dewatering from Equivalent Well Center	$R_0=r_s+R_S$	m	20.79
Distance of Influence of Construction Dewatering from Equivalent Well Center	**L=R0/2**	m	10.40
Hydraulic Head Beyond R0	H_{sat}	m	7.92
Hydraulic Head within A	$h=H_{sat}-s$	m	3.84
Construction Dewatering Rate - Ends	Q_{ends}	m^3/d	6.85
Construction Dewatering Rate - Trench	Q_{trench}	m^3/d	2.39
Construction Dewatering Rate - Stormwater	Q_{IDF}	m^3/d	1.50
Construction Dewatering Rate - MECP (excludes rainwater)	Q_{MECP}	m^3/d	10.75
Precipitation Event	**P**	mm/24hrs	15.00
Construction Dewatering Rate - Total	Q_{Total}	m^3/d	25.75

Notes:

mASL - meters above sea level

Analytical Solution for Estimating Plane Flow from an Unconfined Aquifer to a Fully-Penetrating Excavation

$$Q = \underbrace{\frac{\pi K(H^2-h^2)}{\ln R_o/r_s}}_{\boldsymbol{ends}} + 2\underbrace{[\frac{xK(H^2-h^2)}{2L}]}_{\boldsymbol{trench}}$$

(Based on the Dupuit Equation)

Where:

Q = construction dewatering rate (m^3/sec)

K = saturated and horizontal hydraulic conductivity (m/s)

H = hydraulic head beyond R_0 (m)

h = hydraulic head within A (m)

s = drawdown (=H-h)

r_s = equivalent well radius of A (m)

R_S = distance of influence of construction dewatering/pumping from equivalent well border (m)

R_0 = radius of influence of construction dewatering/pumping from equivalent well center (m)

x = length of the trench (m)

w = width (m)

L = distance of influence of construction dewatering/pumping from equivalent well center (m)

π = Pi (1)

S_y = specific yield

Appendix F – Water Balance

Project Address 12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
Project Number BRM-00257876-D0

Station Name	GEORGETOWN WWTP	
Station ID	ONTARIO	
Longitude	43.64	
Latitude	-79.88	
Elevation	221.0	masl
Climate Identifier	6152695	

Appendix F-1: Model Input

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

Period	Month	Average Temperature (^{0}C)	Average Precipitation (mm)
1977-2006	1	-6.30	67.80
1977-2006	2	-5.20	60.00
1977-2006	3	-0.90	57.20
1977-2006	4	6.00	76.50
1977-2006	5	12.30	79.30
1977-2006	6	17.40	74.80
1977-2006	7	20.00	73.50
1977-2006	8	19.00	79.30
1977-2006	9	14.80	86.20
1977-2006	10	8.40	68.30
1977-2006	11	2.80	88.50
1977-2006	12	-2.90	65.90

Note:

Station Name	Georgetown	
Station ID	ONTARIO	
Longitude	43.64	
Latitude	-79.88	
Elevaion	221.0	masl

Appendix F-2: Model Output

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

Month	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus
January	8.4	67.8	24.7	135.0	8.4	0.0	34.7	39.7
February	10.3	60.0	38.7	135.0	10.3	0.0	45.8	38.7
March	19.2	57.2	64.8	135.0	19.2	0.0	18.9	64.8
April	36.8	76.5	58.6	135.0	36.8	0.0	0.0	58.6
May	67.7	79.3	11.6	135.0	67.7	0.0	0.0	11.6
June	98.6	74.8	-23.8	111.2	98.6	0.0	0.0	0.0
July	114.6	73.5	-41.1	77.3	107.4	7.2	0.0	0.0
August	91.6	79.3	-12.3	70.3	86.3	5.2	0.0	0.0
September	54.0	86.2	32.2	102.6	54.0	0.0	0.0	0.0
October	28.7	68.3	39.6	135.0	28.7	0.0	0.0	7.1
November	15.1	88.5	73.4	135.0	15.1	0.0	0.0	73.4
December	9.5	65.9	42.8	135.0	9.5	0.0	13.6	42.8
Annual rate (mm/yr)	**554.50**	**877.30**			**542.00**		**113.00**	**335.30**

Note:

Station Name	Georgetown	
Station ID	ONTARIO	
Longitude	43.64	
Latitude	-79.88	
Elevaion	221.0	masl

APPENDIX F-3
Average Infiltration Factors

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

F-3-1. Average Infiltration Factor – Pre Development Conditions

Un-Mitigated

Category	Weighted Infiltration Factor
Topography/Slope	0.12
Soil Type Glaciolacustrine deposits (Silty to Clayey)	0.20
Cover Landscaped Areas	0.10
Total weighted Infiltration factor	**0.42**

F-3-2. Average Infilteration Factor – Post Development Conditions

Un-Mitigated

Category	Weighted IInfiltration Factor
Topography/Slope	0.200
Soil Type Glaciolacustrine deposits (Silty to Clayey)	0.20
Cover Landscaped areas	0.10
Total weighted Infiltration factor	**0.50**

Notes:
Landscaped area considered equivalent to Cultivated Cover
Assumed existing and proposed slopes are similar

Appendix F-4

Summary of Pre and Post-Development Water Balance

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

F-4-1. Climate Data

Item	Pre-Development mm/a		Post-Development mm/a
Precipitation	877.30		877.30
Evapotranspiration	542.00		542.00
Water Surplus	335.30		335.30
Infiltration Rate	141.83		167.65
Runoff	193.47		167.65

F-4-2. Pre-Developed Area Statistics

Open spaces/Landscaped	8,435	sq.m.
Paved Surfaces	23,863	sq.m.
Existing Buildings	3,582	sq.m.
TOTAL	35,880	sq.m.

F-4-3. Post Development Area Statistics

Residential Development

Building Roofs	12,152	sq.m.
ROW (roads, sidewalks, parking) - Paved	6,723	sq.m.
Open Areas/Landscaped Areas	17,005	sq.m.
TOTAL	35,880	sq.m.

F-4-4-1. Annual Pre-Development Water Balance

Land Use	Area (sq.m.)	Precipitation (cu.m.)	Actual Evapotranspiration (cu.m.)	Infiltration Rate (cu.m.)	Run-off (cu.m.)
Total Impervious (Buildings and paved surfaces)	27,445	24,077	14,875	0	9,202
Open Spaces	8,435	7,400	4,572	1,196	1,632
TOTAL	35,880	31,478	19,447	1,196	10,834
Pre-development Infiltration Water Balance		**877.3**	**542.0**	**33.34**	**301.96**
		100	62	4	34

F-4-5-1. Annual Post-Development Water Balance

Land Use	Area (sq.m.)	Precipitation (cu.m.)	Actual Evapotranspiration (cu.m.)	Infiltration Rate (cu.m.)	Run-off (cu.m.)
Building Roofs	12,152	10,661			10,661
ROW (roads, sidewalks, parking) - Paved	6,723	5,898	0	0	5,898
Landscaped Areas	17,005	14,918	9,216	2,851	2,851
TOTAL	35,880	31,477	9,216	2,851	19,410
Post-development Infiltration Rate Not-Corrected		**877.3**	**256.9**	**79.45**	**540.97**
		100	29.28	9.06	61.66

F-4-6-1. Comparison of Pre-Development and Post-Development

Item	Precipitation (cu.m.)	Actual Evapotranspiration (cu.m.)	Run-off (cu.m.)	Corrected Infiltration Rate for Areas with Shallow Groundwater Table (cu.m.)
Pre-Development	31,478	19,447	10,834	1,196
Post Development	31,477	9,216	19,410	2,851
			Pre-development Infiltration Rate	**33.3**
			Post-development Infiltration Rate Not-Corrected	**79.5**
			Deficit Post Development Not-Corrected	**-1,654**

12197 Hurontario St
BRM-00257876-D0
Low Impact Design (LID) Calculations for Infiltration Gallery

Test Location	Hydraulic Conductivity (K_{fs}) (cm/s)	Infiltration Rate (IR) (mm/hr)	Discrete Design Infiltration Rate(DIR) (mm/hr)	Percolation Time (min/cm)
INF 21-3	6.3E-07	12	5	126
INF 301	4.3E-06	20	8	75
INF 303	1.4E-05	27	11	55
INF 203-Redo	6.2E-05	41	16	37

Geology Units	Geometric Mean of K_{fs} (cm/s)	Infiltration Rate (I) (mm/hr)*	Ratio of Mean Measured Infiltration Rates	Safety Correction Factor (SCF)
Overlying Geology Unit	6.96E-06	23	1.0	2.5
Underlying Geology Unit (1.5 m below the bottom of trench)	6.96E-06	23		

Design Infiltration Rate(DIR) (mm/hr)	Minimum	5	**Percolation Time (min/cm)**	37
	Maximum	16		126
	Geometric Mean	**9**		**66**

Note:
Analytical Solutions (CVC and TRCA 2010)

$$Infiltration\ Rate\ (IR) = \left(\frac{K_{fs}}{6x10^{-11}}\right)^{\frac{1}{3.7363}}$$
$$Design\ Infiltration\ Rate\ (DIR) = \frac{IR}{SCF}$$

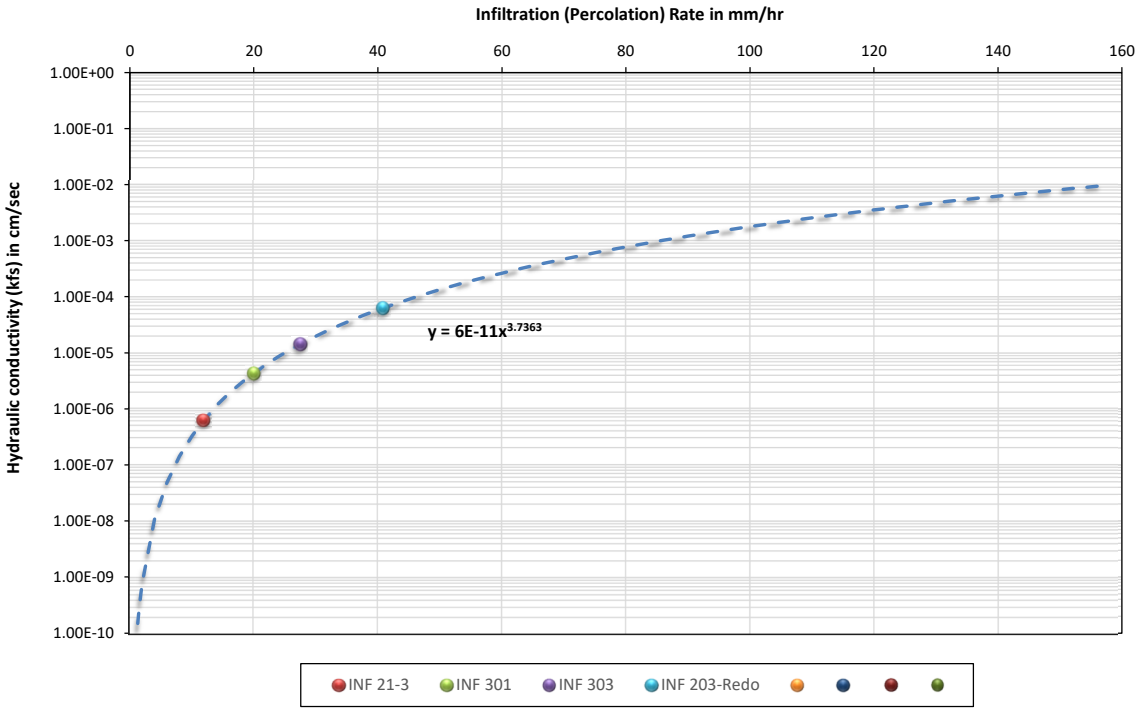
Kfs: hydraulic conductivity (cm/sec)

IR: infiltration rate (mm/hr)

DIR: design infiltration rate (mm/hr)

SCF: Safety Correction Factor (based on the chart recommended by CVC and TRCA, 2010)

Figure : Approximate relationship between infiltration rate and hydraulic conductivity (LID SWM planning and Design Guide, Appendix C1)



Project Address 12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
Project Number BRM-00257876-D0

Station Name	GEORGETOWN WWTP	
Station ID	ONTARIO	
Longitude	43.64	
Latitude	-79.88	
Elevation	221.0	masl
Climate Identifier	6152695	

Appendix F-1: Model Input

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

Period	Month	Average Temperature (^{0}C)	Average Precipitation (mm)
1977-2006	1	-6.30	67.80
1977-2006	2	-5.20	60.00
1977-2006	3	-0.90	57.20
1977-2006	4	6.00	76.50
1977-2006	5	12.30	79.30
1977-2006	6	17.40	74.80
1977-2006	7	20.00	73.50
1977-2006	8	19.00	79.30
1977-2006	9	14.80	86.20
1977-2006	10	8.40	68.30
1977-2006	11	2.80	88.50
1977-2006	12	-2.90	65.90

Note:

Station Name	Georgetown	
Station ID	ONTARIO	
Longitude	43.64	
Latitude	-79.88	
Elevaion	221.0	masl

Appendix F-2: Model Output

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

Month	PET	P	P-PET	Soil Moisture	AET	PET-AET	Snow Storage	Surplus
January	8.4	67.8	24.7	135.0	8.4	0.0	34.7	39.7
February	10.3	60.0	38.7	135.0	10.3	0.0	45.8	38.7
March	19.2	57.2	64.8	135.0	19.2	0.0	18.9	64.8
April	36.8	76.5	58.6	135.0	36.8	0.0	0.0	58.6
May	67.7	79.3	11.6	135.0	67.7	0.0	0.0	11.6
June	98.6	74.8	-23.8	111.2	98.6	0.0	0.0	0.0
July	114.6	73.5	-41.1	77.3	107.4	7.2	0.0	0.0
August	91.6	79.3	-12.3	70.3	86.3	5.2	0.0	0.0
September	54.0	86.2	32.2	102.6	54.0	0.0	0.0	0.0
October	28.7	68.3	39.6	135.0	28.7	0.0	0.0	7.1
November	15.1	88.5	73.4	135.0	15.1	0.0	0.0	73.4
December	9.5	65.9	42.8	135.0	9.5	0.0	13.6	42.8
Annual rate (mm/yr)	**554.50**	**877.30**			**542.00**		**113.00**	**335.30**

Note:

Station Name	Georgetown	
Station ID	ONTARIO	
Longitude	43.64	
Latitude	-79.88	
Elevaion	221.0	masl

APPENDIX F-3
Average Infiltration Factors

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

F-3-1. Average Infiltration Factor – Pre Development Conditions

Un-Mitigated

Category	Weighted Infiltration Factor
Topography/Slope	0.12
Soil Type Glaciolacustrine deposits (Silty to Clayey)	0.20
Cover Landscaped Areas	0.10
Total weighted Infiltration factor	**0.42**

F-3-2. Average Infilteration Factor – Post Development Conditions

Un-Mitigated

Category	Weighted IInfiltration Factor
Topography/Slope	0.200
Soil Type Glaciolacustrine deposits (Silty to Clayey)	0.20
Cover Landscaped areas	0.10
Total weighted Infiltration factor	**0.50**

Notes:
Landscaped area considered equivalent to Cultivated Cover
Assumed existing and proposed slopes are similar

Appendix F-4

Summary of Pre and Post-Development Water Balance

12197 Hurontario Street, Brampton and 12221- 12233 Hurontario Street, Caledon, Ontario
BRM-00257876-D0

F-4-1. Climate Data

Item	Pre-Development mm/a		Post-Development mm/a
Precipitation	877.30		877.30
Evapotranspiration	542.00		542.00
Water Surplus	335.30		335.30
Infiltration Rate	141.83		167.65
Runoff	193.47		167.65

F-4-2. Pre-Developed Area Statistics

Open spaces/Landscaped	8,435	sq.m.
Paved Surfaces	23,863	sq.m.
Existing Buildings	3,582	sq.m.
TOTAL	35,880	sq.m.

F-4-3. Post Development Area Statistics

Residential Development

Building Roofs	12,152	sq.m.
ROW (roads, sidewalks, parking) - Paved	6,723	sq.m.
Open Areas/Landscaped Areas	17,005	sq.m.
TOTAL	35,880	sq.m.

F-4-4-1. Annual Pre-Development Water Balance

Land Use	Area (sq.m.)	Precipitation (cu.m.)	Actual Evapotranspiration (cu.m.)	Infiltration Rate (cu.m.)	Run-off (cu.m.)
Total Impervious (Buildings and paved surfaces)	27,445	24,077	14,875	0	9,202
Open Spaces	8,435	7,400	4,572	1,196	1,632
TOTAL	35,880	31,478	19,447	1,196	10,834
Pre-development Infiltration Water Balance		**877.3**	**542.0**	**33.34**	**301.96**
		100	62	4	34

F-4-5-1. Annual Post-Development Water Balance

Land Use	Area (sq.m.)	Precipitation (cu.m.)	Actual Evapotranspiration (cu.m.)	Infiltration Rate (cu.m.)	Run-off (cu.m.)
Building Roofs	12,152	10,661			10,661
ROW (roads, sidewalks, parking) - Paved	6,723	5,898	0	0	5,898
Landscaped Areas	17,005	14,918	9,216	2,851	2,851
TOTAL	35,880	31,477	9,216	2,851	19,410
Post-development Infiltration Rate Not-Corrected		**877.3**	**256.9**	**79.45**	**540.97**
		100	29.28	9.06	61.66

F-4-6-1. Comparison of Pre-Development and Post-Development

Item	Precipitation (cu.m.)	Actual Evapotranspiration (cu.m.)	Run-off (cu.m.)	Corrected Infiltration Rate for Areas with Shallow Groundwater Table (cu.m.)
Pre-Development	31,478	19,447	10,834	1,196
Post Development	31,477	9,216	19,410	2,851
			Pre-development Infiltration Rate	**33.3**
			Post-development Infiltration Rate Not-Corrected	**79.5**
			Deficit Post Development Not-Corrected	**-1,654**

12197 Hurontario St
BRM-00257876-D0
Low Impact Design (LID) Calculations for Infiltration Gallery

Test Location	Hydraulic Conductivity (K_{fs}) (cm/s)	Infiltration Rate (IR) (mm/hr)	Discrete Design Infiltration Rate(DIR) (mm/hr)	Percolation Time (min/cm)
INF 21-3	6.3E-07	12	5	126
INF 301	4.3E-06	20	8	75
INF 303	1.4E-05	27	11	55
INF 203-Redo	6.2E-05	41	16	37

Geology Units	Geometric Mean of K_{fs} (cm/s)	Infiltration Rate (I) (mm/hr)*	Ratio of Mean Measured Infiltration Rates	Safety Correction Factor (SCF)
Overlying Geology Unit	6.96E-06	23	1.0	2.5
Underlying Geology Unit (1.5 m below the bottom of trench)	6.96E-06	23		

Design Infiltration Rate(DIR) (mm/hr)	Minimum	5	**Percolation Time (min/cm)**	37
	Maximum	16		126
	Geometric Mean	**9**		**66**

Note:
Analytical Solutions (CVC and TRCA 2010)

$$Infiltration\ Rate\ (IR) = \left(\frac{K_{fs}}{6x10^{-11}}\right)^{\frac{1}{3.7363}}$$
$$Design\ Infiltration\ Rate\ (DIR) = \frac{IR}{SCF}$$

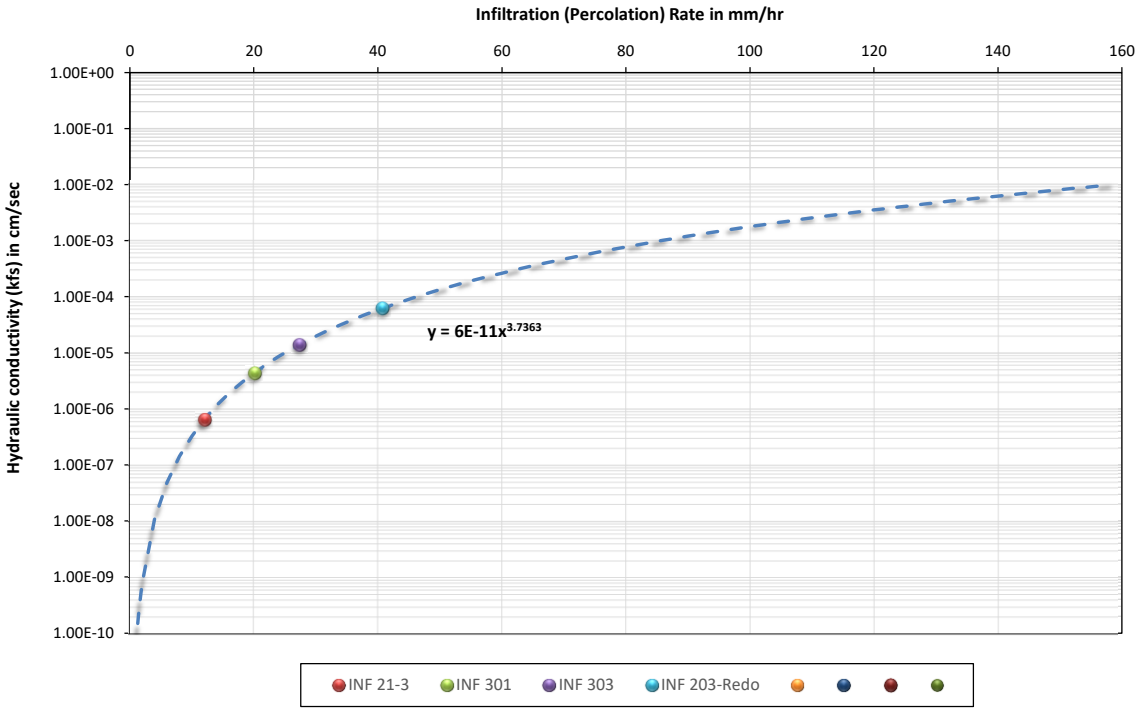
Kfs: hydraulic conductivity (cm/sec)

IR: infiltration rate (mm/hr)

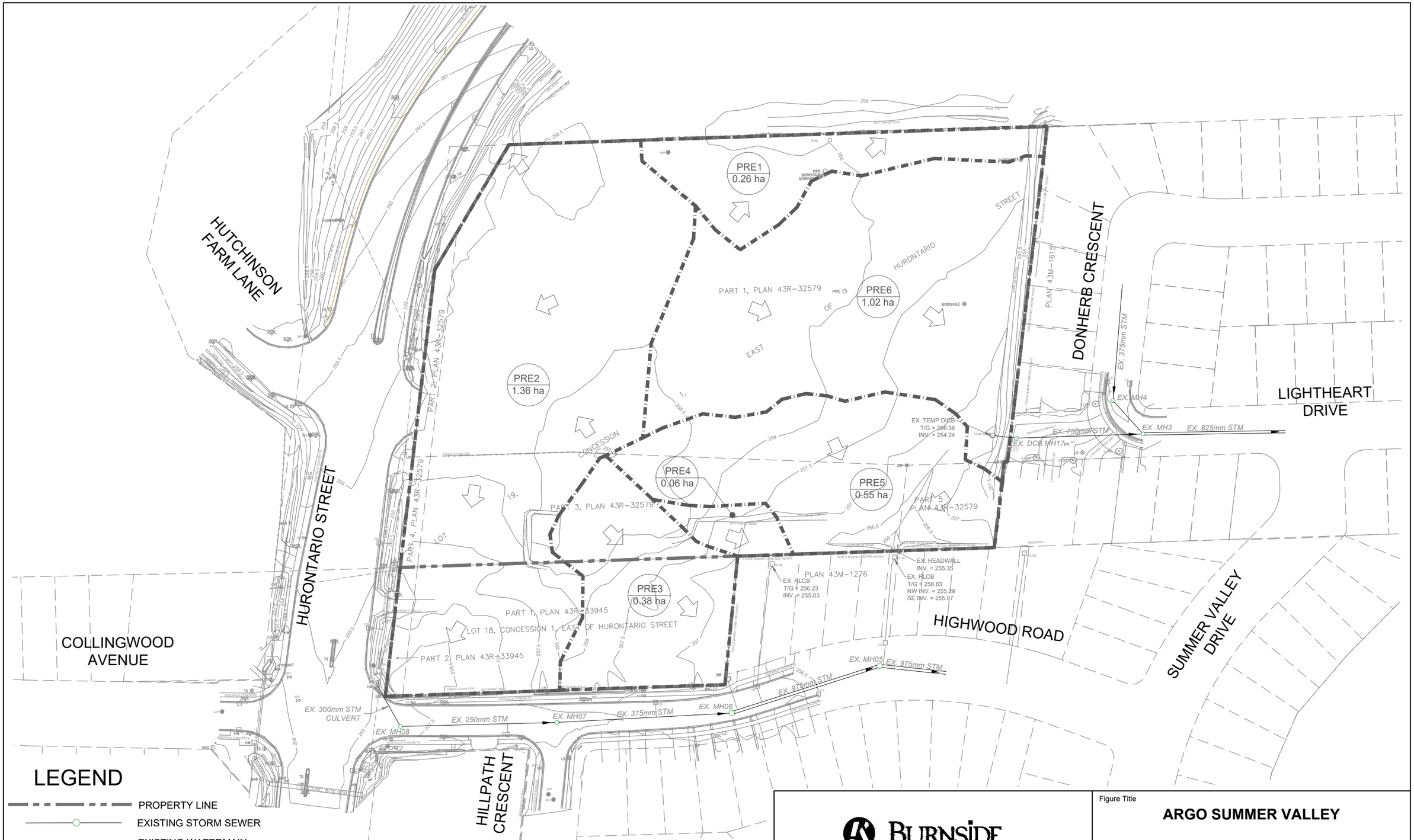
DIR: design infiltration rate (mm/hr)

SCF: Safety Correction Factor (based on the chart recommended by CVC and TRCA, 2010)

Figure : Approximate relationship between infiltration rate and hydraulic conductivity (LID SWM planning and Design Guide, Appendix C1)



Appendix G – Drainage Plan



LEGEND

- PROPERTY LINE
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- EXISTING OVERLAND FLOW
- PRE-DEVELOPMENT DRAINAGE BOUNDARY
- PRE1 / 1.00 ha — CATCHMENT ID / DRAINAGE AREA

0 25 50 75 100
Metres

CITY OF BRAMPTON FILE NUMBER : 0ZS-2022-0030

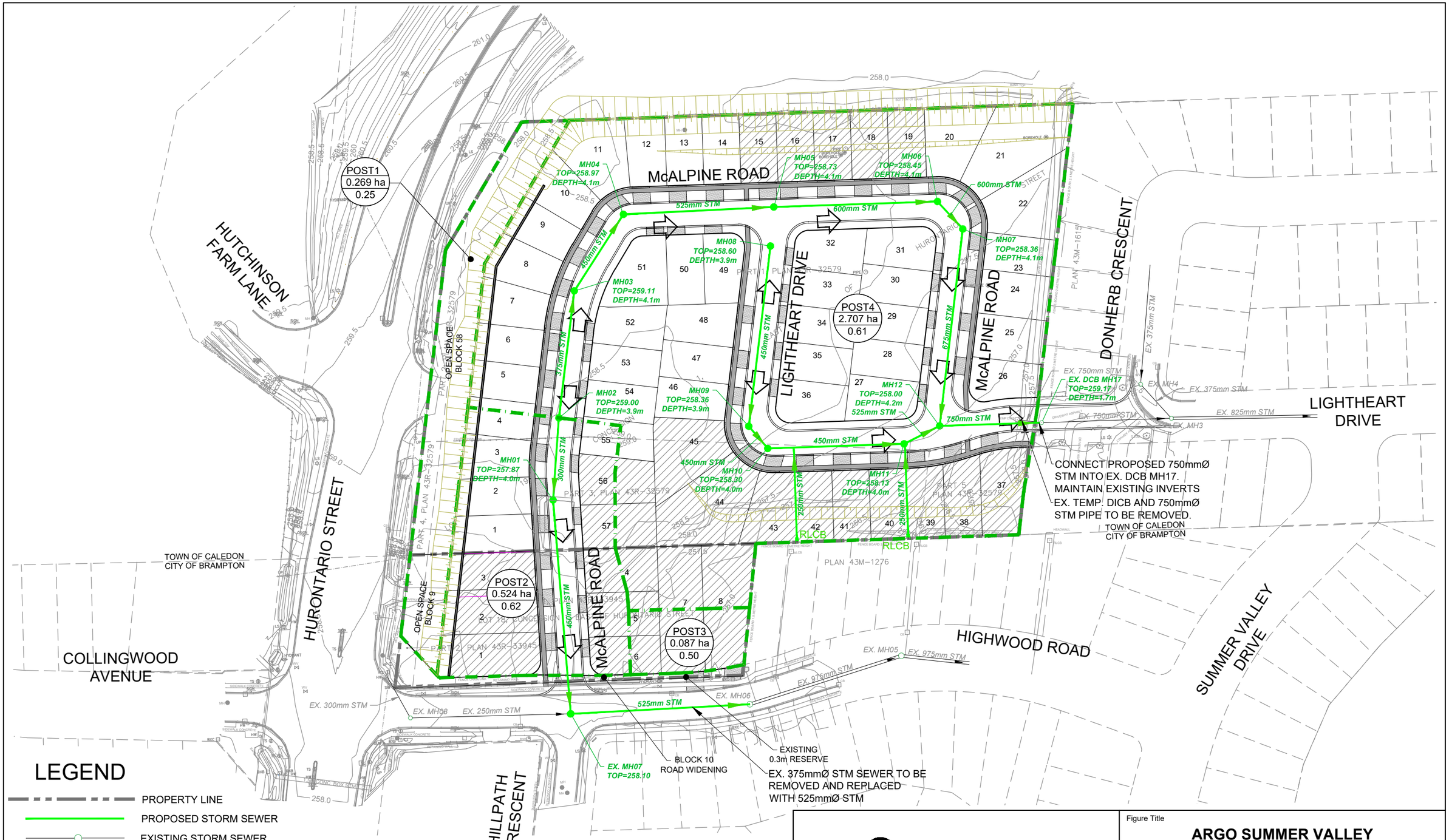
BURNSIDE

Figure Title
ARGO SUMMER VALLEY
EXISTING SITE DRAINAGE

Client
ARGO SUMMER VALLEY LIMITED

Drawn	Checked	Date	Figure No.
KT	LN	23/05/17	**FIG 7**
Scale		Project No.	
1:1250		300054371	

File: \\MONTY\Shared Work Areas\054371 - Argo Summer Valley\07_Figures\054371 - PRE DEVELOPMENT CONDITIONS.dwg Date Plotted: May 16, 2023 - 3:00 PM



LEGEND

- PROPERTY LINE
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- MAJOR OVERLAND FLOW ROUTE
- POST -DEVELOPMENT DRAINAGE BOUNDARY
- LOTS WITH SOAK AWAY PITS FOR 5mm RETENTION

POST1 / 1.00 ha / 0.50 — CATCHMENT ID / DRAINAGE AREA (HECTARES) / RUNOFF COEFFICIENT

0 25 50 75 100 Metres

CITY OF BRAMPTON FILE NUMBER : 0ZS-2022-0030

BURNSIDE

Figure Title

ARGO SUMMER VALLEY

PROPOSED DRAINAGE AND STORM SERVICING PLAN

Client

ARGO SUMMER VALLEY LIMITED

Drawn	Checked	Date	Figure No.
KT	LN	23/05/17	**FIG 8**
Scale		Project No.	
1:1250		300054371	

File: \\MONTY\Shared Work Areas\054371 - Argo Summer Valley\07_Figures\054371 - POST DEVELOPMENT CONDITIONS.dwg Date Plotted: May 16, 2023 - 3:00 PM

Appendix H – Door to Door Survey

October 19, 2023

Argo Summer Valley Limited
4900 Palladium Way Unit 105
Burlington, Ontario, L7M 0M7

Re: BRM-00257876-D0 **Baseline Residential Water Well Survey**
12197 Hurontario Street, Brampton and 12211, 12213 and 12231 Hurontario Street, Caledon, Ontario

Dear Mr. Safi:

EXP Services Inc. (EXP) was retained by Argo Summer Valley Limited to complete a baseline residential water well survey within 500 m of the proposed development located at 12197 Hurontario Street, Brampton and 12211, 12213 and 12231 Hurontario Street, Caledon, Ontario hereinafter referred to as the 'Site'. The Site location plan is shown on Figure 1. The baseline residential well survey was done to satisfy the requirements of the Region of Peel. This report presents the results of the baseline residential water well survey.

1 Scope of Work and Methodology

To complete the baseline residential water well inventory, the following work was completed:

- Obtained Ministry of Environment, Conservation and Parks (MECP) water well records (WWR).
- Reviewed MECP WWR to identify wells potentially present within the 500 m of the Site.
- Completed and mailed survey to confirm the locations of wells found in the MECP WWRs and to locate any additional wells present in the area within 500 m distance from the Site. Introductory letters and water well survey forms were delivered in person to residents.
- Requested approval from homeowners to participate in the water well monitoring program.

2 Baseline Water Well Inventory

2.1 Current Groundwater Use

Well Records from the MECP Water Well Record (WWR) Database were reviewed to determine the number of residential water supply wells present within a 500-m radius of the Site boundaries. The locations of the MECP WWR within 500 m of the Site are provided on Figure 2. A summary of water well details are shown in Appendix 1 Water Well Record.

The MOECC WWR database indicated thirty-four (34) records within a 500-m radius of the Site boundary with two (2) wells identified within the Site boundary.

A summary of the primary well use identified in the data base is provided in the Table 2.1.

Table 2.1: Summary of Primary Well Use

Primary Well Use	Number of Wells
Domestic	14
Livestock	1
Industrial	0
Commercial	0

Domestic use was given as the secondary well use of one well identified with livestock as primary well use.

The database indicated that the off-site records were located at an approximately 29 m or greater from the Site boundary.

The reported water found depths at the noted locations ranged from an approximate depth of 2.0 to 44.0 meters below ground surface (mbgs).

2.2 Door to Door Well Condition Survey

To verify results of the MECP WWR search, a baseline residential water well survey form and accompanying letter was distributed to residents within a 500 m radius of the Site on July 28, 2023 (Attachment 3). The letter explained the purpose of the study and requested the participation of the residents in monitoring program.

The survey included questions about the wells (e.g. type of well, location, age, depth, etc.), the quantity of water (water levels, usage) and quality of water (clarity, odour, treatment types, etc.). Residents were provided return postage and requested to send a completed well survey form by mail or email to EXP to confirm participation in the Well Survey.

A total of seven hundred and fifty four (754) properties were visited and handed over well survey forms and accompanying letters, resulting in no authorizations from well owners given.

2.3 Contingency and Mitigation Plan

Should additional homeowners that have been previously contacted authorize EXP to proceed with groundwater monitoring, EXP recommends adding these locations to complete the water level and water quality monitoring. It is recommended to develop a Contingency and Mitigation plan, which should be implemented if any well complaint is received during the construction phase of the project.

3 Recommendations

The baseline water well inventory was completed to establish the baseline conditions for the proposed development. Since baseline groundwater conditions have been established, the monitoring program prior, during and after construction can be readily implemented.

Continual water level monitoring using data loggers at all participating well owners also recommended during all three-project phases (pre, during and post).

The groundwater monitoring for both water levels and water quality is required to be completed and documented prior, during and for a minimum of three months after the project completion, to satisfy the Region of Peel requirements.

Should one of the homeowners within the 500 m zone of the construction site make a complaint about their well water quantity or quality, the developed Contingency and Mitigation Plan will have to be implemented immediately.

We trust that the information provided in this report is satisfactory for your purposes. Should you have any questions or require more information, please do not hesitate to contact the undersigned.

Sincerely,
EXP Services Inc.

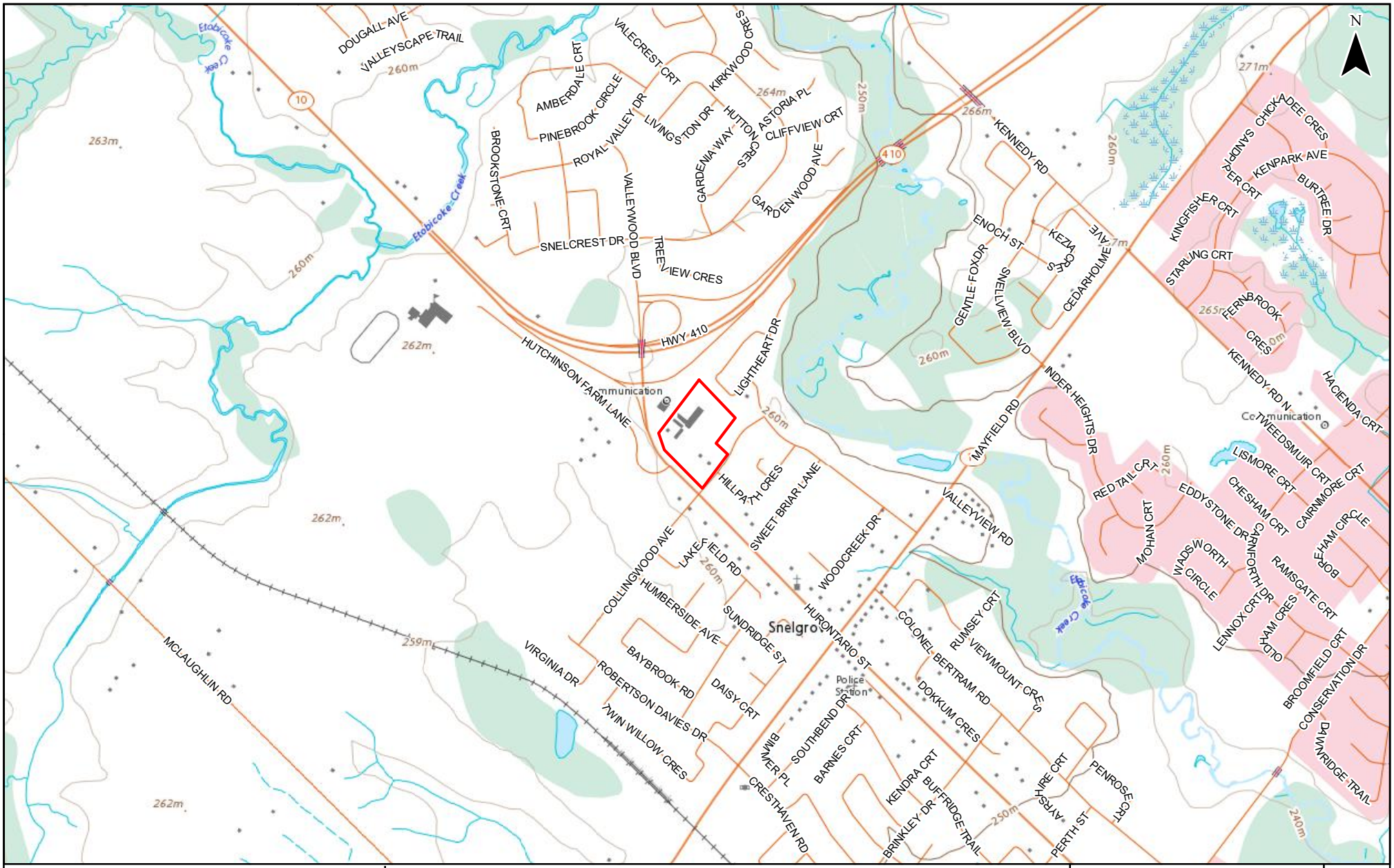
Nicolas Sabo, M.E.S., B.Sc.
Junior Project Manager
Environmental Services

Francois Chartier, M.Sc., P.Geo.
Discipline Manager - Hydrogeology
Environmental Services

Figures:

Attachments:

Figures



SCALE:

0 150 300 450 600 750 m

LEGEND:

APPROXIMATE SITE BOUNDARY

SITE LOCATION PLAN

FIGURE: 1

exp.

DRAWN BY:	CHECKED BY:
AC	JS

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON,
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0

DATE: FEBRUARY 2022

SCALE:

0 100 200 300 400 500 m

SOURCE:

BASED ON GOOGLE EARTH IMAGERY DATED 2021,
AVAILABLE WELL RECORD INFORMATION AS OF SEPTEMBER 2019

exp.

DRAWN BY:	CHECKED BY:
AC	JS

LEGEND:

- MONITORING WELL / TEST HOLE
- WATER SUPPLY WELL
- ABANDONED WELL
- UNCLASSIFIED / UNFINISHED WELL
- APPROXIMATE SITE BOUNDARY
- 500 m ZONE

MECP WATER WELL RECORDS MAP

FIGURE: 3

HYDROGEOLOGICAL INVESTIGATION
AND WATER BALANCE ASSESSMENT
12197 HURONTARIO STREET, BRAMPTON
AND 12211-12233 HURONTARIO STREET, CALEDON
ONTARIO

PROJECT NUMBER: BRM-00257876-D0

DATE: FEBRUARY 2022

ATTACHMENT 1 - Residential Water Well Details within 500 m of Site Boundary

On-Site

BORE_HOLE_ID	WELL_ID	DATE	EAST83	NORTH83	ELEVATION (m ASL)	STREET	CITY	DISTANCE TO SITE BOUNDARY (m)	CONSTRUCTION METHOD	WELL DEPTH (m bgs)	WATER FOUND (m bgs)	CASING DIAMETER (cm)	1st USE	2nd USE	FINAL STATUS
10315957	4901111	1/16/1961	594183	4843461	259.3				Boring	16.8	13.4	16.8	Domestic		Water Supply
11765486	7043038	4/3/2007	594170	4843626	258.1	12231, 1223, 12233 HURONTARIO ST	CALEDON		Boring	6.0	3.6	3.0			Observation Wells

Off-Site

BORE_HOLE_ID	WELL_ID	DATE	EAST83	NORTH83	ELEVATION (m ASL)	STREET	CITY	DISTANCE TO SITE BOUNDARY (m)	CONSTRUCTION METHOD	WELL DEPTH (m bgs)	WATER FOUND (m bgs)	CASING DIAMETER (cm)	1st USE	2nd USE	FINAL STATUS
10315949	4901103	5/18/1954	594348	4843310	255.4			143	Boring	16.8	15.2	15.2	Domestic		Water Supply
10315950	4901104	11/1/1961	594373	4843281	255.7			181	Boring	19.8	14.6	10.7	Domestic		Water Supply
10315951	4901105	7/4/1962	594522	4843112	255.0			405	Cable Tool	41.1	41.1	5.5	Domestic		Water Supply
10315954	4901108	6/1/1967	594550	4843077	255.0			450	Boring	15.8	12.8	15.8	Domestic		Water Supply
10315955	4901109	6/12/1954	594192	4843770	258.8			69	Boring	15.2	13.7	13.7	Domestic		Water Supply
10316454	4901609	9/18/1953	594371	4842987	255.0			434	Boring	14.9	13.4	14.9	Domestic		Water Supply
10316455	4901610	6/20/1954	594298	4843282	256.1			133	Boring	17.4	17.4	17.4	Domestic		Water Supply
10316456	4901611	7/3/1954	594459	4842983	254.9			472	Boring	18.3	16.5	18.3	Domestic		Water Supply
10316457	4901612	12/18/1955	594143	4843426	258.4			49	Boring	18.9	16.5	18.9	Domestic		Water Supply
10316458	4901613	9/19/1961	594371	4843208	256.2			234	Boring	18.6	15.2	18.6	Domestic		Water Supply
10316459	4901614	4/4/1962	594411	4843208	255.9			259	Cable Tool	44.5	43.9	39.3	Domestic		Water Supply
10316462	4901617	8/23/1961	594260	4843269	256.7			133	Cable Tool	45.7	44.2	42.7	Domestic		Water Supply
10316463	4901618	11/16/1963	593847	4843508	261.4			269	Cable Tool	48.8	39.6	39.3	Livestock	Domestic	Water Supply
10317731	4902890	6/3/1968	594405	4843213	256.0			251	Cable Tool	16.8	15.2	16.8	Domestic		Water Supply
1001497608	7101921	1/24/2008	594116	4843613	259.3	HURONTARIO, N. OF MAYFIELD	BRAMPTON	29			2.0	6.1			Abandoned-Other
11323491	4909758	5/25/2005	594350	4843643	255.4	57 LIGHTHESRT ROAD	BRAMPTON	44	Digging		11.0	16.5	Not Used		Abandoned-Other
11760760	7034881	8/21/2006	594324	4843313	255.4	12197 HURONTARIO	CALEDON	123	Other Method	5.2		2.1			Abandoned-Other
11763712	7041219	1/12/2007	594429	4843164	255.7	12197 HURONTARIO ST	BRAMPTON	304	Other Method	4.9		1.5	Not Used		Observation Wells
11177200	4909572	11/16/2004	594714	4843223	251.2			489	Other Method			1.8			Observation Wells
1001547985	7102926	12/17/2007	594100	4843619	259.4	12267 HURONTARIO ST.	BRAMPTON	45							Abandoned-Other
1007307017	7321773	9/24/2018	593970	4843159		HUTCHINSON FARM LN	CALEDON	361	Boring	4.5	3.3		Monitoring		Observation Wells
1007307023	7321775	9/25/2018	593944	4843589		HUTCHINSON FARM LN.	CALEDON	170	Boring	7.0	4.2		Monitoring		Observation Wells
1007309453	7322190	10/18/2018	593916	4843834		HWY 10 & HWY 410	BRAMPTON	324	Boring	15.2	12.2		Monitoring		Observation Wells
1007360863	7327350	12/7/2018	594047	4843521		Hutchinson Farm Line	Brampton	74	Boring	6.1			Monitoring		Monitoring and Test Hole
1007360866	7327351	12/7/2018	593877	4843717		Hutchinson Farm Line	Brampton	282	Boring	6.1			Monitoring		Monitoring and Test Hole
1007360875	7327354	12/7/2018	594238	4843355		Hurontario Street	Brampton	45	Boring	6.1			Monitoring		Monitoring and Test Hole
1007360878	7327355	12/7/2018	594396	4843194		Hurontario Street	Brampton	260	Boring	6.1			Monitoring		Monitoring and Test Hole
1007360881	7327356	12/7/2018	594540	4843072		Hurontario Street	Brampton	446	Boring	6.1			Monitoring		Monitoring and Test Hole
10322846	4908310	7/15/1997	594448	4842977	254.7			473	Not Known				Not Used		Abandoned-Other
10526896	4908963	3/27/2002	593776	4843904	263.2			477	Digging				Not Used		Abandoned-Other
1004197602	7188750	5/4/2012	593846	4843992	261.8			475							
1005904094	7259060	4/23/2015	594586	4843079	254.7			474							

ATTACHMENT 2 – List of Addresses

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
20	SNELCREST	DR	Caledon	20 SNELCREST DR	
15	SWEET BRIAR	LANE	Brampton	15 SWEET BRIAR LANE	
45	SUMMER VALLEY	DR	Brampton	45 SUMMER VALLEY DR	
98	BAYBROOK	RD	Brampton	98 BAYBROOK RD	
13	HIGHWOOD	RD	Brampton	13 HIGHWOOD RD	
9	HIGHWOOD	RD	Brampton	9 HIGHWOOD RD	
29	BAYBROOK	RD	Brampton	29 BAYBROOK RD	
25	BAYBROOK	RD	Brampton	25 BAYBROOK RD	
41	SWEET BRIAR	LANE	Brampton	41 SWEET BRIAR LANE	
66	SUMMER VALLEY	DR	Brampton	66 SUMMER VALLEY DR	
33	SWEET BRIAR	LANE	Brampton	33 SWEET BRIAR LANE	
36	LAKEFIELD	RD	Brampton	36 LAKEFIELD RD	
42	LAKEFIELD	RD	Brampton	42 LAKEFIELD RD	
19	SWEET BRIAR	LANE	Brampton	19 SWEET BRIAR LANE	
35	SUMMER VALLEY	DR	Brampton	35 SUMMER VALLEY DR	
33	SUMMER VALLEY	DR	Brampton	33 SUMMER VALLEY DR	
4	HILLPATH	CRES	Brampton	4 HILLPATH CRES	
8	HILLPATH	CRES	Brampton	8 HILLPATH CRES	
65	COLLINGWOOD	AVE	Brampton	65 COLLINGWOOD AVE	
30	SUMMER VALLEY	DR	Brampton	30 SUMMER VALLEY DR	
88	TREEVIEW	CRES	Caledon	88 TREEVIEW CRES	
92	SUMMER VALLEY	DR	Brampton	92 SUMMER VALLEY DR	
47	HUMBERSIDE	AVE	Brampton	47 HUMBERSIDE AVE	
39	BAYBROOK	RD	Brampton	39 BAYBROOK RD	
33	BAYBROOK	RD	Brampton	33 BAYBROOK RD	
12	SWEET BRIAR	LANE	Brampton	12 SWEET BRIAR LANE	
37	SWEET BRIAR	LANE	Brampton	37 SWEET BRIAR LANE	
71	BAYBROOK	RD	Brampton	71 BAYBROOK RD	
61	BAYBROOK	RD	Brampton	61 BAYBROOK RD	
46	LAKEFIELD	RD	Brampton	46 LAKEFIELD RD	
21	WOODCREEK	DR	Brampton	21 WOODCREEK DR	
35	WOODCREEK	DR	Brampton	35 WOODCREEK DR	
33	WOODCREEK	DR	Brampton	33 WOODCREEK DR	
3	WOODCREEK	DR	Brampton	3 WOODCREEK DR	
12	HUMBERSIDE	AVE	Brampton	12 HUMBERSIDE AVE	
46	HUMBERSIDE	AVE	Brampton	46 HUMBERSIDE AVE	
1	SNELCREST	DR	Caledon	1 SNELCREST DR	
84	BAYBROOK	RD	Brampton	84 BAYBROOK RD	
88	BAYBROOK	RD	Brampton	88 BAYBROOK RD	
92	BAYBROOK	RD	Brampton	92 BAYBROOK RD	
20	HIGHWOOD	RD	Brampton	20 HIGHWOOD RD	
49	COLLINGWOOD	AVE	Brampton	49 COLLINGWOOD AVE	
5	OLDGATE	LANE	Brampton	5 OLDGATE LANE	
55	COLLINGWOOD	AVE	Brampton	55 COLLINGWOOD AVE	
43	COLLINGWOOD	AVE	Brampton	43 COLLINGWOOD AVE	
15	WOODCREEK	DR	Brampton	15 WOODCREEK DR	
8	SWEET BRIAR	LANE	Brampton	8 SWEET BRIAR LANE	
6	ROYAL VALLEY	DR	Caledon	6 ROYAL VALLEY DR	
43	HUMBERSIDE	AVE	Brampton	43 HUMBERSIDE AVE	
24	LAKEFIELD	RD	Brampton	24 LAKEFIELD RD	
28	LAKEFIELD	RD	Brampton	28 LAKEFIELD RD	
32	LAKEFIELD	RD	Brampton	32 LAKEFIELD RD	
24	SWEET BRIAR	LANE	Brampton	24 SWEET BRIAR LANE	
7	SWEET BRIAR	LANE	Brampton	7 SWEET BRIAR LANE	
11	WOODCREEK	DR	Brampton	11 WOODCREEK DR	
29	SUMMER VALLEY	DR	Brampton	29 SUMMER VALLEY DR	
25	SUMMER VALLEY	DR	Brampton	25 SUMMER VALLEY DR	
12	WOODCREEK	DR	Brampton	12 WOODCREEK DR	
28	HUMBERSIDE	AVE	Brampton	28 HUMBERSIDE AVE	
32	HUMBERSIDE	AVE	Brampton	32 HUMBERSIDE AVE	
57	SUMMER VALLEY	DR	Brampton	57 SUMMER VALLEY DR	
7	WOODCREEK	DR	Brampton	7 WOODCREEK DR	
74	BAYBROOK	RD	Brampton	74 BAYBROOK RD	
80	BAYBROOK	RD	Brampton	80 BAYBROOK RD	
16	HILLPATH	CRES	Brampton	16 HILLPATH CRES	
76	SUMMER VALLEY	DR	Brampton	76 SUMMER VALLEY DR	
3	HUMBERSIDE	AVE	Brampton	3 HUMBERSIDE AVE	
18	SWEET BRIAR	LANE	Brampton	18 SWEET BRIAR LANE	
11	SWEET BRIAR	LANE	Brampton	11 SWEET BRIAR LANE	
4	SWEET BRIAR	LANE	Brampton	4 SWEET BRIAR LANE	
6	HIGHWOOD	RD	Brampton	6 HIGHWOOD RD	
36	HILLPATH	CRES	Brampton	36 HILLPATH CRES	

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
29	WOODCREEK	DR	Brampton	29 WOODCREEK DR	
29	ROYAL VALLEY	DR	Caledon	29 ROYAL VALLEY DR	
22	SUMMER VALLEY	DR	Brampton	22 SUMMER VALLEY DR	
10	ASH	CRT	Brampton	10 ASH CRT	
16	ASH	CRT	Brampton	16 ASH CRT	
77	SUMMER VALLEY	DR	Brampton	77 SUMMER VALLEY DR	
71	SUMMER VALLEY	DR	Brampton	71 SUMMER VALLEY DR	
63	SUMMER VALLEY	DR	Brampton	63 SUMMER VALLEY DR	
19	LAKEFIELD	RD	Brampton	19 LAKEFIELD RD	
24	HIGHWOOD	RD	Brampton	24 HIGHWOOD RD	
3	HILLPATH	CRES	Brampton	3 HILLPATH CRES	
72	SUMMER VALLEY	DR	Brampton	72 SUMMER VALLEY DR	
16	SUNDRIDGE	ST	Brampton	16 SUNDRIDGE ST	
75	BAYBROOK	RD	Brampton	75 BAYBROOK RD	
28	SWEET BRIAR	LANE	Brampton	28 SWEET BRIAR LANE	
1	LADYWOOD	CRT	Brampton	1 LADYWOOD CRT	
20	ASH	CRT	Brampton	20 ASH CRT	
6	ASH	CRT	Brampton	6 ASH CRT	
38	ASH	CRT	Brampton	38 ASH CRT	
9	HILLPATH	CRES	Brampton	9 HILLPATH CRES	
25	WOODCREEK	DR	Brampton	25 WOODCREEK DR	
16	HUMBERSIDE	AVE	Brampton	16 HUMBERSIDE AVE	
49	SUMMER VALLEY	DR	Brampton	49 SUMMER VALLEY DR	
36	HUMBERSIDE	AVE	Brampton	36 HUMBERSIDE AVE	
75	COLLINGWOOD	AVE	Brampton	75 COLLINGWOOD AVE	
59	COLLINGWOOD	AVE	Brampton	59 COLLINGWOOD AVE	
44	HUMBERSIDE	AVE	Brampton	44 HUMBERSIDE AVE	
47	BAYBROOK	RD	Brampton	47 BAYBROOK RD	
17	HIGHWOOD	RD	Brampton	17 HIGHWOOD RD	
32	SUNDRIDGE	ST	Brampton	32 SUNDRIDGE ST	
4	LADYWOOD	CRT	Brampton	4 LADYWOOD CRT	
10	LADYWOOD	CRT	Brampton	10 LADYWOOD CRT	
13	LADYWOOD	CRT	Brampton	13 LADYWOOD CRT	
9	LADYWOOD	CRT	Brampton	9 LADYWOOD CRT	
30	HILLPATH	CRES	Brampton	30 HILLPATH CRES	
15	ROYAL VALLEY	DR	Caledon	15 ROYAL VALLEY DR	
4	HUMBERSIDE	AVE	Brampton	4 HUMBERSIDE AVE	
85	SUMMER VALLEY	DR	Brampton	85 SUMMER VALLEY DR	
53	BAYBROOK	RD	Brampton	53 BAYBROOK RD	
12	SUNDRIDGE	ST	Brampton	12 SUNDRIDGE ST	
8	SUNDRIDGE	ST	Brampton	8 SUNDRIDGE ST	
24	BALLYDUFF	PL	Brampton	24 BALLYDUFF PL	
22	SUNDRIDGE	ST	Brampton	22 SUNDRIDGE ST	
6	GARDENIA	WAY	Caledon	6 GARDENIA WAY	
5	LAKEFIELD	RD	Brampton	5 LAKEFIELD RD	
40	HILLPATH	CRES	Brampton	40 HILLPATH CRES	
33	HILLPATH	CRES	Brampton	33 HILLPATH CRES	
29	HILLPATH	CRES	Brampton	29 HILLPATH CRES	
19	HILLPATH	CRES	Brampton	19 HILLPATH CRES	
50	LAKEFIELD	RD	Brampton	50 LAKEFIELD RD	
81	SUMMER VALLEY	DR	Brampton	81 SUMMER VALLEY DR	
37	HILLPATH	CRES	Brampton	37 HILLPATH CRES	
13	LAKEFIELD	RD	Brampton	13 LAKEFIELD RD	
9	LAKEFIELD	RD	Brampton	9 LAKEFIELD RD	
35	SUNDRIDGE	ST	Brampton	35 SUNDRIDGE ST	
8	TREEVIEW	CRES	Caledon	8 TREEVIEW CRES	
22	TREEVIEW	CRES	Caledon	22 TREEVIEW CRES	
28	ROYAL VALLEY	DR	Caledon	28 ROYAL VALLEY DR	
43	SUNDRIDGE	ST	Brampton	43 SUNDRIDGE ST	
8	WOODCREEK	DR	Brampton	8 WOODCREEK DR	
11	OLDGATE	LANE	Brampton	11 OLDGATE LANE	
71	COLLINGWOOD	AVE	Brampton	71 COLLINGWOOD AVE	
8	HUMBERSIDE	AVE	Brampton	8 HUMBERSIDE AVE	
49	SUNDRIDGE	ST	Brampton	49 SUNDRIDGE ST	
39	SUNDRIDGE	ST	Brampton	39 SUNDRIDGE ST	
24	HUMBERSIDE	AVE	Brampton	24 HUMBERSIDE AVE	
1	FLEMINGTON	DR	Caledon	1 FLEMINGTON DR	
12136	HURONTARIO	ST	Brampton	12136 HURONTARIO ST	
12	HILLPATH	CRES	Brampton	12 HILLPATH CRES	
26	ASH	CRT	Brampton	26 ASH CRT	
32	ASH	CRT	Brampton	32 ASH CRT	
36	ASH	CRT	Brampton	36 ASH CRT	

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
17	HUMBERSIDE	AVE	Brampton	17 HUMBERSIDE AVE	
11	HUMBERSIDE	AVE	Brampton	11 HUMBERSIDE AVE	
7	HUMBERSIDE	AVE	Brampton	7 HUMBERSIDE AVE	
11	TREEVIEW	CRES	Caledon	11 TREEVIEW CRES	
7	TREEVIEW	CRES	Caledon	7 TREEVIEW CRES	
26	BUSHBERRY	RD	Brampton	26 BUSHBERRY RD	
14	LAKEFIELD	RD	Brampton	14 LAKEFIELD RD	
43	BAYBROOK	RD	Brampton	43 BAYBROOK RD	
22	HILLPATH	CRES	Brampton	22 HILLPATH CRES	
26	HILLPATH	CRES	Brampton	26 HILLPATH CRES	
10	LAKEFIELD	RD	Brampton	10 LAKEFIELD RD	
20	BALLYDUFF	PL	Brampton	20 BALLYDUFF PL	
47	SUNDRIDGE	ST	Brampton	47 SUNDRIDGE ST	
34	BUSHBERRY	RD	Brampton	34 BUSHBERRY RD	
32	TREEVIEW	CRES	Caledon	32 TREEVIEW CRES	
25	TREEVIEW	CRES	Caledon	25 TREEVIEW CRES	
21	TREEVIEW	CRES	Caledon	21 TREEVIEW CRES	
57	SUNDRIDGE	ST	Brampton	57 SUNDRIDGE ST	
14	ROYAL VALLEY	DR	Caledon	14 ROYAL VALLEY DR	
24	ROYAL VALLEY	DR	Caledon	24 ROYAL VALLEY DR	
32	ROYAL VALLEY	DR	Caledon	32 ROYAL VALLEY DR	
20	SUNDRIDGE	ST	Brampton	20 SUNDRIDGE ST	
36	ROYAL VALLEY	DR	Caledon	36 ROYAL VALLEY DR	
61	SUNDRIDGE	ST	Brampton	61 SUNDRIDGE ST	
87	TREEVIEW	CRES	Caledon	87 TREEVIEW CRES	
2	TREEVIEW	CRES	Caledon	2 TREEVIEW CRES	
89	TREEVIEW	CRES	Caledon	89 TREEVIEW CRES	
23	ROYAL VALLEY	DR	Caledon	23 ROYAL VALLEY DR	
3	TREEVIEW	CRES	Caledon	3 TREEVIEW CRES	
35	ROYAL VALLEY	DR	Caledon	35 ROYAL VALLEY DR	
22	ROYAL VALLEY	DR	Caledon	22 ROYAL VALLEY DR	
25	HILLPATH	CRES	Brampton	25 HILLPATH CRES	
21	HILLPATH	CRES	Brampton	21 HILLPATH CRES	
78	BAYBROOK	RD	Brampton	78 BAYBROOK RD	
86	BAYBROOK	RD	Brampton	86 BAYBROOK RD	
14	HILLPATH	CRES	Brampton	14 HILLPATH CRES	
17	SWEET BRIAR	LANE	Brampton	17 SWEET BRIAR LANE	
40	HUMBERSIDE	AVE	Brampton	40 HUMBERSIDE AVE	
55	SUMMER VALLEY	DR	Brampton	55 SUMMER VALLEY DR	
7	HILLPATH	CRES	Brampton	7 HILLPATH CRES	
90	BAYBROOK	RD	Brampton	90 BAYBROOK RD	
94	BAYBROOK	RD	Brampton	94 BAYBROOK RD	
96	BAYBROOK	RD	Brampton	96 BAYBROOK RD	
3	SWEET BRIAR	LANE	Brampton	3 SWEET BRIAR LANE	
6	HILLPATH	CRES	Brampton	6 HILLPATH CRES	
18	HILLPATH	CRES	Brampton	18 HILLPATH CRES	
100	BAYBROOK	RD	Brampton	100 BAYBROOK RD	
21	SWEET BRIAR	LANE	Brampton	21 SWEET BRIAR LANE	
22	BALLYDUFF	PL	Brampton	22 BALLYDUFF PL	
20	HILLPATH	CRES	Brampton	20 HILLPATH CRES	
1	HILLPATH	CRES	Brampton	1 HILLPATH CRES	
38	HUMBERSIDE	AVE	Brampton	38 HUMBERSIDE AVE	
97	SUMMER VALLEY	DR	Brampton	97 SUMMER VALLEY DR	
34	HUMBERSIDE	AVE	Brampton	34 HUMBERSIDE AVE	
26	HUMBERSIDE	AVE	Brampton	26 HUMBERSIDE AVE	
26	SUMMER VALLEY	DR	Brampton	26 SUMMER VALLEY DR	
102	VALLEYWOOD	BLVD	Caledon	102 VALLEYWOOD BLVD	
10	HILLPATH	CRES	Brampton	10 HILLPATH CRES	
5	HILLPATH	CRES	Brampton	5 HILLPATH CRES	
31	SWEET BRIAR	LANE	Brampton	31 SWEET BRIAR LANE	
72	BAYBROOK	RD	Brampton	72 BAYBROOK RD	
76	BAYBROOK	RD	Brampton	76 BAYBROOK RD	
30	HUMBERSIDE	AVE	Brampton	30 HUMBERSIDE AVE	
32	SWEET BRIAR	LANE	Brampton	32 SWEET BRIAR LANE	
28	TREEVIEW	CRES	Caledon	28 TREEVIEW CRES	
48	LAKEFIELD	RD	Brampton	48 LAKEFIELD RD	
91	SUMMER VALLEY	DR	Brampton	91 SUMMER VALLEY DR	
24	HILLPATH	CRES	Brampton	24 HILLPATH CRES	
42	HUMBERSIDE	AVE	Brampton	42 HUMBERSIDE AVE	
17	HILLPATH	CRES	Brampton	17 HILLPATH CRES	
8	LADYWOOD	CRT	Brampton	8 LADYWOOD CRT	
8	ROYAL VALLEY	DR	Caledon	8 ROYAL VALLEY DR	

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
3	OLDGATE	LANE	Brampton	3 OLDGATE LANE	
65	SUMMER VALLEY	DR	Brampton	65 SUMMER VALLEY DR	
59	SUMMER VALLEY	DR	Brampton	59 SUMMER VALLEY DR	
5	GARDENIA	WAY	Caledon	5 GARDENIA WAY	
20	HUMBERSIDE	AVE	Brampton	20 HUMBERSIDE AVE	
22	HUMBERSIDE	AVE	Brampton	22 HUMBERSIDE AVE	
75	SUMMER VALLEY	DR	Brampton	75 SUMMER VALLEY DR	
73	SUMMER VALLEY	DR	Brampton	73 SUMMER VALLEY DR	
12	ROYAL VALLEY	DR	Caledon	12 ROYAL VALLEY DR	
33	ROYAL VALLEY	DR	Caledon	33 ROYAL VALLEY DR	
17	LAKEFIELD	RD	Brampton	17 LAKEFIELD RD	
15	LAKEFIELD	RD	Brampton	15 LAKEFIELD RD	
11	LAKEFIELD	RD	Brampton	11 LAKEFIELD RD	
15	HIGHWOOD	RD	Brampton	15 HIGHWOOD RD	
22	LAWLOR	CRT	Brampton	22 LAWLOR CRT	
37	HUMBERSIDE	AVE	Brampton	37 HUMBERSIDE AVE	
69	COLLINGWOOD	AVE	Brampton	69 COLLINGWOOD AVE	
61	COLLINGWOOD	AVE	Brampton	61 COLLINGWOOD AVE	
30	SUNDRIDGE	ST	Brampton	30 SUNDRIDGE ST	
8	GARDENIA	WAY	Caledon	8 GARDENIA WAY	
6	SWEET BRIAR	LANE	Brampton	6 SWEET BRIAR LANE	
12	LADYWOOD	CRT	Brampton	12 LADYWOOD CRT	
11	LADYWOOD	CRT	Brampton	11 LADYWOOD CRT	
29	COLLINGWOOD	AVE	Brampton	29 COLLINGWOOD AVE	
24	LAWLOR	CRT	Brampton	24 LAWLOR CRT	
8	HIGHWOOD	RD	Brampton	8 HIGHWOOD RD	
34	ROYAL VALLEY	DR	Caledon	34 ROYAL VALLEY DR	
4	HIGHWOOD	RD	Brampton	4 HIGHWOOD RD	
10	SWEET BRIAR	LANE	Brampton	10 SWEET BRIAR LANE	
23	WOODCREEK	DR	Brampton	23 WOODCREEK DR	
51	BAYBROOK	RD	Brampton	51 BAYBROOK RD	
3	LADYWOOD	CRT	Brampton	3 LADYWOOD CRT	
18	BALLYDUFF	PL	Brampton	18 BALLYDUFF PL	
18	SUNDRIDGE	ST	Brampton	18 SUNDRIDGE ST	
24	TREEVIEW	CRES	Caledon	24 TREEVIEW CRES	
32	HILLPATH	CRES	Brampton	32 HILLPATH CRES	
46	LAWLOR	CRT	Brampton	46 LAWLOR CRT	
26	LAWLOR	CRT	Brampton	26 LAWLOR CRT	
30	TREEVIEW	CRES	Caledon	30 TREEVIEW CRES	
9	WOODCREEK	DR	Brampton	9 WOODCREEK DR	
19	TREEVIEW	CRES	Caledon	19 TREEVIEW CRES	
17	ROYAL VALLEY	DR	Caledon	17 ROYAL VALLEY DR	
42	LAWLOR	CRT	Brampton	42 LAWLOR CRT	
51	SUNDRIDGE	ST	Brampton	51 SUNDRIDGE ST	
44	LAWLOR	CRT	Brampton	44 LAWLOR CRT	
45	HUMBERSIDE	AVE	Brampton	45 HUMBERSIDE AVE	
25	ROYAL VALLEY	DR	Caledon	25 ROYAL VALLEY DR	
37	COLLINGWOOD	AVE	Brampton	37 COLLINGWOOD AVE	
52	LAWLOR	CRT	Brampton	52 LAWLOR CRT	
50	LAWLOR	CRT	Brampton	50 LAWLOR CRT	
66	BAYBROOK	RD	Brampton	66 BAYBROOK RD	
6	LAWLOR	CRT	Brampton	6 LAWLOR CRT	
4	LAWLOR	CRT	Brampton	4 LAWLOR CRT	
19	WOODCREEK	DR	Brampton	19 WOODCREEK DR	
56	BAYBROOK	RD	Brampton	56 BAYBROOK RD	
64	BAYBROOK	RD	Brampton	64 BAYBROOK RD	
18	HIGHWOOD	RD	Brampton	18 HIGHWOOD RD	
17	WOODCREEK	DR	Brampton	17 WOODCREEK DR	
13	WOODCREEK	DR	Brampton	13 WOODCREEK DR	
12084	HURONTARIO	ST	Brampton	12084 HURONTARIO ST	
59	SUNDRIDGE	ST	Brampton	59 SUNDRIDGE ST	
7	LADYWOOD	CRT	Brampton	7 LADYWOOD CRT	
73	BAYBROOK	RD	Brampton	73 BAYBROOK RD	
49	HUMBERSIDE	AVE	Brampton	49 HUMBERSIDE AVE	
45	COLLINGWOOD	AVE	Brampton	45 COLLINGWOOD AVE	
35	SWEET BRIAR	LANE	Brampton	35 SWEET BRIAR LANE	
21	ROYAL VALLEY	DR	Caledon	21 ROYAL VALLEY DR	
18	HUMBERSIDE	AVE	Brampton	18 HUMBERSIDE AVE	
39	SWEET BRIAR	LANE	Brampton	39 SWEET BRIAR LANE	
41	BAYBROOK	RD	Brampton	41 BAYBROOK RD	
37	BAYBROOK	RD	Brampton	37 BAYBROOK RD	
35	COLLINGWOOD	AVE	Brampton	35 COLLINGWOOD AVE	

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
33	COLLINGWOOD	AVE	Brampton	33 COLLINGWOOD AVE	
10	WOODCREEK	DR	Brampton	10 WOODCREEK DR	
88	SUMMER VALLEY	DR	Brampton	88 SUMMER VALLEY DR	
12	HIGHWOOD	RD	Brampton	12 HIGHWOOD RD	
15	HUMBERSIDE	AVE	Brampton	15 HUMBERSIDE AVE	
26	HIGHWOOD	RD	Brampton	26 HIGHWOOD RD	
21	HIGHWOOD	RD	Brampton	21 HIGHWOOD RD	
31	BAYBROOK	RD	Brampton	31 BAYBROOK RD	
12	LAKEFIELD	RD	Brampton	12 LAKEFIELD RD	
16	LAKEFIELD	RD	Brampton	16 LAKEFIELD RD	
10	LAWLOR	CRT	Brampton	10 LAWLOR CRT	
45	BAYBROOK	RD	Brampton	45 BAYBROOK RD	
25	COLLINGWOOD	AVE	Brampton	25 COLLINGWOOD AVE	
6	LAKEFIELD	RD	Brampton	6 LAKEFIELD RD	
28	BALLYDUFF	PL	Brampton	28 BALLYDUFF PL	
26	BALLYDUFF	PL	Brampton	26 BALLYDUFF PL	
48	HUMBERSIDE	AVE	Brampton	48 HUMBERSIDE AVE	
35	HILLPATH	CRES	Brampton	35 HILLPATH CRES	
11	COLLINGWOOD	AVE	Brampton	11 COLLINGWOOD AVE	
8	LAWLOR	CRT	Brampton	8 LAWLOR CRT	
63	BAYBROOK	RD	Brampton	63 BAYBROOK RD	
55	BAYBROOK	RD	Brampton	55 BAYBROOK RD	
32	BUSHBERRY	RD	Brampton	32 BUSHBERRY RD	
34	LAKEFIELD	RD	Brampton	34 LAKEFIELD RD	
38	LAKEFIELD	RD	Brampton	38 LAKEFIELD RD	
15	TREEVIEW	CRES	Caledon	15 TREEVIEW CRES	
36	BUSHBERRY	RD	Brampton	36 BUSHBERRY RD	
64	SUMMER VALLEY	DR	Brampton	64 SUMMER VALLEY DR	
31	SUNDRIDGE	ST	Brampton	31 SUNDRIDGE ST	
33	SUNDRIDGE	ST	Brampton	33 SUNDRIDGE ST	
37	SUNDRIDGE	ST	Brampton	37 SUNDRIDGE ST	
41	SUNDRIDGE	ST	Brampton	41 SUNDRIDGE ST	
45	SUNDRIDGE	ST	Brampton	45 SUNDRIDGE ST	
9	TREEVIEW	CRES	Caledon	9 TREEVIEW CRES	
69	BAYBROOK	RD	Brampton	69 BAYBROOK RD	
9	OLDGATE	LANE	Brampton	9 OLDGATE LANE	
14	SUNDRIDGE	ST	Brampton	14 SUNDRIDGE ST	
16	LAWLOR	CRT	Brampton	16 LAWLOR CRT	
16	ROYAL VALLEY	DR	Caledon	16 ROYAL VALLEY DR	
18	ROYAL VALLEY	DR	Caledon	18 ROYAL VALLEY DR	
26	ROYAL VALLEY	DR	Caledon	26 ROYAL VALLEY DR	
12148	HURONTARIO	ST	Brampton	12148 HURONTARIO ST	
40	ROYAL VALLEY	DR	Caledon	40 ROYAL VALLEY DR	
16	HIGHWOOD	RD	Brampton	16 HIGHWOOD RD	
14	SWEET BRIAR	LANE	Brampton	14 SWEET BRIAR LANE	
18	LAWLOR	CRT	Brampton	18 LAWLOR CRT	
14	LAWLOR	CRT	Brampton	14 LAWLOR CRT	
14	ASH	CRT	Brampton	14 ASH CRT	
25	SWEET BRIAR	LANE	Brampton	25 SWEET BRIAR LANE	
3	GARDENIA	WAY	Caledon	3 GARDENIA WAY	
20	SWEET BRIAR	LANE	Brampton	20 SWEET BRIAR LANE	
38	HILLPATH	CRES	Brampton	38 HILLPATH CRES	
7	LAKEFIELD	RD	Brampton	7 LAKEFIELD RD	
3	LAKEFIELD	RD	Brampton	3 LAKEFIELD RD	
8	LAKEFIELD	RD	Brampton	8 LAKEFIELD RD	
22	HIGHWOOD	RD	Brampton	22 HIGHWOOD RD	
28	HILLPATH	CRES	Brampton	28 HILLPATH CRES	
3	HIGHWOOD	RD	Brampton	3 HIGHWOOD RD	
1	HIGHWOOD	RD	Brampton	1 HIGHWOOD RD	
54	LAWLOR	CRT	Brampton	54 LAWLOR CRT	
31	WOODCREEK	DR	Brampton	31 WOODCREEK DR	
27	ROYAL VALLEY	DR	Caledon	27 ROYAL VALLEY DR	
22	SWEET BRIAR	LANE	Brampton	22 SWEET BRIAR LANE	
5	WOODCREEK	DR	Brampton	5 WOODCREEK DR	
22	LAKEFIELD	RD	Brampton	22 LAKEFIELD RD	
90	SUMMER VALLEY	DR	Brampton	90 SUMMER VALLEY DR	
1	TREEVIEW	CRES	Caledon	1 TREEVIEW CRES	
34	HILLPATH	CRES	Brampton	34 HILLPATH CRES	
74	SUMMER VALLEY	DR	Brampton	74 SUMMER VALLEY DR	
24	BUSHBERRY	RD	Brampton	24 BUSHBERRY RD	
6	HUMBERSIDE	AVE	Brampton	6 HUMBERSIDE AVE	
12091	HURONTARIO	ST	Brampton	12091 HURONTARIO ST	

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
27	HILLPATH	CRES	Brampton	27 HILLPATH CRES	
12	LAWLOR	CRT	Brampton	12 LAWLOR CRT	
35	BAYBROOK	RD	Brampton	35 BAYBROOK RD	
38	ROYAL VALLEY	DR	Caledon	38 ROYAL VALLEY DR	
57	COLLINGWOOD	AVE	Brampton	57 COLLINGWOOD AVE	
51	SUMMER VALLEY	DR	Brampton	51 SUMMER VALLEY DR	
30	SWEET BRIAR	LANE	Brampton	30 SWEET BRIAR LANE	
13	ROYAL VALLEY	DR	Caledon	13 ROYAL VALLEY DR	
26	LAKEFIELD	RD	Brampton	26 LAKEFIELD RD	
47	COLLINGWOOD	AVE	Brampton	47 COLLINGWOOD AVE	
10	HUMBERSIDE	AVE	Brampton	10 HUMBERSIDE AVE	
30	LAKEFIELD	RD	Brampton	30 LAKEFIELD RD	
27	SUMMER VALLEY	DR	Brampton	27 SUMMER VALLEY DR	
10	SUNDRIDGE	ST	Brampton	10 SUNDRIDGE ST	
9	HUMBERSIDE	AVE	Brampton	9 HUMBERSIDE AVE	
28	SUNDRIDGE	ST	Brampton	28 SUNDRIDGE ST	
41	SUMMER VALLEY	DR	Brampton	41 SUMMER VALLEY DR	
63	SUNDRIDGE	ST	Brampton	63 SUNDRIDGE ST	
20	TREEVIEW	CRES	Caledon	20 TREEVIEW CRES	
53	COLLINGWOOD	AVE	Brampton	53 COLLINGWOOD AVE	
5	TREEVIEW	CRES	Caledon	5 TREEVIEW CRES	
5	SWEET BRIAR	LANE	Brampton	5 SWEET BRIAR LANE	
5	HUMBERSIDE	AVE	Brampton	5 HUMBERSIDE AVE	
16	SWEET BRIAR	LANE	Brampton	16 SWEET BRIAR LANE	
13	HUMBERSIDE	AVE	Brampton	13 HUMBERSIDE AVE	
48	LAWLOR	CRT	Brampton	48 LAWLOR CRT	
20	ROYAL VALLEY	DR	Caledon	20 ROYAL VALLEY DR	
24	SUNDRIDGE	ST	Brampton	24 SUNDRIDGE ST	
23	HILLPATH	CRES	Brampton	23 HILLPATH CRES	
34	ASH	CRT	Brampton	34 ASH CRT	
12112	HURONTARIO	ST	Brampton	12112 HURONTARIO ST	
17	COLLINGWOOD	AVE	Brampton	17 COLLINGWOOD AVE	
15	COLLINGWOOD	AVE	Brampton	15 COLLINGWOOD AVE	
60	BAYBROOK	RD	Brampton	60 BAYBROOK RD	
62	BAYBROOK	RD	Brampton	62 BAYBROOK RD	
23	HIGHWOOD	RD	Brampton	23 HIGHWOOD RD	
13	TREEVIEW	CRES	Caledon	13 TREEVIEW CRES	
36	COLLINGWOOD	AVE	Brampton	36 COLLINGWOOD AVE	
28	COLLINGWOOD	AVE	Brampton	28 COLLINGWOOD AVE	
3	LIGHTHEART	DR	Caledon	3 LIGHTHEART DR	
87	SUMMER VALLEY	DR	Brampton	87 SUMMER VALLEY DR	
27	LIGHTHEART	DR	Caledon	27 LIGHTHEART DR	
29	LIGHTHEART	DR	Caledon	29 LIGHTHEART DR	
31	LIGHTHEART	DR	Caledon	31 LIGHTHEART DR	
23	COLLINGWOOD	AVE	Brampton	23 COLLINGWOOD AVE	
21	COLLINGWOOD	AVE	Brampton	21 COLLINGWOOD AVE	
19	COLLINGWOOD	AVE	Brampton	19 COLLINGWOOD AVE	
44	LAKEFIELD	RD	Brampton	44 LAKEFIELD RD	
20	LAKEFIELD	RD	Brampton	20 LAKEFIELD RD	
34	SUNDRIDGE	ST	Brampton	34 SUNDRIDGE ST	
33	LIGHTHEART	DR	Caledon	33 LIGHTHEART DR	
12	ASH	CRT	Brampton	12 ASH CRT	
49	BAYBROOK	RD	Brampton	49 BAYBROOK RD	
31	HILLPATH	CRES	Brampton	31 HILLPATH CRES	
18	ASH	CRT	Brampton	18 ASH CRT	
22	ASH	CRT	Brampton	22 ASH CRT	
24	ASH	CRT	Brampton	24 ASH CRT	
28	ASH	CRT	Brampton	28 ASH CRT	
2	SWEET BRIAR	LANE	Brampton	2 SWEET BRIAR LANE	
30	COLLINGWOOD	AVE	Brampton	30 COLLINGWOOD AVE	
32	COLLINGWOOD	AVE	Brampton	32 COLLINGWOOD AVE	
43	SUMMER VALLEY	DR	Brampton	43 SUMMER VALLEY DR	
63	COLLINGWOOD	AVE	Brampton	63 COLLINGWOOD AVE	
53	HUMBERSIDE	AVE	Brampton	53 HUMBERSIDE AVE	
2	ASH	CRT	Brampton	2 ASH CRT	
4	ASH	CRT	Brampton	4 ASH CRT	
4	TREEVIEW	CRES	Caledon	4 TREEVIEW CRES	
78	SUMMER VALLEY	DR	Brampton	78 SUMMER VALLEY DR	
80	SUMMER VALLEY	DR	Brampton	80 SUMMER VALLEY DR	
28	WOODCREEK	DR	Brampton	28 WOODCREEK DR	
32	WOODCREEK	DR	Brampton	32 WOODCREEK DR	
43	DONHERB	CRES	Caledon	43 DONHERB CRES	

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
41	DONHERB	CRES	Caledon	41 DONHERB CRES	
39	DONHERB	CRES	Caledon	39 DONHERB CRES	
7	GARDEN WOOD	AVE	Caledon	7 GARDEN WOOD AVE	
19	HIGHWOOD	RD	Brampton	19 HIGHWOOD RD	
70	COLLINGWOOD	AVE	Brampton	70 COLLINGWOOD AVE	
72	COLLINGWOOD	AVE	Brampton	72 COLLINGWOOD AVE	
6	TREEVIEW	CRES	Caledon	6 TREEVIEW CRES	
77	COLLINGWOOD	AVE	Brampton	77 COLLINGWOOD AVE	
27	COLLINGWOOD	AVE	Brampton	27 COLLINGWOOD AVE	
23	BAYBROOK	RD	Brampton	23 BAYBROOK RD	
7	OLDGATE	LANE	Brampton	7 OLDGATE LANE	
12211	HURONTARIO	ST	Caledon	12211 HURONTARIO ST	
38	COLLINGWOOD	AVE	Brampton	38 COLLINGWOOD AVE	
19	HUMBERSIDE	AVE	Brampton	19 HUMBERSIDE AVE	
27	BAYBROOK	RD	Brampton	27 BAYBROOK RD	
23	TREEVIEW	CRES	Caledon	23 TREEVIEW CRES	
4	WOODCREEK	DR	Brampton	4 WOODCREEK DR	
6	WOODCREEK	DR	Brampton	6 WOODCREEK DR	
12272	HURONTARIO	ST	Caledon	12272 HURONTARIO ST	
22	WOODCREEK	DR	Brampton	22 WOODCREEK DR	
12197	HURONTARIO	ST	Brampton	12197 HURONTARIO ST	
43	LIGHTHEART	DR	Caledon	43 LIGHTHEART DR	
76	COLLINGWOOD	AVE	Brampton	76 COLLINGWOOD AVE	
12290	HURONTARIO	ST	Caledon	12290 HURONTARIO ST	
34	WOODCREEK	DR	Brampton	34 WOODCREEK DR	
46	COLLINGWOOD	AVE	Brampton	46 COLLINGWOOD AVE	
42	DONHERB	CRES	Caledon	42 DONHERB CRES	
12	LIGHTHEART	DR	Caledon	12 LIGHTHEART DR	
1	LIGHTHEART	DR	Caledon	1 LIGHTHEART DR	
74	COLLINGWOOD	AVE	Brampton	74 COLLINGWOOD AVE	
14	LIGHTHEART	DR	Caledon	14 LIGHTHEART DR	
23	LIGHTHEART	DR	Caledon	23 LIGHTHEART DR	
18	WOODCREEK	DR	Brampton	18 WOODCREEK DR	
20	WOODCREEK	DR	Brampton	20 WOODCREEK DR	
58	COLLINGWOOD	AVE	Brampton	58 COLLINGWOOD AVE	
60	COLLINGWOOD	AVE	Brampton	60 COLLINGWOOD AVE	
12071	HURONTARIO	ST	Brampton	12071 HURONTARIO ST	
14	COLLINGWOOD	AVE	Brampton	14 COLLINGWOOD AVE	
45	DONHERB	CRES	Caledon	45 DONHERB CRES	
62	COLLINGWOOD	AVE	Brampton	62 COLLINGWOOD AVE	
42	COLLINGWOOD	AVE	Brampton	42 COLLINGWOOD AVE	
35	LIGHTHEART	DR	Caledon	35 LIGHTHEART DR	
20	COLLINGWOOD	AVE	Brampton	20 COLLINGWOOD AVE	
44	COLLINGWOOD	AVE	Brampton	44 COLLINGWOOD AVE	
52	LIGHTHEART	DR	Caledon	52 LIGHTHEART DR	
50	LIGHTHEART	DR	Caledon	50 LIGHTHEART DR	
48	LIGHTHEART	DR	Caledon	48 LIGHTHEART DR	
7	HIGHWOOD	RD	Brampton	7 HIGHWOOD RD	
12101	HURONTARIO	ST	Brampton	12101 HURONTARIO ST	
12061	HURONTARIO	ST	Brampton	12061 HURONTARIO ST	
42	LIGHTHEART	DR	Caledon	42 LIGHTHEART DR	
22	LIGHTHEART	DR	Caledon	22 LIGHTHEART DR	
17	LIGHTHEART	DR	Caledon	17 LIGHTHEART DR	
36	WOODCREEK	DR	Brampton	36 WOODCREEK DR	
35	DONHERB	CRES	Caledon	35 DONHERB CRES	
12405	HURONTARIO	ST	Caledon	12405 HURONTARIO ST	
37	DONHERB	CRES	Caledon	37 DONHERB CRES	
14	DONHERB	CRES	Caledon	14 DONHERB CRES	
16	DONHERB	CRES	Caledon	16 DONHERB CRES	
18	DONHERB	CRES	Caledon	18 DONHERB CRES	
20	DONHERB	CRES	Caledon	20 DONHERB CRES	
22	DONHERB	CRES	Caledon	22 DONHERB CRES	
24	COLLINGWOOD	AVE	Brampton	24 COLLINGWOOD AVE	
26	COLLINGWOOD	AVE	Brampton	26 COLLINGWOOD AVE	
12039	HURONTARIO	ST	Brampton	12039 HURONTARIO ST	
17	DONHERB	CRES	Caledon	17 DONHERB CRES	
19	LIGHTHEART	DR	Caledon	19 LIGHTHEART DR	
37	LIGHTHEART	DR	Caledon	37 LIGHTHEART DR	
12133	HURONTARIO	ST	Brampton	12133 HURONTARIO ST	
12113	HURONTARIO	ST	Brampton	12113 HURONTARIO ST	
40	LIGHTHEART	DR	Caledon	40 LIGHTHEART DR	
12233	HURONTARIO	ST	Caledon	12233 HURONTARIO ST	

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
12231	HURONTARIO	ST	Caledon	12231 HURONTARIO ST	
94	SUMMER VALLEY	DR	Caledon	94 SUMMER VALLEY DR	
22	COLLINGWOOD	AVE	Brampton	22 COLLINGWOOD AVE	
13	DONHERB	CRES	Caledon	13 DONHERB CRES	
12	DONHERB	CRES	Caledon	12 DONHERB CRES	
39	LIGHTHEART	DR	Caledon	39 LIGHTHEART DR	
12041	HURONTARIO	ST	Brampton	12041 HURONTARIO ST	
24	WOODCREEK	DR	Brampton	24 WOODCREEK DR	
26	WOODCREEK	DR	Brampton	26 WOODCREEK DR	
34	COLLINGWOOD	AVE	Brampton	34 COLLINGWOOD AVE	
26	DONHERB	CRES	Caledon	26 DONHERB CRES	
48	COLLINGWOOD	AVE	Brampton	48 COLLINGWOOD AVE	
33	DONHERB	CRES	Caledon	33 DONHERB CRES	
31	DONHERB	CRES	Caledon	31 DONHERB CRES	
29	DONHERB	CRES	Caledon	29 DONHERB CRES	
53	SUMMER VALLEY	DR	Brampton	53 SUMMER VALLEY DR	
18	COLLINGWOOD	AVE	Brampton	18 COLLINGWOOD AVE	
47	SUMMER VALLEY	DR	Brampton	47 SUMMER VALLEY DR	
30	WOODCREEK	DR	Brampton	30 WOODCREEK DR	
11	LIGHTHEART	DR	Caledon	11 LIGHTHEART DR	
13	LIGHTHEART	DR	Caledon	13 LIGHTHEART DR	
9	LIGHTHEART	DR	Caledon	9 LIGHTHEART DR	
64	COLLINGWOOD	AVE	Brampton	64 COLLINGWOOD AVE	
66	COLLINGWOOD	AVE	Brampton	66 COLLINGWOOD AVE	
15	DONHERB	CRES	Caledon	15 DONHERB CRES	
16	LIGHTHEART	DR	Caledon	16 LIGHTHEART DR	
9	GARDEN WOOD	AVE	Caledon	9 GARDEN WOOD AVE	
5	LIGHTHEART	DR	Caledon	5 LIGHTHEART DR	
2	DONHERB	CRES	Caledon	2 DONHERB CRES	
61	LIGHTHEART	DR	Caledon	61 LIGHTHEART DR	
59	LIGHTHEART	DR	Caledon	59 LIGHTHEART DR	
9	DONHERB	CRES	Caledon	9 DONHERB CRES	
5	DONHERB	CRES	Caledon	5 DONHERB CRES	
5	HIGHWOOD	RD	Brampton	5 HIGHWOOD RD	
45	LIGHTHEART	DR	Caledon	45 LIGHTHEART DR	
7	DONHERB	CRES	Caledon	7 DONHERB CRES	
24	DONHERB	CRES	Caledon	24 DONHERB CRES	
38	LIGHTHEART	DR	Caledon	38 LIGHTHEART DR	
79	SUMMER VALLEY	DR	Brampton	79 SUMMER VALLEY DR	
69	SUMMER VALLEY	DR	Brampton	69 SUMMER VALLEY DR	
63	LIGHTHEART	DR	Caledon	63 LIGHTHEART DR	
16	COLLINGWOOD	AVE	Brampton	16 COLLINGWOOD AVE	
19	DONHERB	CRES	Caledon	19 DONHERB CRES	
67	SUMMER VALLEY	DR	Brampton	67 SUMMER VALLEY DR	
61	SUMMER VALLEY	DR	Brampton	61 SUMMER VALLEY DR	
50	COLLINGWOOD	AVE	Brampton	50 COLLINGWOOD AVE	
52	COLLINGWOOD	AVE	Brampton	52 COLLINGWOOD AVE	
54	COLLINGWOOD	AVE	Brampton	54 COLLINGWOOD AVE	
55	LIGHTHEART	DR	Caledon	55 LIGHTHEART DR	
53	LIGHTHEART	DR	Caledon	53 LIGHTHEART DR	
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	112
28	DONHERB	CRES	Caledon	28 DONHERB CRES	
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	110
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	109
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	105
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	101
41	LIGHTHEART	DR	Caledon	41 LIGHTHEART DR	
68	COLLINGWOOD	AVE	Brampton	68 COLLINGWOOD AVE	
12	COLLINGWOOD	AVE	Brampton	12 COLLINGWOOD AVE	
40	DONHERB	CRES	Caledon	40 DONHERB CRES	
54	LIGHTHEART	DR	Caledon	54 LIGHTHEART DR	
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	111A
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	104
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	111
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	102
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	108
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	106
99	SUMMER VALLEY	DR	Caledon	99 SUMMER VALLEY DR	
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	103
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	107
38	DONHERB	CRES	Caledon	38 DONHERB CRES	

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
27	DONHERB	CRES	Caledon	27 DONHERB CRES	
36	LIGHTHEART	DR	Caledon	36 LIGHTHEART DR	
21	DONHERB	CRES	Caledon	21 DONHERB CRES	
28	LIGHTHEART	DR	Caledon	28 LIGHTHEART DR	
26	LIGHTHEART	DR	Caledon	26 LIGHTHEART DR	
3	DONHERB	CRES	Caledon	3 DONHERB CRES	
83	SUMMER VALLEY	DR	Brampton	83 SUMMER VALLEY DR	
46	LIGHTHEART	DR	Caledon	46 LIGHTHEART DR	
11	HILLPATH	CRES	Brampton	11 HILLPATH CRES	
10	ROYAL VALLEY	DR	Caledon	10 ROYAL VALLEY DR	
19	ROYAL VALLEY	DR	Caledon	19 ROYAL VALLEY DR	
27	SWEET BRIAR	LANE	Brampton	27 SWEET BRIAR LANE	
26	SUNDRIDGE	ST	Brampton	26 SUNDRIDGE ST	
26	TREEVIEW	CRES	Caledon	26 TREEVIEW CRES	
82	BAYBROOK	RD	Brampton	82 BAYBROOK RD	
6	LADYWOOD	CRT	Brampton	6 LADYWOOD CRT	
31	SUMMER VALLEY	DR	Brampton	31 SUMMER VALLEY DR	
4	GARDENIA	WAY	Caledon	4 GARDENIA WAY	
9	SWEET BRIAR	LANE	Brampton	9 SWEET BRIAR LANE	
16	WOODCREEK	DR	Brampton	16 WOODCREEK DR	
31	COLLINGWOOD	AVE	Brampton	31 COLLINGWOOD AVE	
39	HUMBERSIDE	AVE	Brampton	39 HUMBERSIDE AVE	
23	SWEET BRIAR	LANE	Brampton	23 SWEET BRIAR LANE	
12104	HURONTARIO	ST	Brampton	12104 HURONTARIO ST	
65	SUNDRIDGE	ST	Brampton	65 SUNDRIDGE ST	
30	ROYAL VALLEY	DR	Caledon	30 ROYAL VALLEY DR	
39	SUMMER VALLEY	DR	Brampton	39 SUMMER VALLEY DR	
5	LADYWOOD	CRT	Brampton	5 LADYWOOD CRT	
95	SUMMER VALLEY	DR	Brampton	95 SUMMER VALLEY DR	
4	LAKEFIELD	RD	Brampton	4 LAKEFIELD RD	
57	BAYBROOK	RD	Brampton	57 BAYBROOK RD	
14	HIGHWOOD	RD	Brampton	14 HIGHWOOD RD	
2	HIGHWOOD	RD	Brampton	2 HIGHWOOD RD	
51	HUMBERSIDE	AVE	Brampton	51 HUMBERSIDE AVE	
18	LIGHTHEART	DR	Caledon	18 LIGHTHEART DR	
57	LIGHTHEART	DR	Caledon	57 LIGHTHEART DR	
20	LIGHTHEART	DR	Caledon	20 LIGHTHEART DR	
44	LIGHTHEART	DR	Caledon	44 LIGHTHEART DR	
11	DONHERB	CRES	Caledon	11 DONHERB CRES	
23	DONHERB	CRES	Caledon	23 DONHERB CRES	
40	ASH	CRT	Brampton	40 ASH CRT	
15	LIGHTHEART	DR	Caledon	15 LIGHTHEART DR	
12135	HURONTARIO	ST	Brampton	12135 HURONTARIO ST	
2	SNELCREST	DR	Caledon	2 SNELCREST DR	
26	SWEET BRIAR	LANE	Brampton	26 SWEET BRIAR LANE	
50	HUMBERSIDE	AVE	Brampton	50 HUMBERSIDE AVE	
54	BAYBROOK	RD	Brampton	54 BAYBROOK RD	
21	SUMMER VALLEY	DR	Brampton	21 SUMMER VALLEY DR	
27	WOODCREEK	DR	Brampton	27 WOODCREEK DR	
28	BUSHBERRY	RD	Brampton	28 BUSHBERRY RD	
13	COLLINGWOOD	AVE	Brampton	13 COLLINGWOOD AVE	
58	BAYBROOK	RD	Brampton	58 BAYBROOK RD	
11	HIGHWOOD	RD	Brampton	11 HIGHWOOD RD	
59	BAYBROOK	RD	Brampton	59 BAYBROOK RD	
73	COLLINGWOOD	AVE	Brampton	73 COLLINGWOOD AVE	
37	SUMMER VALLEY	DR	Brampton	37 SUMMER VALLEY DR	
89	SUMMER VALLEY	DR	Brampton	89 SUMMER VALLEY DR	
93	SUMMER VALLEY	DR	Brampton	93 SUMMER VALLEY DR	
10	HIGHWOOD	RD	Brampton	10 HIGHWOOD RD	
13	SWEET BRIAR	LANE	Brampton	13 SWEET BRIAR LANE	
29	SWEET BRIAR	LANE	Brampton	29 SWEET BRIAR LANE	
14	WOODCREEK	DR	Brampton	14 WOODCREEK DR	
30	ASH	CRT	Brampton	30 ASH CRT	
8	ASH	CRT	Brampton	8 ASH CRT	
67	COLLINGWOOD	AVE	Brampton	67 COLLINGWOOD AVE	
56	COLLINGWOOD	AVE	Brampton	56 COLLINGWOOD AVE	
70	BAYBROOK	RD	Brampton	70 BAYBROOK RD	
68	BAYBROOK	RD	Brampton	68 BAYBROOK RD	
18	LAKEFIELD	RD	Brampton	18 LAKEFIELD RD	
40	LAKEFIELD	RD	Brampton	40 LAKEFIELD RD	
55	SUNDRIDGE	ST	Brampton	55 SUNDRIDGE ST	
20	LAWLOR	CRT	Brampton	20 LAWLOR CRT	

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
12190	HURONTARIO	ST	Brampton	12190 HURONTARIO ST	
12164	HURONTARIO	ST	Brampton	12164 HURONTARIO ST	
12068	HURONTARIO	ST	Brampton	12068 HURONTARIO ST	
17	TREEVIEW	CRES	Caledon	17 TREEVIEW CRES	
25	DONHERB	CRES	Caledon	25 DONHERB CRES	
24	LIGHTHEART	DR	Caledon	24 LIGHTHEART DR	
7	LIGHTHEART	DR	Caledon	7 LIGHTHEART DR	
21	LIGHTHEART	DR	Caledon	21 LIGHTHEART DR	
25	LIGHTHEART	DR	Caledon	25 LIGHTHEART DR	
27	TREEVIEW	CRES	Caledon	27 TREEVIEW CRES	
90	TREEVIEW	CRES	Caledon	90 TREEVIEW CRES	
31	ROYAL VALLEY	DR	Caledon	31 ROYAL VALLEY DR	
41	HUMBERSIDE	AVE	Brampton	41 HUMBERSIDE AVE	
37	BUSHBERRY	RD	Brampton	37 BUSHBERRY RD	
3210	MAYFIELD	RD	Brampton	3210 MAYFIELD RD	
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	113
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	114
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	115
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	116
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	118
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	121
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	124
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	126
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	132
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	201
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	202
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	203
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	204
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	205
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	206
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	207
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	208
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	209
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	210
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	211
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	212
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	311
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	213
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	214
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	215
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	216
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	217
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	218
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	219
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	220
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	221
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	222
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	223
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	224
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	225
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	226
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	227
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	228
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	229
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	230
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	301
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	302
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	303
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	304
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	305
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	306
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	307
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	308
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	309
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	310
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	312
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	313
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	314
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	315
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	316
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	317
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	318

STREET NUMBER	STREET NAME	STREET TYPE	MUNICIPALITY	ADDRESS	UNIT
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	319
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	320
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	321
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	322
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	323
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	324
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	401
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	402
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	403
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	404
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	405
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	406
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	407
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	408
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	409
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	410
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	411
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	412
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	413
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	414
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	415
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	416
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	417
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	418
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	419
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	420
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	421
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	422
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	423
12065	HURONTARIO	ST	Brampton	12065 HURONTARIO ST	424
12267	HURONTARIO	ST	Caledon	12267 HURONTARIO ST	
90	COLLINGWOOD	AVE	Brampton	90 COLLINGWOOD AVE	
65	BAYBROOK	RD	Brampton	65 BAYBROOK RD	
67	BAYBROOK	RD	Brampton	67 BAYBROOK RD	

ATTACHMENT 3 – Well Survey Letters

July 17, 2023

Dear Resident / Property Owner:

Notice of Private Water Well Survey
Argo Summer Valley Limited – Hydrogeological Assessment

EXP Services Inc. (EXP) is distributing this Private Water Well Survey as part of a baseline well survey investigation in support of project located at 12197 Hurontario Street, Brampton and 12211, 12213, and 12231 Hurontario Street, Caledon, Ontario (herein after referred to as the 'Site').

EXP would like to offer you the opportunity to participate in the water well survey by completing the attached well survey form. This water well survey is conducted to provide a baseline survey of private wells identified in a 500 m distance from the proposed development. This well survey is a requirement of the Hamilton Region to confirm status of all well uses in the area adjacent to the Site.

The purpose of the well survey is to document the current condition and use of your well(s) including information about your wells (e.g. type of well, location, age, depth, etc.), the quantity of water (water levels, usage) and quality of water (clarity, odour, treatment types, etc.).

THERE IS NO COST TO YOU FOR THIS WATER WELL SURVEY, AS THE REGION OF HAMILTON WILL BEAR THE COST.

If a well is located on your property and you wish to participate in this survey, you are kindly requested to complete the attached Water Well Survey Form to the best of your knowledge and email or mail the completed form to our Brampton office (address at bottom of letter) prior to August 30, 2023. We understand that you might have very limited or no information about your well(s), but any information will help in our study.

Please be advised that if no response is received from you prior to the date noted above, EXP will assume either you do not wish to participate in the well survey nor does any well exist in your property. Property owners or their representatives who participate in this study and authorize EXP to complete this survey will be contacted for additional information and to arrange a time for a site visit.

Should you have any questions or concerns about the well survey or construction project, please feel free to contact the undersigned via email to nicolas.sabo@exp.com.

Sincerely,

EXP Services Inc.

Nicolas Sabo, B.Sc., M.E.S.
Junior Project Manager
Environmental Services

Francois Chartier, M.Sc., P.Geo.
Discipline Manager
Environmental Services

Encl.:
1) Water Well Survey Form (see reverse side)

1595 Clark Boulevard | Brampton, ON, L6T 4V1 | Brampton
t: 905.793.9800 | f: 905.793.0641 | exp.com

WATER WELL SURVEY FORM

o

ADDRESS: _____ DATE:_____
(Lot, Con., Twp., Street & No., etc.) OWNER NAME:_____

TELEPHONE NO.(Cell).: _____(Home): _____ MOE WELL NO.:_____

EMAIL: _____ PROJECT NO.: GTR-00603959-F0

WELL INFORMATON

Is there a well on your property? Yes ☐ No ☐
Is the well in use? Yes ☐ No ☐
Installation: Drilled ☐ Dug or Bored ☐ Combination ☐
Date Completed:_____Depth:_____Casing:_____Diameter*:_____
Well Type: Overburden ☐ **OR** Bedrock ☐
Static Water Level: Original_____Present_____
Pumping Water Level: Original_____Present_____
Has well ever been dry? Yes ☐ No ☐
Has the well been completed by a previous owner? Yes ☐ No ☐

WATER QUALITY (if previously tested)

pH*: _____Temp.:_____Conductivity*:_____Chloride*:_____Iron*:_____Hardness*: _____Alkalinity*:_____
Bacterial*:_____Clear: Yes ☐ No ☐
Sand-free: Yes ☐ No ☐ Colour: Yes ☐ No ☐
Sulfurous: Yes ☐ No ☐ Odour: Yes ☐ No ☐

Any water treatment?_____
_____
*Provide laboratory results with chain of custody if available

SKETCH (location & construction - use back of page)

PUMP INFORMATION (if known)

Make:_____Age:_____HP:_____
Type: Jet ☐ Submersible ☐ Shallow Well ☐
Deep Well ☐ Other_____
Pump Capacity (GPM)*_____
* All dimensions: indicate estimated or measured

WATER CONSUMPTION (if known)

Domestic: No. of persons_____
Livestock: (specify)
_____
Other uses:
_____
Daily consumption (litres, gallons):
_____
Other sources:
_____

MONITORING PROGRAM

Do you grant exp Services permission to:
Collect a manual water level (dug wells only) ☐
Collect a water sample (tap only) ☐

Notes:
Water levels can only be measured if open/clear access to water in dug wells is available and pumps are turned off. Water levels from drilled wells may not be conducted, subject to well conditions.

OWNER'S ACKNOWLEDGEMENT:
I, _____, hereby authorize EXP Services Inc. to include my well(s) in the well monitoring program and permit such access or actions as reasonably necessary to conduct water level measurements and collect a water sample from the tap connected to the water well supply line.

Authorization signature _____ Date _____

Please sign and return this authorization form to the attention of Nicolas Sabo by email (nicolas.sabo@exp.com)

1595 Clark Boulevard, Brampton, ON L6T 4V1, Canada
T: +1.905.793.9800 • F: +1.905.793.0641• www.exp.com